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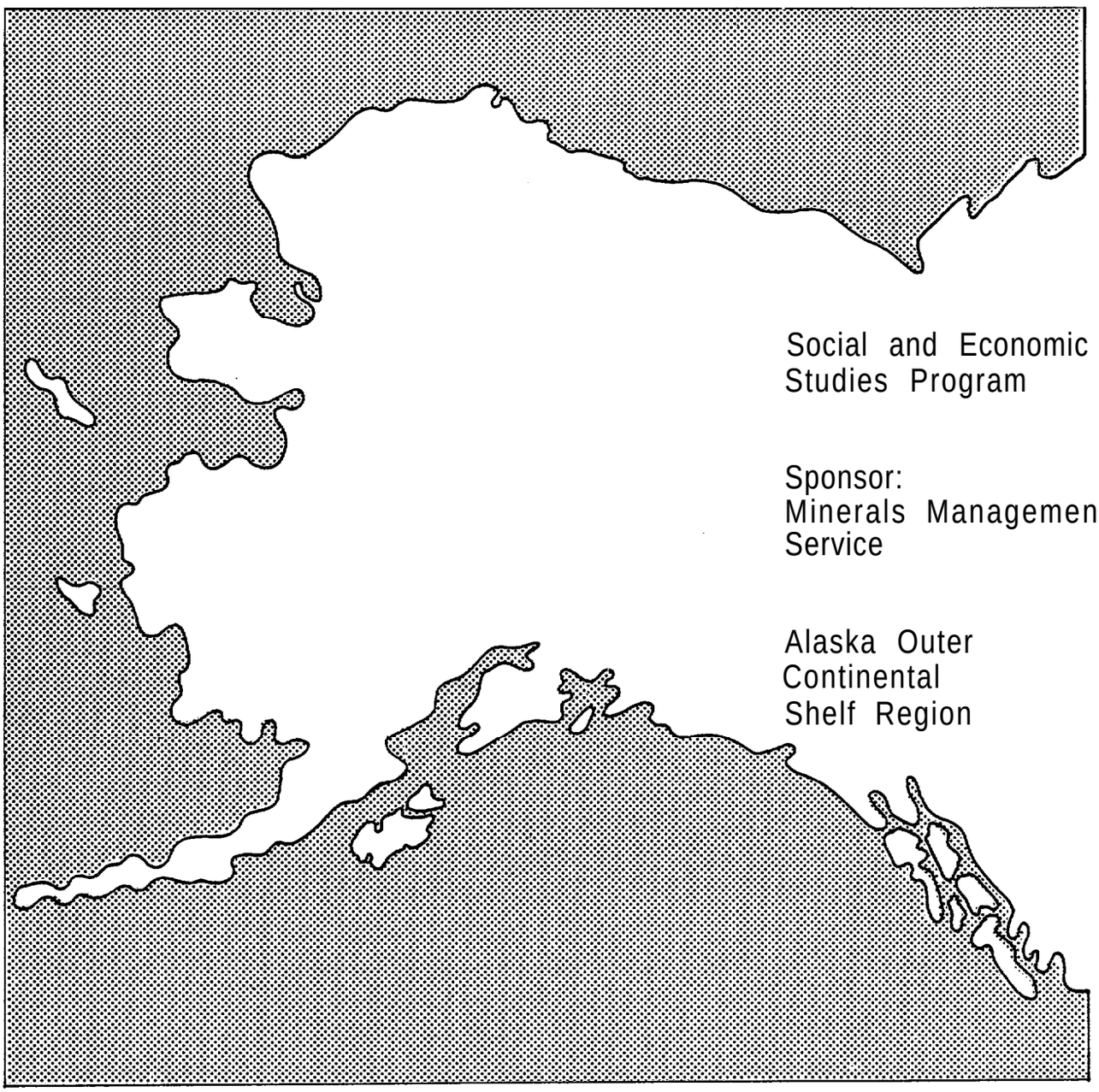

Social and Economic Studies Program

Sponsor: Minerals Management Service

Alaska Outer Continental Shelf Region

Effects of Renewable Resource Harvest Disruptions on Community Socioeconomic and Sociocultural Systems: King Cove

Final Technical Report

EFFECTS OF RENEWABLE RESOURCE HARVEST DISRUPTIONS ON COMMUNITY SOCIOECONOMIC AND SOCIOCULTURAL SYSTEMS: KING COVE

for

U.S. Department of the Interior
Minerals Management Service
Anchorage, Alaska

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NOTICE

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ABSTRACT

The goals of this research effort were twofold: first, to develop a thorough ethnographic baseline of the Alaska Peninsula community of King Cove; and second, to evaluate the impacts upon King Cove of two hypothetical harvest disruptions based on trends identified in the ethnographic baseline, analysis of past responses to harvest disruptions, and assumptions about future conditions and values upon which the disruption would be imposed.

This report consists of the study team's research findings following several months of fieldwork in King Cove and associated data analysis. The major conclusions are briefly summarized as follows:

- o King Cove is essentially a commercial fishing town. The majority of households depend on commercial fishing or cannery work for their income. The city government derives a significant portion of its revenues from taxes on the commercial fisheries and other fishing related sources. Without commercial fishing, King Cove's cash economy would be virtually non-existent. "

- o The commercial fishing industry in King Cove consists of a successful and interdependent fishing fleet and processing facility. King Cove fishermen skipper boats ranging from skiff size up to 58 foot limit seiners. Peter Pan Seafoods, Inc. owns the large, modern, and versatile processing facility located in the town. The contemporary fishing industry in King Cove is competitive and highly capitalized relative to other salmon fisheries in Alaska.

- o Salmon is the mainstay of the local commercial fisheries, with Tanner crab currently of secondary importance. Most King Cove fishermen received salmon permits under the limited entry program in 1975. Purse seining and drift gillnetting are the dominant gear types; few residents set gillnet. Salmon permits for this area have become among the most valuable in Alaska. Some fishermen have sold one permit (either their set or drift gillnet) to finance the gear for fishing another permit (e.g., purse seine permit). Among community members and relatives, a common permit transfer

pattern is for a father to transfer his drift permit to his son so that his son has access to the fisheries while he, the father, purse seines.

- Subsistence harvests by King Cove residents constitute approximately 60 percent of residents' total meat, fish, and fowl consumption and 25 percent of their total diet. Caribou and salmon constitute approximately 65 percent of the subsistence harvest, while other marine fish and waterfowl are the third and fourth most important species in terms of quantities harvested. Caribou, waterfowl, and salmon are the three most preferred resources among King Cove residents. Incidental harvests of marine species during the commercial salmon and crab seasons supplement subsistence harvest activities that are concentrated during the fall but also occur throughout the year. Commercial fishing boats are used for many of the subsistence outings conducted by King Cove residents.

- The study team identified five main values that are held in common by King Cove residents. These values express: the importance of commercial fishing as a livelihood; the importance of subsistence; the importance of the family; the importance of being progressive rather than regressive toward the goal of protecting and enhancing the local lifestyle; and the importance of local control over resources.

- Under one harvest disruption scenario, a one year closure of the South Unimak June salmon fishery, local fishermen could lose up to one-third of their gross earnings. The cannery's loss in revenues would result in an approximately 14 percent loss of city revenues. Additionally, local businesses would suffer from the depressed economy. This type of disruption would have multiple impacts upon those aspects of the community's social and political organization that are linked to the fisheries and to the income generated from them.

- Under a second harvest disruption scenario, resource harvests in an important harvest area would be curtailed indefinitely. This disruption, if geographically contained, would cause minor impacts upon the commercial fisheries with more major impacts upon residents' subsistence practices and the associated social and political aspects of these practices.

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KEY TO ACRONYMS

ADCRA	Alaska Department of Community and Regional Affairs
ADF&G	Alaska Department of Fish and Game
AECRSA	Aleutians East Coastal Resource Service Area
AEIDC	Arctic Environmental Information & Data Center
AHA	Aleutian Housing Authority
ANCSA	Alaska Native Claims Settlement Act
APA	Alaska Power Authority
A/PIA	Aleutian/Pribilof Islands Association
BIA	Bureau of Indian Affairs
CFAB	Commercial Fisheries and Agricultural Bank
CFEC	Commercial Fisheries Entry Commission
CHA	Community Health Aide
CHR	Community Health Representative
CRSA	Coastal Resource Service Area
EPA	Environmental Protection Agency
FHA	Federal Housing Authority
HUD	Housing and Urban Development
IPHC	International Pacific Halibut Commission
KCC	King Cove Corporation
MMs	Minerals Management Service
NMFS	National Marine Fisheries Service
Ocs	Outer Continental Shelf
OMB	Office of Management and Budget
PHS	Public Health Service
PMA	Peninsula Marketing Association
PPSF	Peter Pan Seafoods, Inc.
REAA	Regional Education Attendance Area
SRB&A	Stephen R. Braund & Associates
UMA	United Marketing Association
USDI	United States Department of the Interior
USFWS	United States Fish and Wildlife Service
VHF	Very High Frequency
VPSO	Village Public Safety Officer

L INTRODUCTION

PURPOSE OF THE REPORT

The Aleutians Harvest Disruption Effects Study is designed to continue the efforts of the Minerals Management Service (MMS) to elicit information concerning the socioeconomic and sociocultural consequences of renewable resource harvest disruptions. The study, conducted by Stephen R. Braund and Associates (SRB&A) in conjunction with LZH Associates, is part of the Social and Economic Studies Program directed by the MMS and relates to OCS activities scheduled for the Aleutian /Pribilof Islands region, particularly those developments associated with the St. George Basin.

Two main objectives define the scope of this study:

1. To collect and analyze ethnographic information on socioeconomic and sociocultural systems in a study community which is primarily dependent on the harvest of renewable resources.

2. To identify and assess, in an integrated manner, the economic, social, and cultural ramifications of possible renewable resource harvest disruptions (stemming from the effects of offshore structures, tanker movements, noise, human disturbance, potential oil spills, etc.) on residents of the potentially affected village.

The inclusion of the cash sectors of the local economy and an emphasis on quantitative resource data expanded the scope of the study and provided traceable information with which to assess future change.

COMMUNITY SELECTION

King Cove was selected as the study community because the prevailing socioeconomic and sociocultural conditions provide the best opportunity to meet project objectives. A number of specific community characteristics make King Cove ideally suited for this analysis.

First, King Cove's economic character is representative, in many respects, of fishing communities located in the Aleutian Islands and the Alaska Peninsula. Commercial and subsistence harvest activities rely on a rich and diverse resource base necessitating a variety of harvest techniques. In King Cove's economy, most cash income is derived from commercial fishing and fishery related business. King Cove's reliance on a healthy renewable resource base renders it vulnerable to potential harvest disruptions.

Second, King Cove's population size and community demographics were also important factors in selecting the study community. With approximately 500 residents, King Cove is large enough to exhibit variations in commercial and subsistence resource harvest strategies yet small enough that data can be collected at a useful level of detail. Approximately 80 percent of King Cove residents are Aleut (U.S. Department of Commerce, 1982). Therefore, King Cove provided the opportunity to study the social organization of a Native community that has successfully adapted to a capital intensive economy but has retained a level of subsistence harvest.

A final consideration in community selection for this study was the existence of past harvest disruptions that could be analyzed to provide insights into the effects of potential future disruptions. The history of King Cove has been largely determined by fluctuations in the harvest levels of certain commercially important fish and crab stocks. The rise and fall of the salt cod industry in the early 1900s, disastrously low salmon stocks during the late 1960s and mid 1970s, and the demise of the local king crab fishery in the late 1970s have had serious impacts on King Cove social and economic systems. These past disruptions provide invaluable data for analyzing the ways in which communities adapt under stress and, hence, help identify categories of sensitive elements within King Cove sociocultural and socioeconomic systems.

REPORT ORGANIZATION

This report is organized to present an ethnographic baseline on King Cove with particular emphasis on renewable resource harvests. Chapters I and II place the project in the context of OCS development and MMS objectives, and detail the methodology used to collect the data on which this report is based.

Chapters III through X provide a detailed discussion of socioeconomic and sociocultural characteristics of King Cove. These chapters include discussions on the geographic and demographic features of the study area (Chapter III), King Cove and Aleutian Island region history (Chapter IV), contemporary commercial economies (Chapters V and VI), subsistence resource use (Chapter VII), political organization (Chapter VIII), social organization (Chapter IX), and belief systems (Chapter X). This ethnographic baseline forms the foundation necessary for the analysis of potential harvest disruption effects (Chapter XI).

II. METHODOLOGY

Information for this ethnography of King Cove was derived from the literature, other secondary sources, and fieldwork conducted in King Cove during 1984 and 1985. A discussion of each of these data sources follows.

LITERATURE REVIEW

The first stage of data collection for this study involved a comprehensive review of historical literature on the Aleutian Islands region, the Aleut people, and King Cove. In addition, descriptions of contemporary King Cove, including sociocultural and socioeconomic systems, patterns of subsistence resource use, participation in commercial fisheries, beliefs and values, and social and political organization, were consulted. This literature defined the existing baseline of knowledge regarding the study area, its inhabitants and their way of life, as well as gaps in that body of knowledge.

Information on Aleut society prior to contact with Russian fur hunters was drawn primarily from Laughlin (1 980), Lantis (1970), and Jochelson (1968). Collins et al. (1945) and Hrdlicka (1945) were also reviewed. The era of Russian domination is well documented by Laughlin (1980) and Jones (1976). In addition, Bancroft (1886), Porter (1893), Petroff (1884), Smith (1980), and Fedorova (1973) provide information on social systems, religion, population, and other aspects of life in the Aleutians during the Russian era.

The history of the area following the United States' purchase of the Alaska Territory from Russia in 1867 is summarized by Jones (1976) and Laughlin (1980). In addition, studies by Resource Analysts et al. (1984a) and E.R. Combs, Inc. (1982) provide considerable background information on contemporary aspects of the study area. Commercial fishing history is documented in a variety of reports and publications including cannery reports (Pacific American Fisheries 1918), early fisheries documents (Cobb 1916, 1927), and agency reports (Alaska Department of Fish & Game [ADF&G] 1984a; Alaska Commercial Fisheries Entry Commission [CFEC] 1982, 1984) as well as the baseline reports already mentioned.

Contemporary information- on the commercial fisheries of the study area comes primarily from annual reports of fisheries management agencies, especially ADF&G and CFEC. These data sources are discussed in greater detail under Other Secondary Data Sources. Literature on other aspects of contemporary King Cove - and Aleut culture was reviewed and a complete listing is included in the bibliography. Specific studies that provided especially useful information on subsistence resource use included: Veltre and Veltre (1983), Resource Analysts et al. (1984a), Kish Tu (1981a and 1981 b), Aleutians East Coastal Resource Service Board (1983), Louis Berger and Associates (1983), E.R. Combs, Inc. (1982), Wolfe (1981), Wolfe et al. (1984), and other sources. Literature on Aleut social systems and culture included Jones (1976), E.R. Combs, Inc. (1982), and Impact Assessment, Inc. (1982), in addition to historical sources listed above.

These literature sources provided the foundation for discussions on the history of the study area and its residents. In addition, the literature review helped identify current areas of interest and concern to residents of King Cove and topics with little or no coverage in the literature. These data gaps and areas of local concern defined, in part, the topics to receive particular attention in the field data collection effort.

OTHER SECONDARY DATA SOURCES

Other secondary sources were used to support data collected in the field and to provide quantitative documentation for as many aspects of the study as possible. Secondary sources were especially useful for collection of statistics on commercial fisheries, local economics, social services, and capital project funding. These data sources are summarized in Table 2-1.

Key secondary data sources for the commercial fishing analysis included the CFEC, ADF&G, and Peter Pan Seafoods, Inc. (PPSF). Data were also obtained from the International Pacific Halibut Commission (IPHC), the Division of Business Loans of the Alaska Department of Commerce and Economic Development, and the Alaska Commercial Fisheries and Agriculture Bank (CFAB).

TABLE 2-1: KING COVE NON-RESIDENT INTERVIEWS BY DATA CATEGORY[2]

	INTERVIEWS	COMMERCIAL FISH.	SUBSISTENCE	POLITICAL ORG.	SOCIAL ORG.	BELIEF SYSTEMS	ECONOMY
Contacted Locally							
Alaska Department of Fish & Game	.	*	*				
	2	*					
	3	*					
	4	*			*		
Aleutian/Pribilof Islands	1	*					
	2	*			*	*	
	3	*			*	*	
City of King Cove	1				*	*	
	2			*	*	*	
	3			*	*	*	
Non-Resident Fishermen	1	*			*	*	
	2	*	*		*	*	
	3	*	*		*	*	
	4	*					
	5	*					
	6	*					
	7	*					
Peninsula Marketing Association				*			
Non-Resident Peter Pan Seafoods, Inc. Employees	1						
	2	*					
	3	*	*	*	*	*	*
	4	*					
	5	*			*		
Agencies & Organizations							
Alaska Commercial Fisheries & Agriculture Bank							*
Alaska Commercial Fisheries Entry	.	.					
	.	.					
Alaska Court System, Cold Bay	.				*		
Alaska Department of Administration	2						*
							*
Alaska Dept. of Commerce & Economic Dev.	1						*
Alaska Dept. of Community & Regional Affairs	2			*			*
							*
Alaska Department of Education	1				*		
Alaska Department of Fish & Game	2		*				
Alaska Dept. of Health & Social Services	1						
	2				*		*
	3				*		
Alaska Department of Labor	1				*		
	2				*		*
Alaska Department of Public Safety					*		*
Alaska Department of Revenue	1						*
	2						*
	3						*
	4						*
Alaska Office of Management & Budget							*
Alaska Postsecondary					*		
Alaska Power Authority	.						*
	.						*
Aleutian/Pribilof Islands Association				*	*		*
International Pacific Halibut Commission		.					
Peter Pan Seafoods, Inc., Seattle		.					
U.S. Dept. of Housing & Urban Development	1				*		*
	2						*
U.S. Division of Revenue Sharing							*
U.S. Public Health Service					*		*

1. "Interview" refers to informal, open-ended discussions between the study team and the individual contacted.

2. Summary statistics are listed in Table 2-3.

3. If data were acquired from more than one person in a group or the number of interviewed is indicated.

Stephen R. Braund & Associates, fieldwork for this study

Overview information on the commercial fisheries in the Alaska Peninsula Area was obtained from ADF&G. Aggregated data on the performance of the King Cove fishing fleet between 1976 and 1982, the last year for which complete data are available, were obtained directly from the CFEC's census files. Annual data on salmon catch and value by species and fishing district were obtained from the CFEC for 1980 and 1983. These two years were chosen for detailed analysis as representative (in terms of total pounds of salmon harvested) of an excellent season (1980) and a relatively poor season (1983).

Secondary data on local economics, transfer payments, social services, and externally-funded capital project expenditures were obtained from a variety of state and federal agency offices, located primarily in Anchorage. These agencies included:

State of Alaska:

- Department of Community and Regional Affairs
- Department of Education
- Department of Administration
- Legislative Information Office
- Alaska Power Authority
- Department of Labor
- Alaska Rural Development Administration
- Department of Commerce and Economic Development
- Alaska Grants to Municipalities
- Department of Health and Social Services, including the following programs:
  - Old Age Assistance
  - Aid to the Blind
  - Aid to the Permanently Disabled
  - Aid to Families with Dependent Children
  - Food Stamps
- Department of Public Safety

Federal Government:

- Department of Housing and Urban Development
  - Community Development Block Grant Program
- Army Corps of Engineers
- Public Health Service

FIELD DATA COLLECTION

Sampling Strategy

For this study, the household was the basic sampling unit. Limited by Office of Management and Budget (OMB) restrictions, field time, and budget, the study team could not canvass 100 percent of the households in the community. In order to ensure that a representative sample of the community was contacted, SRB&A stratified the community into identifiable sub-populations prior to the field component of the research. Because of the predominant importance of commercial fishing to the economy of King Cove, the initial sample stratification was based on commercial fishing strategies that were similar to the categories described by E.R. Combs, Inc. (1982). Attempts to implement this sampling strategy indicated that additional categories were needed to represent non-participants in the commercial fisheries. Initial sampling strata separated permit holding fishermen from non-permit holding fishermen and from households that did not participate in the commercial fisheries. This stratification yielded the following five sampling categories:

1) Drift Gillnetting
2) Drift Gillnetting and Seining
3) Drift Gillnetting, Seining, Crabbing and/or Halibut
4) Non-Permit Holding Participants
5) Non-Participants

After several weeks in the field, the study team realized that the 'non-participant' stratum was too broad a classification; it therefore was divided into three different groups:

5(a) Cannery Workers and Personnel
5(b) Key Informant Non-Participants (e.g., agency personnel, school administrators)
5(C) Former Participants (e.g., elderly members of the community)

These strata represent significant sectors of the community whose lack of participation in commercial fishing suggested the possibility that they might pursue unique subsistence strategies, have divergent socioeconomic or political orientations, or otherwise differ from families involved in commercial fishing.

As fieldwork progressed, the study team realized that the initial sampling strategy - even as modified to include households that did not participate in commercial fishing - was not sufficiently comprehensive. For example, many families owned multiple salmon fishing permits. Therefore, while the categories mentioned above formed the basis of the sampling strategy, the study team decided at an early date to interview as many different households as possible to accommodate the variety of fishing strategies evident in the community.

Because of the study team's extended presence in the community, a high proportion (59 percent) of the households in King Cove were contacted. The sample included the full range of existing fishing and income generating strategies. For example, during early field visits, informal interviews were conducted with 26 salmon permit holders, representing 39 percent of all King Cove permit holders. Of these 26 individuals, 10 were purse seiners, nine were drift gillnetters, four were combination purse seiners and drift gillnetters, one held all three types of salmon permits, one was a set netter, and, finally, one individual fished for crab but held no salmon permits.

In addition to achieving a high ratio of sampled households to total households, another sampling goal was to conduct sufficient discussions to adequately address the data categories necessary for a comprehensive ethnography and harvest disruption effects analysis. These categories included:

- o Economy
- o Commercial Fishing
- o Subsistence
- o Political Organization
- o Social Organization
- o Belief Systems

Each informal interview conducted in the field was tabulated according to the data categories discussed. Throughout the fieldwork, the subject matter list was reviewed periodically to determine which data categories were insufficiently covered. These subject areas were targeted in subsequent discussions to remedy imbalances in the data collection effort. A large sample of King Cove household discussions combined with data sufficiency reviews and

follow-up discussions insured that all segments of the population were represented and that all relevant data categories were sufficiently researched.

Tables 2-1 and 2-2 provide breakdowns of sampling results and the data categories discussed with King Cove residents and other knowledgeable individuals, such as agency representatives and non-local fishermen. Table 2-3 provides additional summary statistics on these discussions. Ninety-eight individuals from 76 (59 percent) of the 129 households in King Cove participated in focused, informal interviews concerning commercial fishing, subsistence, political organization, social organization, belief systems, or economics with members of the study team. Most key informants provided information on a variety of subject areas during one or more discussions, as indicated in Tables 2-1 and 2-2. Frequently, more than one individual in a given household was informally interviewed. In most instances, the focus of the conversation was different for each family member (e.g., one may be asked about commercial fishing, another about town politics). In cases where two or more individuals from a household were questioned about a given data category, their responses were tabulated as a single household response.

Three sample populations are segregated in Tables 2-1 through 2-3. These populations included King Cove residents (98 individuals), locally contacted nonresidents, including cannery officials and local agency representatives (23 individuals), and non-local informants, primarily affiliated. with various state agencies (33 individuals). In total, commercial fishing was a topic in 59 percent of all discussions; subsistence data were gathered in 38 percent of the discussions; data on political and social organization were collected in 20 percent and 49 percent of the discussions respectively; belief systems were discussed with 31 percent of all respondents; and local economic data were gathered in 34 percent of the discussions.

Field Data Collection Methods

The study team conducted fieldwork in King Cove in December, 1984 and in January, February, April, May, June, and August, 1985. Whenever possible, fieldwork was scheduled to coincide with periods of significant activity. Hence, the study team was able to collect firsthand data during commercial

TABLE 2-2: KING COVE RESIDENT INTERVIEWS BY DATA CATEGORY[2]

HOUSEHOLDS	INTERVIEWS[4]	Data Category[3]							HOUSEHOLDS	INTERVIEWS[4]	Data Category (cont.)					
		COMMERCIAL FISHING	SUBSISTENCE	POLITICAL ORGANIZATION	SOCIAL ORGANIZATION	BELIEF SYSTEMS	ECONOMY				COMMERCIAL FISHING	SUBSISTENCE	POLITICAL ORGANIZATION	SOCIAL ORGANIZATION	BELIEF SYSTEMS	ECONOMY
1	1	x	x	x	x	x	x		38	2		o		o		
	2	o	o		o	o			39	1	x				x	x
2		x	x			x				2		o		0	o	
3			x						40			0		o	o	
4			x						41		x					
5		x	x		x	x	,x		42		x	x	x	x	x	x
6		x	x			x			43		x	x	x			
7				o	o	o	o		44	1	x					
8			o		o					2		o		o	o	
9		x	x						45		x	x	x	x	x	x
10			x						46		x					
11		x	x		x				47		x	x				x
12		x							48		x					
13		x	x		x	x	x		49		x					
14		x	x	x	x		x		50			x				
15					o	o	0		61		x	x	x	x	x	
16	1	x							52		x	x		x	x	x
	2			o	o	o			53	1				o		
	3	x	x							2				o		
17		x				x			54		x					
18		x							55	1	x	x	x	x	x	x
19		x			x					2					o	
20		x					x		56				o			
21		x							57	1	x					
22		x	x	x	x		x			2	x	x		x	x	x
23	1	x	x						68		x	x		x		
	2	x							59		x	x		x	x	
24	1	x	x		x				60	1	x	x	x	x		x
	2				x	x				2			o	o		
25		x	x	x	x				61		x			x	x	
26	1		x						62					0	o	
	2	x							6S	1		o				
	3	x								2	x	x				x
27		x	x	x	x		x		64	1				x	x	
28		x	x	x	x	x	x			2				o		
29			x						65							o
30		o	o	o	o	o			66	1	x	x	x	x	x	x
31		x	x	x	x	x	x			2			o	o	o	
32	1	x	x	x					67		x	x	x	x	x	x
	2	x							68					o		
33		x	x	x	x	x			69		x					
34		x	x	x					70	1	x			x		
35		x	x	x	x	x	x			2				o	o	
36	1	x	x			x	x		71		x		x	x	x	x
	2	x							72		x					
	3				o	o			73		x					
37	1	x	x						74		x	x				
	2		o		o	o			76			o		o		
38	1	x							76					o		

1. "Interview" refers to informal, open-ended discussions between the study team and the individuals contacted

2. Summary statistics are listed in Table 2-3.

3. x denotes a male interviewed, o a female interviewed.

4. If data were acquired from more than one household member, the number of informal interviews per household is indicated.

Source: Stephen R. Braund & Associates, fieldwork for this study (1985).

TABLE 2-3: KING COVE INTERVIEW[1] SUMMARY STATISTICS

Resident Sample Coverage

	Population	Sample
Households	129	76 (59%) -
Residents	521	98 (19%)

Breakdown of Sample Populations

Type of Sample	Total Samples	Proportion of Samples
King Cove Resident	98	64%
Local Non-Resident	23	15%
Agency & Organization	33	21%
Total Discussions	154	100%

Summary of Data Topics by Sample Population

Data Category	Resident	Non-Resident	Agency	Total[3]
Commercial Fishing	66	17	8	91 (59%)
Subsistence	53	4	1	58 (38%)
Political Organization	26	4	2	32 (20%)
Social Organization	52	11	12	75 (49%)
Belief Systems	39	8	0	47 (31%)
Economy	26	6	21	53 (34%)

1. "Interview" refers to informal, open-ended discussions between the study team and the individual contacted.
2. Informal individual interviews by source and data category are listed in tables 2-1 and 2-2.
3. Percentage figure is the portion of all informal interviews (154) with a discussion of the data category.

Source: Stephen R. Braund & Associates (1985).

Tanner crab, halibut, and salmon fishing periods as well as times of social and religious significance, such as Russian Orthodox Christmas celebrations, the Fireman's Ball, city council meetings, and community sponsored basketball tournaments. In addition, some field visits were scheduled to take advantage of times of low activity. During these field trips, residents, such as commercial fishermen who were too busy for in-depth discussions during periods of peak fishing activity, could engage in thorough discussions at their leisure.

Primary data collection in King Cove relied on informal, focused (yet open-ended) discussions, participant observation, and use of key informants. Because the ethnography required data on all aspects of sociocultural and socioeconomic systems of King Cove, informal discussions were held with as wide a range of community members as possible. Key informant discussions, using standard protocols developed for each subject area (e. g., subsistence, commercial fishing, social organization), elicited information on particular aspects of the study area from individuals especially knowledgeable in a given subject. For example, hunters and fishermen identified as active subsistence harvesters were targeted for discussions on harvest and use of renewable resources for local use. Finally, participant observation techniques were used during meetings in the community, during social and recreational events, and in informal situations such as the harbormaster's office. These observations provided insight into local opinions and attitudes, topics of importance, and subtle aspects of political and social organization. The three field data collection techniques were used in combination with each other throughout the fieldwork. For example, contacts developed through participant observation often led to informal interviews with community residents. Through these discussions, areas in which the respondent was particularly knowledgeable emerged, leading to subsequent use of that individual as a key informant.

Limitations to the Fieldwork

Several limitations to field data collection emerged through the course of fieldwork in King Cove. In some cases, the limitations were the result of local residents' reluctance to disclose personal information for use in a public study, even though confidentiality was assured. In other cases, "

unforeseen subtleties in the community that could not be anticipated prior to fieldwork forced changes in collection, interpretation, and organization of field data.

King Cove is a private community and many residents harbored a reluctance to discuss personal or family matters with the study team. Some potentially sensitive information that was offered, such as data on divorce or family relations, was couched in normative terms rather than behavioral terms. That is, informants discussed what they perceived as happening in their community or how they felt about a given issue rather than providing information on actual behavior. This reluctance to discuss personal matters understandably included disclosure of family financial information such as income, debts, and investments among some respondents.

A final limitation of field data collection involved local perceptions of subsistence resource use and related expenses. This topic is discussed in detail under Subsistence Economics. Briefly, the linkages between subsistence and commercial resource harvests are complex because species used for each purpose are often identical and subsistence and commercial resources are often harvested simultaneously using the same harvest equipment. Thus, local residents had difficulty distinguishing between subsistence and commercial production activities, particularly in terms of harvest and equipment expenses.

III. STUDY AREA

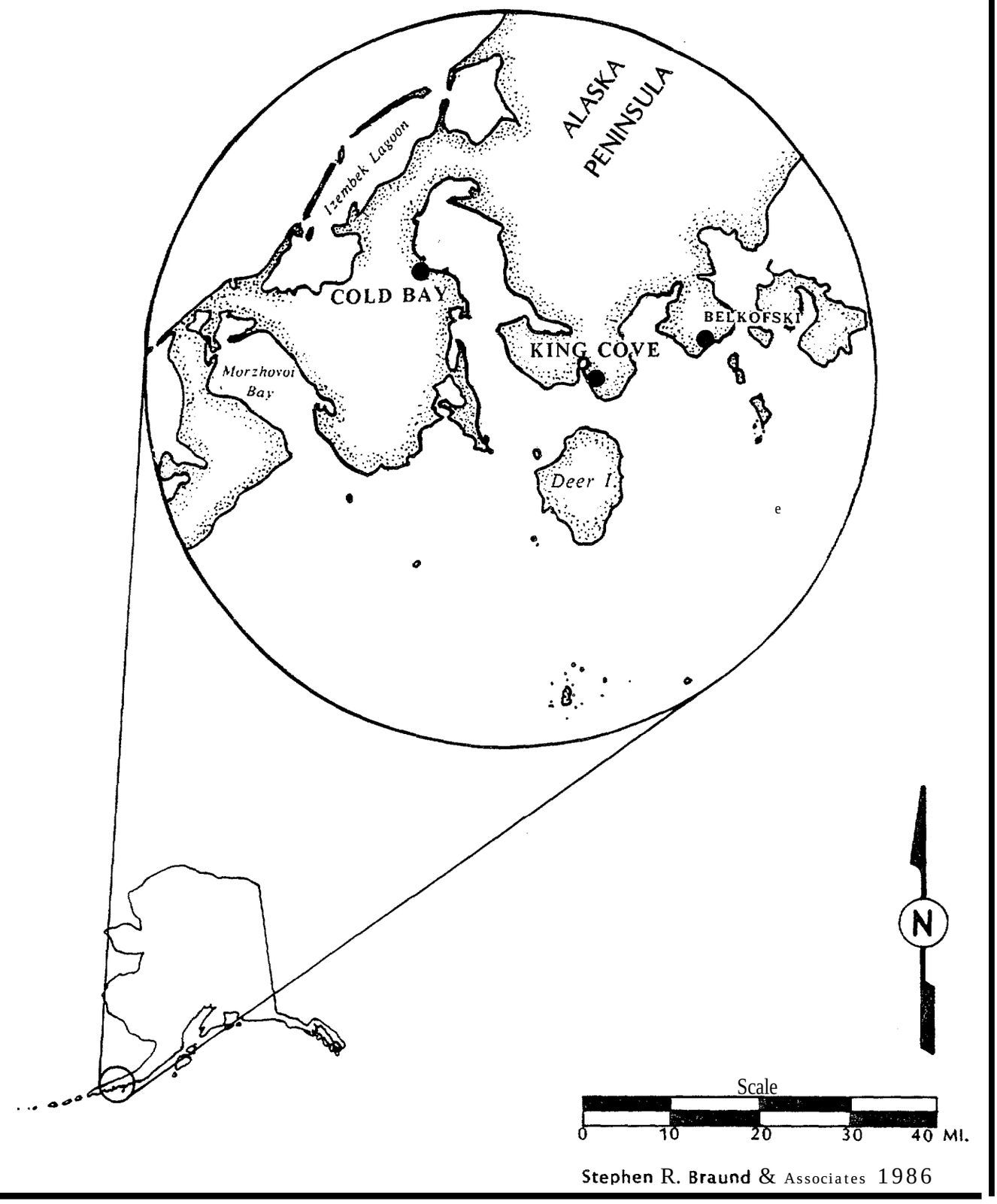
KING COVE PHYSICAL SETTING

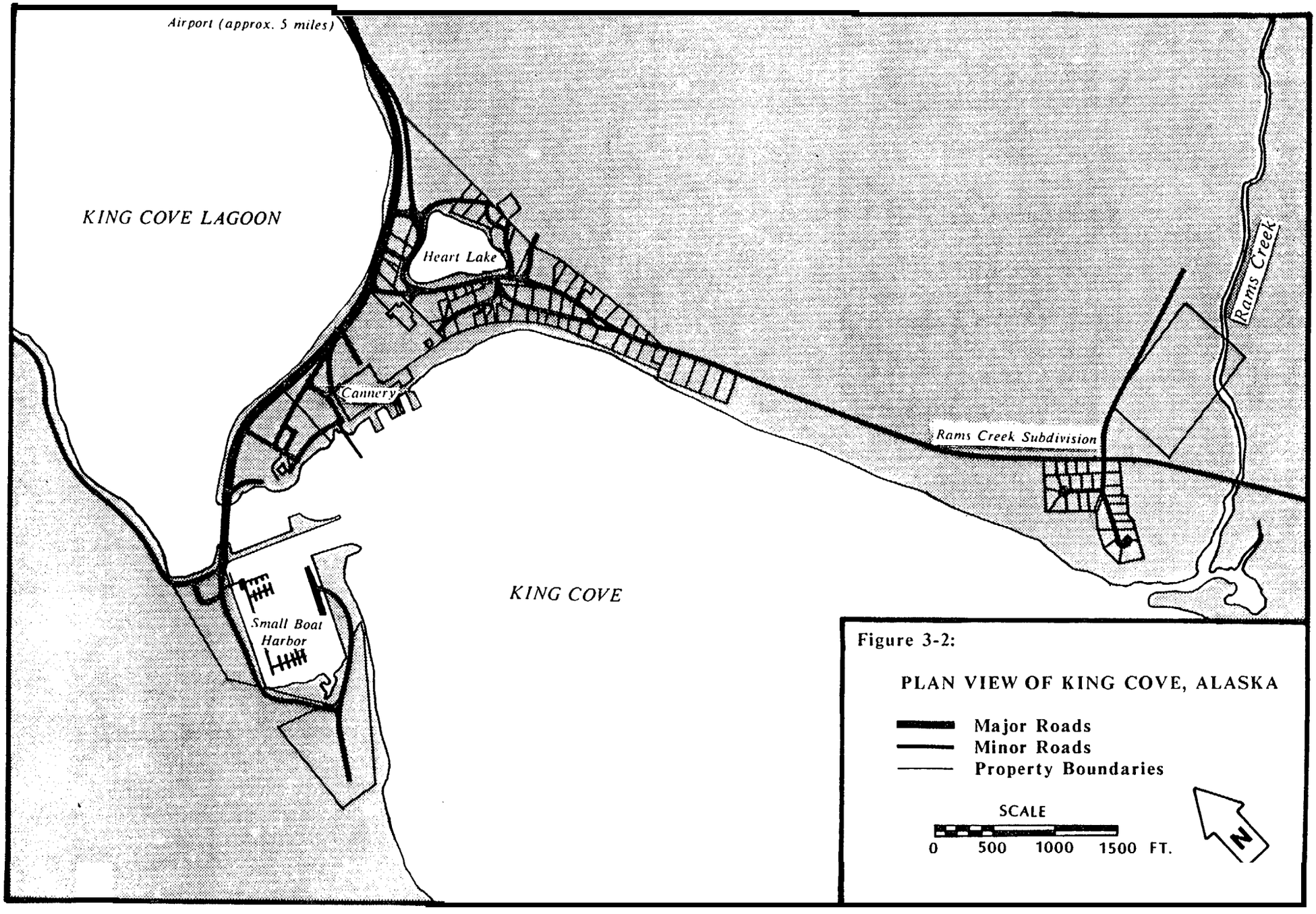
King Cove is located on the south side of the Alaska Peninsula, 625 miles southwest of Anchorage and 18 miles southeast of Cold Bay (Figure 3-1). The community is situated on a sand and gravel spit that separates a large estuarine lagoon from the coastal embayment also called King Cove (Figure 3-2). Deer Island, located five miles due south of King Cove, shelters the community from the ocean swells of the North Pacific. The city is flanked by 1,500 foot mountains and Isanotski Strait (commonly known as False Pass), where the Alaska Peninsula ends and the Aleutian Islands begin.

The Alaska Peninsula, the narrow arc of land that separates the North Pacific Ocean from Bristol Bay and the Bering Sea, is volcanic in origin (Figure 3-3). Continental drift is the main factor influencing the current geologic configuration of the region. The Pacific tectonic plate is being subducted under the North American plate, resulting in volcanic activity that formed the Aleutian Range and continues to shape the topography of the Alaska Peninsula and Aleutian Islands. The active Pavlof volcano complex lies only 40 miles northeast of King Cove. Volcanic activity has also affected the soils of the region, which are unsuitable for most agriculture.

In the vicinity of King Cove, the Alaska Peninsula varies in width from five to 30 miles because of numerous large bays, inlets, and lagoons. The southern coast of the peninsula is dominated by the volcanic Aleutian Mountains and numerous short, swift streams that flow into the Pacific Ocean. On the north side of this volcanic mountain range, foothills give way to a coastal plain marked by numerous lakes, streams, and meandering rivers. Near-shore currents have combined with fluvial deposits from these rivers to form barrier bars and islands which protect several large lagoons. For King Cove residents, the most important of the north shore lagoons is Izembek Lagoon. Cold Bay, Morzhovoi Bay, and Pavlof Bay form breaks in the coastal mountain chain providing King Cove residents boat access to the biologically rich coastal plains and lagoons north of the mountains. These bays also offer protected waters that can be

Figure 3–1: LOCATION OF STUDY AREA




Airport (approx. 5 miles)
KING COVE LAGOON
Heart Lake
Cannery
Rams Creek
Rams Creek Subdivision
KING COVE
Small Boat Harbor
Figure 3-2:
PLAN VIEW OF KING COVE, ALASKA
Major Roads
Minor Roads
Property Boundaries
SCALE
0 500 1000 1500 FT.
N

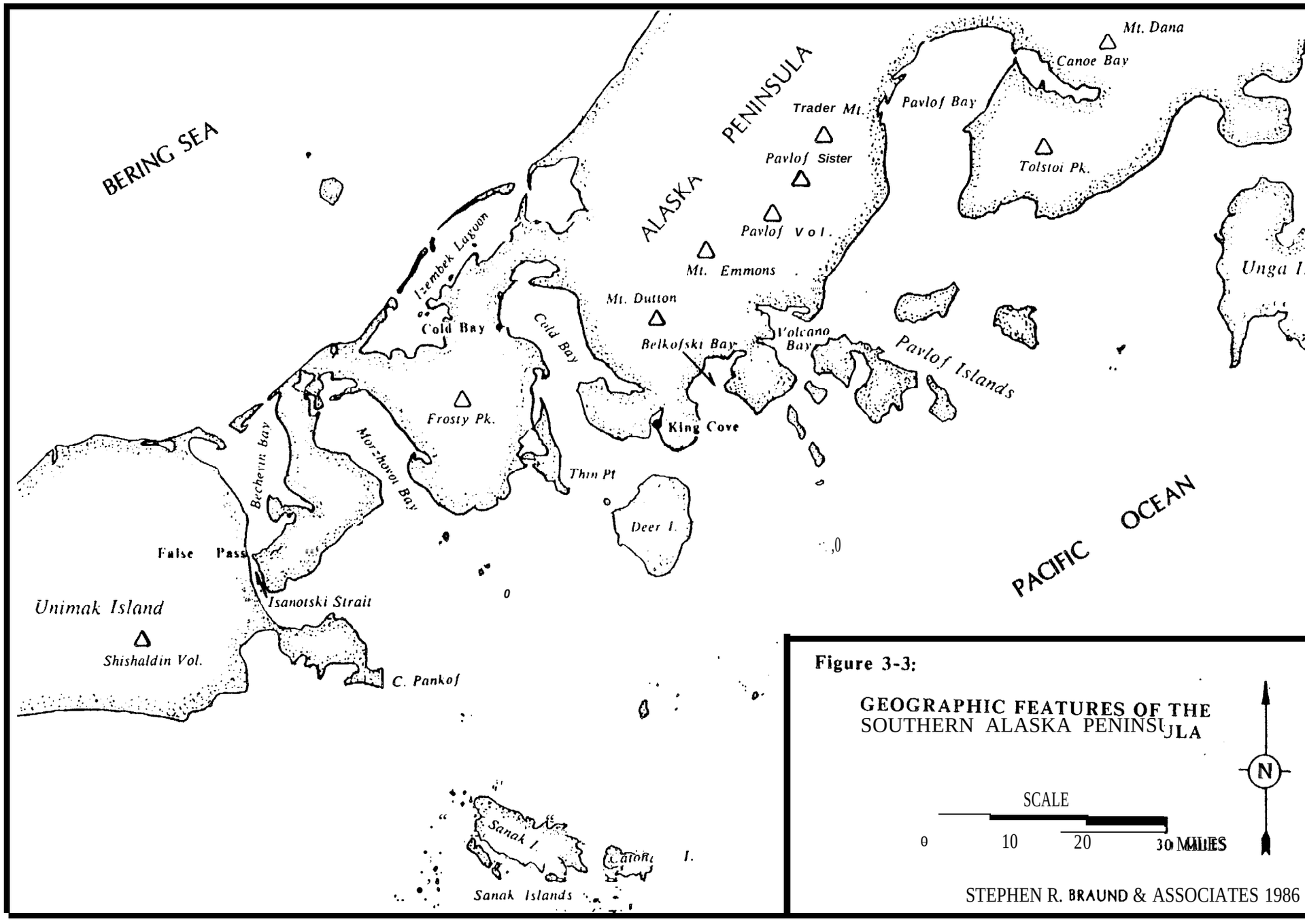


Figure 3-3:

GEOGRAPHIC FEATURES OF THE SOUTHERN ALASKA PENINSULA

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used when rough weather prohibits activity in more exposed areas. Strong winds can temporarily inhibit access by boat to resource harvest areas, especially in winter.

Located at 55 degrees north latitude (roughly the same latitude as Ketchikan, Alaska), King Cove has a maritime climate with relatively mild winters and cool summers. Warm coastal currents prevent the formation of a winter ice pack. Year-round ice free waters distinguish the communities of the Alaska Peninsula and Aleutian Islands from coastal communities farther north. Cold Bay (18 miles northwest of King Cove) receives only 33 inches of rain a year (Arctic Environmental Information and Data Center [AEIDC] 1978), but the area is often foggy or cloud covered. Winds follow west to east patterns and storms funnel through the narrow valley in which the community lies. The annual mean wind speed is 16 knots. The average annual snowfall is about four inches.

The vegetation surrounding King Cove is typical of the treeless southern Alaska Peninsula and the Aleutian Islands. Alpine tundra is the dominant plant community in the vicinity of King Cove. Abundant species include sedges, mosses, cottongrass, arctic willow, dwarf birch, cinquefoil, aster, lupine, and mountain aven. Coastal and riparian habitats also include beach rye grass, shrubs, beach arnica, and willows. Berry plants, including salmon berries, mossberries, cranberries, and wineberries, are abundant and used by King Cove residents.

Terrestrial wildlife includes brown bear, caribou, wolf, wolverine, and red fox. In addition, wild cattle inhabit nearby islands. A subherd of the Alaska Peninsula caribou herd resides year-round between Port Moller and Cold Bay, numbering 10,000 animals (U.S. Fish and Wildlife Service 1985). The numerous lakes, coastal lagoons, and islands support large populations of waterfowl and other birds. The north side of the Alaska Peninsula provides the richest waterfowl habitat in the region, whereas the majority of seabird colonies are found on the islands off the southern side of the Alaska Peninsula.

Nutrients upwelling from the intermixing of the Pacific Ocean and the Bering Sea result in a rich marine ecosystem with abundant populations of fish, shellfish, and marine mammals. Pink, sockeye, and chum salmon are the most abundant Pacific salmon species in the region, although substantial populations

of king and coho salmon are also present. Sockeye salmon spawn primarily in lakes on the north side of the Alaska Peninsula and pink salmon are concentrated along the southern shore where short streams provide spawning grounds. Large numbers of bottomfish and shellfish also inhabit the region and are an important component of both commercial and subsistence activities. Seal, sea lion, sea otter, whales, and porpoises frequent the region's bays and open water. Unimak Pass, approximately 110 air miles southwest of King Cove, is a major corridor for whales and other migrating marine mammals as well as anadromous fish and migrating waterfowl and shorebirds. False Pass, approximately 47 air miles from King Cove, is another important passageway for migratory species.

The rich marine environment and accessible coastal resources dominate much of the interaction between King Cove residents and their physical setting. The ice-free marine environment allows access to non-migratory marine resources throughout the year. Severe weather, common during winter months, temporarily limits access to harvest areas.

In summary, King Cove is situated in a rich ecological setting that supports permanent populations of marine, coastal, and terrestrial fish and wildlife. In addition, high concentrations of other fish, marine mammals, waterfowl, and shorebirds migrate through the region seasonally. Ice-free waters allow year-round access to harvest areas. These characteristics provide King Cove residents ample access to commercial and subsistence resources.

DEMOGRAPHY OF KING COVE

The community of King Cove initially appeared in the U.S. Census in 1940 with a population of 135 persons. It is unclear why the population of King Cove was not documented earlier, especially in light of the fact that nearby Belkofski, which had appeared in the U.S. Census for decades, was already losing part of its population to the growing community. The years following King Cove's founding in 1911 (see History) are characterized by an expanding but mostly seasonal population. The first permanent residents (other than full-time cannery employees) moved to the site no later than 1920 (Field interviews, 1985).

The 1984 population of King Cove was 521 people living in 129 households (Table 3-l). Population growth since the town's first appearance in the U.S. Census was steady with one exception. As shown in Table 3-2, the. community experienced a fairly constant level of population increase since the 1940 census until the declining salmon harvests of the 1960s, when some residents left the community in search of better economic opportunities. The population of King Cove increased 62.5 percent between 1970 and 1980, roughly double the statewide population growth rate of 33.8 percent. Again, this change in population coincided with a shift in the salmon commercial fishery as salmon populations rebounded in this period.

Table 3-2 also reveals the demographic relationship between King Cove and the nearby Aleut village of Belkofski. Founded in the early 1800s when Russian fur traders brought Aleuts to the site to exploit the rich sea otter banks of the area, Belkofski's population was declining by the time the King Cove cannery was built in 1911. In addition to being among the initial residents of King Cove, inhabitants of Belkofski also shaped the population structure of King Cove over the years through their continuous, gradual in-migration. Figure 3-4 illustrates the inverse relationship between King Cove and Belkofski population figures.

The population of King Cove varies seasonally with the influx of transient residents such as cannery workers. These seasonal fluctuations have created a disparity between the U.S. Census of the community in 1980 and the survey conducted by the City of King Cove in 1980. The 1980 U.S. Census listed 460 residents as the total community population, while the city listed 684 residents. The difference in the two numbers was the result of the city's inclusion of cannery workers and other transient residents who were present in the city in June, 1980, when the survey was conducted (Alaska Department of Community and Regional Affairs [ADCRA] 1981a). The U.S. census was conducted during February, 1980, and reflects the absence of many seasonal residents. The disparity between the City of King Cove and the U.S. Census Bureau data reflects a statewide debate over the accuracy of the 1980 census (Kruse and Travis 1981).

TABLE 3-1: KING COVE POPULATION, 1984

	Male	Female	Total
Permanent:	279	225	504
Cannery:	16	1	17
Total:	295	226	521

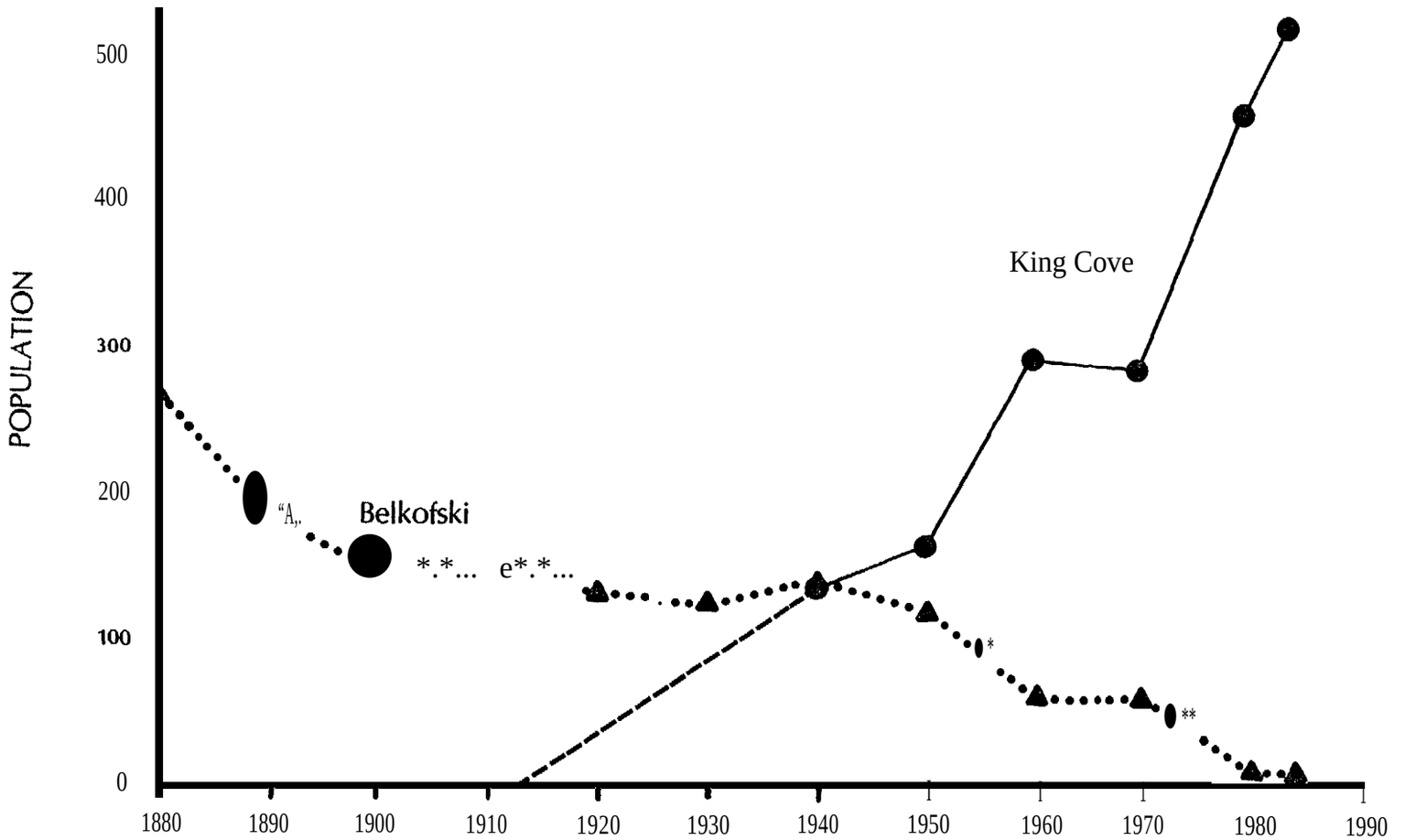
Source: City of King Cove (1981-1984).

TABLE 3-2: HISTORICAL POPULATION PATTERNS. KING COVE AND BELKOFSKI

Year	King Cove	Belkofski
1880	NA	268
1890	NA	185
1900	NA	163
1910	NA	NA
1920	NA	129
1930	NA	123
1940	135	140
1950	162	119
1960	290	57
1970	283	59
1980	460	10

Source: U.S. Department of Commerce (1982), 1980 Census of Population.

Figure 3-4: POPULATION OF KING COVE AND BELKOFSKI



Source: U.S. Department of Commerce (1982)
City of King Cove (1984)

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In 1980, the ethnic composition of King Cove was dominated by individuals of Aleut descent, who comprised 80 percent of the population (U.S. Department of Commerce 1982) (Table 3-3). The proportion of Native residents in King Cove declined by approximately 10 percent during the 1970s. According to field discussions, population growth since 1980 has been largely internal, that is, more the result of births than of in-migration. Thus, it is assumed the proportion of Natives in 1985 is approximately the same as in 1980. The Native population of the region descends from a rich ancestry of Aleut Natives, Russian fur traders, and northern European immigrants, resulting in a culture with considerable ethnic diversity. A large number of King Cove Aleuts adopted Russian or northern European surnames and in-migrants from nearby communities brought with them the genetic, linguistic, and cultural characteristics of their Russian or northern European ancestry. Jones (1976) stated that intermarriage between Aleuts and whites was fairly common during the early years of King Cove. The intermixture was further evidenced by the light complexion of many King Cove Aleuts.

Table 3-4 presents the 1980 age distribution in King Cove. The age structure of the community reflected the Alaskan characteristic of a young population relative to the nation. The 1980 median age in King Cove was 24.2 years, compared to 26.1 for the State of Alaska and 30.0 for the nation. Further evidence of King Cove's young age structure was indicated by the percentage of residents under 20 years of age: 41.5 percent, compared to 36.1 percent for Alaska and 32 percent for the nation.

The 1980 Census found that, of a population of 460 residents, 233 (50.7 percent) were male and 227 (49.3 percent) were female (U.S. Department of Commerce 1982). The even sex distribution was unique for the region, where a higher proportion of male residents was the norm (ADCRA 198 I a). SRB&A's analysis of the City of King Cove 1984 census enumerated 295 males (57 percent) and 226 females (43 percent). The difference from 1980 to 1984 may be the result of changes in the population structure or a consequence of the city survey being conducted during June, when the seasonal presence of male residents in the work force was high.

The average household size in King Cove in the summer of 1984 was 4.0 people (Table 3-5). In comparison, the 1980 U.S. Census listed 2.93 as the average

TABLE 3-3: ETHNIC COMPOSITION OF KING COVE

YEAR	Total Population	Native Residents	Percent Native
1970	283	252	89.0%
1980	460	367	79.8%

Sources: ADCRA (1974); U.S. Department of Commerce (1982).

TABLE 3-4: KING COVE PERSONS BY AGE AND SEX, 1980

Age	Male	Female	Total
O to 4 years	24	33	57
5 to 9 years	23	20	43
10 to 14 years	17	23	40
15 to 19 years	29	21	50
20 to 24 years	21	26	47
25 to 29 years	21	26	47
30 to 34 years	31	18	49
35 to 44 years[1]	25	19	44
45 to 54 years[1]	29	26	55
55 to 59 years	6	4	10
60 to 64 years	3	2	5
65 to 74 years[1]	4	6	10
75 to 84 years[1]	0	3	3
85 years and over	0	0	0
Total	233	227	460

1. Data only available in 10 year increments.

Source: U.S. Department of Commerce (1982).

TABLE 3-5: KING COVE HOUSEHOLD DATA

Year	Population	Households	People Per Household
1984	521	129	4.0
1983	536	127	4.2
1982	523	126	4.2
1981	485	119	4.1
1980	460	99	4.7

Sources: City of King Cove (1981-1984); E.R. Combs, Inc. (1982).

household size in the state. King Cove households tend to be larger in the summer than the winter due to relatives arriving to commercial fish. Thus, average household size may drop during other times of the year, such as late fall. Trends in household composition are discussed more fully in Residence Patterns.

Since 1980, population increases have been mostly internal, with approximately 15 births per year (Table 3-6). Consistent with the census data, most residents attributed recent city population growth to additional births. Population changes due to in-migration or outmigration are largely dependent on employment opportunities in the community.

The City of King Cove 1981 Comprehensive Plan (ADCRA 1981a) listed two possible scenarios for increased growth (Table 3-7). Column 1 is based on growth during the 1970s. In this scenario, growth will be mostly internal at an annual rate of 1.72 percent, with little industrial or commercial development to attract new in-migrants; by the year 2000, the King Cove population is expected to reach 965.

Column two assumes significant development including an additional fish processing facility, with accelerated population growth. The comprehensive plan stated that the population could exceed 1,000 by 1995 and reach 1,081 by the turn of the century because of "buildable lands potential, renewable natural resources in the area, improved regional transportation and local, state, and federal funding policies to increase the economic viability in this region" (ADCRA 198 la).

TABLE 3-6: KING COVE BIRTHS, 1980-1984

Year	Population	Births	Birthrate per 1,000
1980	460	17	37
1981	485	17	35
1982	523	15	29
1983	536	13	24
1984	521	15	29

Source: SRB&A, 1985, based on data f rem:
U.S. Department of Commerce (1982).
City of King Cove (1981-1984).
Alaska Department of Health and Social Services, personal communication, 1985.

TABLE 3-7: KING COVE PROJECTED POPULATION GROWTH, 1980-2000

Year	Scenario 1 (Consistent Growth)	Scenario 2 (Expanded Growth)
1980	684.0	684.0
1985	745.5	809.5
1990	812.5	976.0
1995	885.6	1,028.5
2000	965.3	1,081.0

Source: Alaska Department of Community and Regional Affairs (198 1a), City of King Cove Community Comprehensive Plan.

IV. HISTORY

An underlying theme throughout human history in the Aleutian Islands region has been the exploitation of the region's rich marine resources. Shifting patterns of marine resource use have paralleled historical developments. This chapter provides an overview of the general history of the Aleutian Islands-lower Alaska Peninsula region and a more detailed discussion of King Cove's history. Figure 4-1 shows. significant historical events and milestones that have influenced the development of both King Cove and the Aleutian Islands region. Events and milestones referred to on Figure 4-1 are discussed in greater detail throughout the remainder of this chapter.

PRE-CONTACT ALEUT MARINE ORIENTATION

Prior to European contact, the original inhabitants of the Aleutian Islands and lower Alaska Peninsula adapted to the demanding environment by successfully exploiting the diverse and abundant marine resources of the region. The Pacific Ocean and the Bering Sea are separated by the Aleutian Islands and the Alaska Peninsula. The intermixture of these two bodies of water results in an upwelling of nutrients that supports one of the highest concentrations of marine life in the world. A review of the limited data available on pre-contact Aleut subsistence suggests a highly skilled society that developed multiple harvest techniques for optimum use of the diverse resource base.

Subsistence activities influenced settlement patterns and coastal areas were the obvious choice for village sites because of their proximity to marine resources. Laughlin (1980) produced the following list of desirable physical settings that would enhance subsistence activities:

- Complex coasts for protection and fishing during storms;
- Offshore islands for potential seal and sea-lion rookeries;
- Reef systems for sea urchins, octopus, seaweed;
- Tidal pools/lagoons for shellfish and ducks;
- Island passes to channel marine mammals;
- Lakes and streams for water, salmon;
- Beaches for easy boat landings;
- Deep water for halibut;
- Cliffs for sea birds.

FIGURE 4-1: HISTORICAL MILESTONES

	ALEUTIANS
1741	Vitus Bering sights Aleutians
1750s	Russian fur traders extend operations from Siberia
1825	Peak of Russian control in Aleutians
1867	Russia sells Alaska for $7.2 million
1867	First shore cod processing station, Popof Island
1906	Commercial salmon fishing begins
1920	Cod catches begin to taper off
1920s-30s	Fox farming flourishes
1929	First seining at South Unimak
1941	U.S. enters World War II
1942	Evacuation of western Aleutians
1947	Commercial King Crab fishery begins
1959	Alaska statehood
1959	Fishtraps outlawed
1970-72	Qualifying years for limited entry permit
1971	ANCSA
1975	Limited entry eystem for salmon
1976	Magnuson Act creates 200 mile limit
1982	King Crab fishery ends

	KING COVE
1810	Belkofski established
1911	King Cove founded
1920s	Families begin settling in King Cove
1929	BIA school, King Cove
1940	King Cove population exceeds Belkofski
1943	Military camp at Rams Creek
1949	King Cove incorporates as 2nd class city
1958	Cannery diversifies to crab processing
1971	King Cove Corporation established
1974	King Cove incorporates as 1st class city
1974	Harbor completed
1976	Belkofski school closes
1976	Cannery fire
1981	Rams Creek subdivision
1985	Deer Island subdivision

Source: Stephen R.. Braund & Associates (1986).

The interiors of the islands were rarely visited (Laughlin 1980); the treeless, windswept land was biologically less productive than the surrounding marine ecosystem; The sea offered more resource producing habitat that was easily accessed by boat, in contrast to the resource-poor land surface. Aleuts on or near the Alaska Peninsula hunted caribou; however, even this activity could be done near the coast, where the sea offered the hunters greater mobility.

Aleuts relied on a diverse resource base, as evidenced by the large list of variables influencing settlement patterns. Table 4-1 lists the approximate breakdown of the pre-contact Aleut diet and demonstrates a balanced use of the available resources. Aleuts not only took advantage of the biological diversity by harvesting numerous species, but developed a multiplicity of use for each resource. For example, Table 4-2 reveals the many uses of the sea lion. Despite the efficient use of diverse subsistence resources, Aleut populations endured seasonal food shortages. Nonetheless, starvation alone never destroyed an entire pre-contact Aleut village (Laughlin 1980).

Aleuts hunted sea lions and seals which, in addition to meat, supplied blubber, oil, and a variety of raw materials for tools and other goods. Perhaps the most important use of the sea lion was the use of the skin for baidarkas (kayaks).

Sea otter, which was to play a major role during future Russian occupation, was not harvested often because of the belief that it was of human origin. A wide variety of fish were used, with the most important being salmon, halibut, and cod (Jochelson 1968). In addition, several species of whales and dolphins were harvested. Of these, the humpback whale was the most important.

Aleuts availed themselves of the abundant avifaunal resources in the region. A partial list of the birds and ducks harvested includes ptarmigan, puffin, albatross, black cormorant, sparrow, finch, swallow, snipe, eider, merganser, teal, and emperor goose. In addition to supplying meat and eggs, birds provided valuable materials to the Aleuts: puffins were skinned and used to make parkas; wing bones of albatross were used as needles for sewing; and a piece of black cormorant quill was attached to a fishing hook in the belief that it attracted fish.

TABLE 4-1: PRE-CONTACT ALEUT DIET

Type of Food	Percentage of Total Diet
Marine Mammals	30
Fishes	30
Birds and Eggs	20
Invertebrates	15
Plants	Less than 5
Total	100

Source: Laughlin (1980)

TABLE 4-2: MULTIPLE USE OF NORTHERN OR STELLER SEA LION

Part of Animal	partial List of Uses
1. Hide	Cover for kayak and umiak; line for harpoon
2. Flesh	Food for humans
3. Blubber	Food: eaten with meat, rendered for oil
4. Organs	Food
5. Bones	Tools, clubs; baculum for flaker
6. Teeth	Decorative pendants; fishhooks
7. Whiskers	Decoration of wood hunting hats and visors
8. Sinew	Back sinews used for sewing, lashing, cordage (used less than sinew of whale or caribou)
9. Flippers	Soles used for boot soles; contents gelatinized in flipper and eaten
10. Pericardium	Water bottle, general purpose container
11. Esophagus	Parka, pants, leggings of boots, pouches
12. Stomach	Storage container
13. Intestines	Parka, pants, pouches

Source: Laughlin (1980)

Grasses and edible plants were harvested for basketry and to supplement the diet. Wild barley and wild pea were the most popular grasses for weaving. Berries supplemented the seafood diet and offered women and children additional opportunities to contribute to the village food supply. Various roots were also collected on daily outings.

Sea urchins, shellfish, octopus, and other mollusks that were exposed at low tide also contributed to the diet. Refuse discovered at archaeological sites suggests an extensive use of these near-shore species (Laughlin 1980).

Aleuts used a variety of harvest techniques to exploit their environment. The baidarka, or kayak, was the primary tool used for harvesting marine mammals. The baidarka offered mobility, sea-worthiness, and a silent approach to prey. The length of the stalking process was often dependent on the weather. A complete hunting outfit consisted of a baidarka and paddle, a harpoon, a throwing board, a retrieving hook, a club, a belt knife, an amulet, and a water bottle (Laughlin 1980). The throwing board was an important component of the hunting outfit because it allowed an increase in the harpoon's range; maximum distance of a harpoon with the use of a throwing board was about 120 feet (Laughlin 1980). Once harpooned, the marine mammal was slowed down by the drag of the shaft or the attachment of a floating device. The animal was then retrieved and clubbed if it was still alive. Several variations of this technique were used to hunt marine mammals, depending on the behavior of the animal and the use of different tools.

The Aleuts hunted whales in island passes during annual whale migrations between the Pacific Ocean and the Bering Sea. According to one source on whaling methods, a village would send out its best hunter in pursuit of a whale. After spearing the whale with a stone-tipped spear, the hunter returned to the village and isolated himself until the dead whale was located and brought back by a group of hunters (Laughlin 1980). This method allowed the spear to work its way in and destroy the animal without risking the lives of a large number of hunters. The potential loss of the carcass was offset by the enormous supply of food that would be available if the hunt was successful. Whales that beached themselves or washed up on the shore were also used.

Two basic techniques were used to harvest fish. Halibut, cod, and other deep-dwelling fish were caught using lines made from seaweed and hooks of bone. In the second harvest technique, Aleuts constructed weirs in nearby streams to catch migrating salmon. The Aleuts maintained adequate spawning populations by periodically opening the fence-like weirs to allow a sufficient spawning population to escape.

Gathering was an important harvest technique that divided subsistence activities among village members. Women, children, and elders contributed to the food and material requirements of the village by gathering edible plants and the grasses necessary for weaving baskets and mats. Bird eggs gathered along cliffs not only supplemented the diet, but developed children's agility and balance, athletic qualities necessary for skillful use of the baidarka (Laughlin 1980).

Aleuts hunted ducks and shorebirds with bolas and puffins were caught with snares. An 18 inch stick with a sinew noose was placed outside the entrance of puffin burrows in the evening after the birds were asleep. When the puffin emerged from its nest in the morning, it would be caught in the noose. This technique provided a skin that was free of holes, in contrast to one that had been lanced.

The comparatively stable year-round climate and the rich resource base allowed subsistence activities to occur throughout the year. Certain marine mammals, fish, and mollusks remained present all year, although their populations may have fluctuated seasonally. Other species were available seasonally, such as migrating whales in the spring and salmon returning to their spawning grounds in the summer. Fishing camps were used only on a temporary basis to dry salmon for the winter (Lantis 1970). Grasses were gathered during the summer and stored in dry caves for use in the winter. In the winter, harvest efforts usually shifted to species that could be gathered in protected waters or on reefs exposed by low tide because of frequent winter storms (Laughlin 1980).

RUSSIAN PERIOD

Vitus Bering first spotted the Aleutian Islands in 1741 while exploring new trade routes and searching for a possible land connection between Asia and

North America. "Upon discovering the Aleutian Islands, Russian fur hunters moved quickly to exploit the rich fur resources of the Aleutians.

The arrival of Russians in the Aleutian Islands region in the 18th century initiated permanent changes to Aleut culture and subsistence practices. Warfare, enslavement, and disease inhibited the maintenance of traditional subsistence activities and shifted the f ecus of resource harvest patterns" from reliance on a diversity of resources to an economy dependent on the harvest of a few select species.

Approximately 12,000 Aleuts inhabited the region at the time of Russian contact; by 1825 that number had dwindled to 1,500 (Jones 1976). The clash between the two cultures was reflected in the near extermination of the Aleut people. Enslavement to the Russian traders, intent upon exploiting specific resources, overwhelmed the Aleut population. The initial period of occupation was characterized by Aleut resistance and the lawless behavior of many of the Russian newcomers. Unlike several other Native American peoples, Aleuts could not retreat to a protected area because of their dependence on marine resources and lack of cover in the treeless terrain (Laughlin 1980). Wars and massacres ensued, and surviving Aleuts were enslaved by their Russian captors.

The Russian-American Company was granted a monopoly on the region's resources in 1799. The company's reliance on sea otter pelts led to the continued enslavement of Aleut hunters. The second charter, granted to the company in 1821, contained certain stipulations that limited the use of Aleut slave labor and set up administrative oversight. The Russians eventually allowed expression of some Aleut traditions, such as a modified chief system and use of the Aleut language. Concurrently, the Russians imposed many of their customs upon the Aleuts, particularly through the Russian Orthodox churches, schools, and economic system.

AMERICAN PERIOD

Like Russia, the United States was attracted to Alaska because of a specific resource. Instead of the sea otter, however, the fur seal of the Pribilof Islands was the primary incentive behind the American investment in Alaska.

Despite the initial focus on a single resource, American rule resulted in a large diversity of commercial activity in the Aleutians region, including gold mining, fishing, whaling, cattle and sheep ranching, and fox farming.

The barter economy present under Russian rule was replaced by a wage economy and an accompanying increase in supplies of material goods. Aleuts were drawn into the new economy by increased opportunities for employment and availability of material goods at American trading posts. The transition to expanded commercial activity under American rule did not result in economic stability, however, due to fluctuations in resource stocks and adjustments to external markets. The cod fishery attracted numerous European immigrants and underwent varying levels of success before bottoming out in the first half of the 20th century. The developing salmon industry similarly underwent periods of instability but grew to become the mainstay of the regional economy. Gold mining on Unga Island and several ranching operations affected settlement patterns and economic activity, but declined in importance.

American emphasis on " the work ethic, cleanliness, education, and an intolerance of Native practices and beliefs formed the social environment for many Aleuts following Russian occupation (Jones 1976). Traditional aspects of Aleut culture were replaced by a growing American influence as in-migration from the states and from Europe continued and the region's resources were developed.

HISTORY OF KING COVE

Expanded commercial activities that used a broader spectrum of the region's resources laid the foundation for continued economic development in the Aleutian Islands region. The community of King Cove was initially settled in an attempt to increase the scope of resource exploitation in the region. Like pre-contact Aleut culture, King Cove depended on the rich marine environment for its livelihood.

On April 28, 1911, the steamship A.G. Lindsay arrived at the location of the present city. The crew was delegated the task of building a salmon cannery. The business venture was a project of Pacific American Fisheries, which had sent the sh p, its so men, and construction materials from Bellingham,

Washington, two weeks earlier. The cannery was quickly constructed, and processed 26,058 cases of salmon during its first summer of operation (Pacific American Fisheries 1918).

The new cannery attracted residents of nearby villages with its employment opportunities and supplies of material goods. Newcomers from Belkofski, Thinpoint, False Pass, Morzhovoi, Ikatan, Unga, and the Sanak, Shumagin, and Unimak islands, were drawn to King Cove for summer employment (Jones 1976; Resource Analysts et al. 1984a; E.R. Combs, Inc. 1982). Of the first eight families to settle permanently in King Cove, four were Aleut and four were of mixed background, the wives being Aleut and the husbands of northern European stock, according to Jones (1976). However, a knowledgeable resident informed the study team that at least the first seven non-cannery families to build homes in King Cove were European men and their Aleut wives.

The Europeans, comprised mostly of Scandinavian fishermen, were attracted to the Aleutian Islands region by the cod fishery, which began in the late nineteenth century. The Europeans brought with them strong boatbuilding and fishing skills, knowledge that was to have a long-lasting impact on the development of King Cove's commercial fisheries. Northern Europeans did not continue to migrate into the area; their dwindling numbers reflected the decline of the cod industry after World War I. This stands in contrast with the continued in-migration of Aleuts to King Cove, who initially came to the community only during the salmon season but began settling year-round as early as 1919.

By the time the cannery was built in King Cove, Aleuts of the region had already experienced cultural disruption from over 150 years of Russian and American occupation. Belkofski, the nearest village to King Cove, was not originally an aboriginal settlement. The community was established by the Russians because of the nearby sea otter habitat. Having reached its peak of economic vitality in the late 1800s, Belkofski was in a period of decline (due to a decimated sea otter population and lack of a market) when the King Cove cannery was founded in 1911. Representative of the developing salmon industry of the Alaska Peninsula, this cannery provided new economic opportunities for residents of Belkofski and other nearby communities. A letter written by the cannery bookkeeper during the first summer's operations described how they had "hired 8 Indians and were planning to hire more." The letter continued to suggest that there was a brisk

trade in supplies at the cannery store with local Natives (Pacific American Fisheries 1918).

Discussions with local residents during fieldwork for this study revealed that the naming of King Cove predated construction of the cannery. It was stated that a trapper of European descent lived in a barabara, or sod house, on the lagoon that borders the present city. Passing sailors would refer to the location as "King's Cove," and the name was well established by the time the A G Lindsay arrived at the site. Several present residents of King Cove recalled playing around the old barabara in their youth.

Gradual in-migration from neighboring Aleut villages continued in the early years of King Cove as cod stations at Sanak and Thinpoint and the gold mines at Unga began to close. Reliance on traditional subsistence resource use offset fluctuating salmon populations. Gradually, a growing understanding of the commercial fishing industry and improved proficiency in fishing and processing skills allowed local residents to participate increasingly in the growing commercial economy.

In 1929, a Bureau of Indian Affairs (BIA) school was established that, over the years, generated resentment among King Cove residents. The BIA teacher assumed a wide range of powers that residents considered disruptive to the existing sociopolitical system (Jones 1976). A 1929 policy statement by the Board of Indian Commissioners described the Bureau's educational goals as the following:

> The task [of Indian education] . ..is to supply the lacks caused by faulty environment so that the Indian child may be brought up to the standards of cleanliness, order, regularity, and discipline which the public presupposes in its white children (Tyler 1964:16).

Continued unhappiness with BIA's influence played a major role in future attempts to incorporate the town.

During the 1920s and 1930s, the Aleutians experienced a fox farming boom which affected the economy and environment; many islands became centers of intense trapping activity, with well stocked fox populations seriously reducing bird numbers in some areas (Alaska Geographic 1980). While trapping of wild furbearers was a common economic supplement for King Cove residents, fox farming was relatively unimportant to the King Cove economy because few islands suitable for large scale farming exist in the area.

World War II brought the most dramatic changes to the Aleutians since Russian contact. Aleuts west of Unimak Island were evacuated in 1942 to the unfamiliar surroundings of southeastern Alaska and returned three years later to find destroyed homes and a landscape littered with abandoned military housing and debris (Jones 1976). King Cove residents escaped this period comparatively unaffected. Although the military constructed a camp at Rams Creek in 1943, full-scale occupation lasted less than a year and King Cove residents were allowed to remain in their community. Local residents described how the King Cove cannery was used by the military as a front to which materials were sent; supplies stored in King Cove were used to construct facilities at Cold Bay. Several King Cove residents were hired as ship pilots because of their knowledge of local waters.

Community growth and resident participation in local affairs increased in the years following World War II. Initial efforts to incorporate as a city ended when a district judge refused to accept the residents' petition to incorporate. The refusal was likely the result of opposition from cannery management, who were concerned that the cannery would bear the majority of the tax burden (Jones 1976). King Cove residents renewed their efforts in 1949, eager to assume responsibility and control over community services and capital improvements. After their petition was granted by a superior court judge, the King Cove electorate voted unanimously for incorporation and formed a second class city on December 7, 1949.

The power of King Cove fishermen, and thus that of the community itself, further expanded in the 1940s and 1950s. In an effort to influence the price of fish, King Cove fishermen joined the Alaska Fishermen's Union in the early 1960s. Based in Seattle and constrained by legal limits to its authority, the union soon fell out of favor with local fishermen, who believed their needs were being neglected (Jones 1976). Turning to the United Marketing Association of Kodiak, the fishermen were able to increase the price of fish by participating in work stoppages. They changed affiliations again in the early 1970s and joined with other regional fishermen in the Peninsula Marketing Association (PMA). This progression toward a more locally focused union reflected the growing importance of the region's fishery and of local fishermen's participation in the politics of the fishery.

The ability to tax, the diversified seafood market, and the power of local fishermen to influence the price of fish created a positive atmosphere for community development. Eager to enlist the help of government agencies, the city hired an attorney to assist them in securing grants. The construction of a community water system in 1969 came at the conclusion of extended discussions between the city, three federal agencies, and the cannery. King Cove's success in acquiring the badly needed water system foreshadowed its future ability to attract outside help in developing community facilities.

A major conflict over high school education developed between King Cove and the Alaska Department of Education. Unhappy with the thought of either sending students to a distant BIA school or providing what they perceived as limited educational resources within the community, residents sought to have the students sent to state urban high schools. Because exporting students would have exceeded the city's ability to pay for the students' education, community leaders fought to have the state pay for the educational expenses. The city eventually won and the state accepted these costs near the beginning of the 1970s. Although the city later reversed itself and opted for a local high school, the controversy exhibited the strong commitment of community members to independent decision-making.

The City of King Cove was successful in attracting government assistance to meet capital improvement goals. Benefiting from the State of Alaska's growing oil revenues, the city acquired over $2 million in grants and loans by the mid-1970s. These monies funded community projects including a 3,500 foot runway, an airfield access road, a new power facility, and a sewer system. A new school was built in 1973, replacing the old BIA facility. The school was expanded four years later to include grades nine through twelve.

In late 1976, the cannery was partially destroyed by fire. The destruction of its outdated processing facilities prompted construction of a modern facility. The new plant was larger and more efficient. During construction of the new plant, the seafood company opened its idle cannery at False Pass to meet the demands of the King Cove fishing fleet. Inoperative during the 1977 salmon season, the new cannery at King Cove opened a few canning lines in 1978 and by 1979 had more than doubled the capacity of the former plant. Since 1979, the King Cove cannery has been the largest processing facility in Alaska.

The success of the fishing industry and the city's ability to attract grants and loans led to accelerated expansion of the community in the late 1970s. A new boat harbor with capacity for approximately 90 vessels was completed in 1978. The new harbor provides safe moorage for the fishing fleet. In addition, harbormaster facilities were constructed in 1979 to provide 24-hour service.

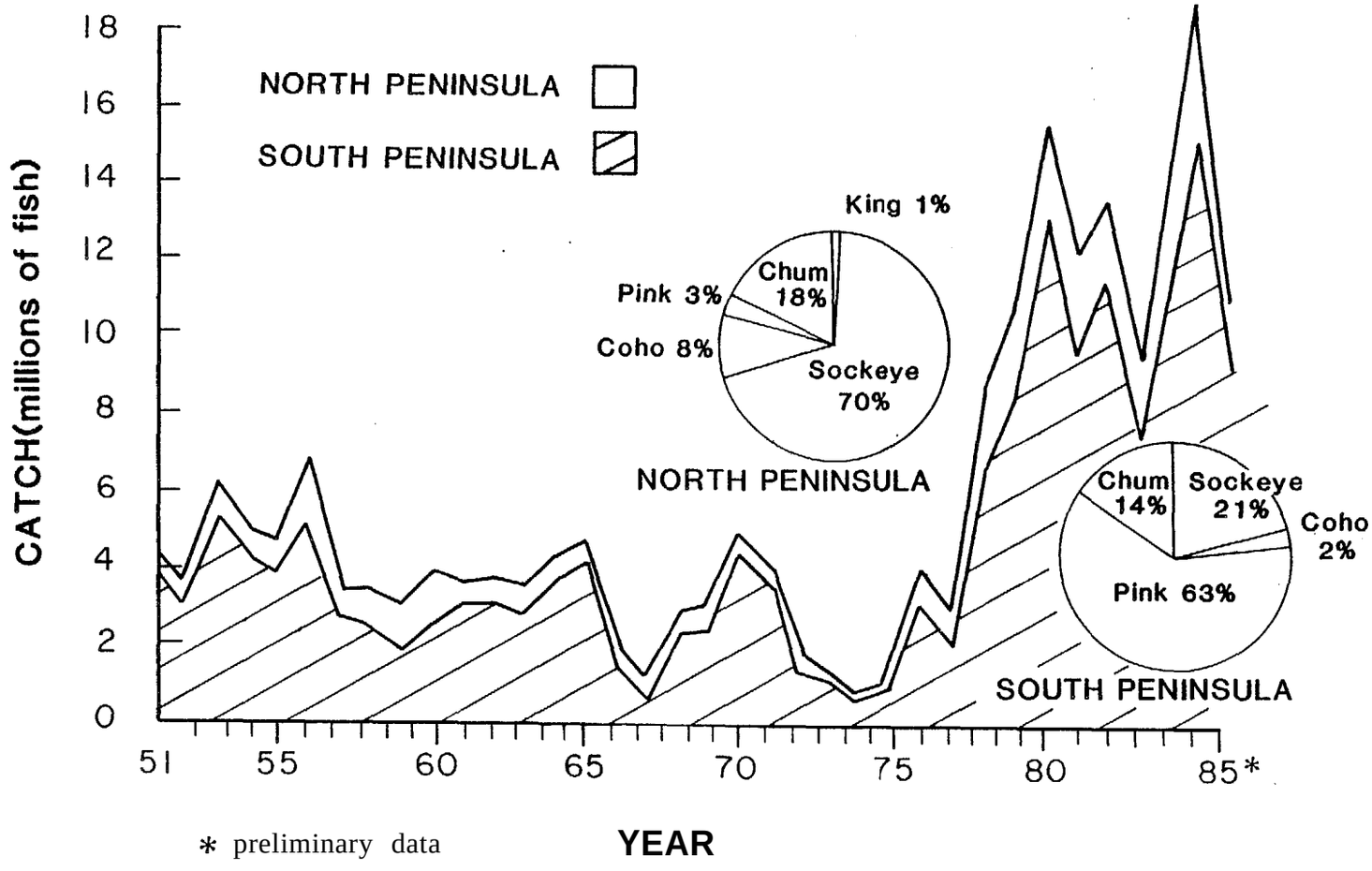
Important political changes also occurred in the 1970s. Passage of the Alaska Native Claims Settlement Act (ANCSA) in 1971 resulted in formation of a village corporation in King Cove to manage the land and money settlements conveyed from the federal government to King Cove Natives. Through this act, the majority of King Cove residents became shareholders in the corporation, thus gaining a significant measure of control over development of local lands. In 1974, the City of King Cove became a first class city. These two events resulted in greater local control of development and growth patterns. Both organizations generally favor slow, regulated development that allows modernization while maintaining continuity with the past.

COMMERCIAL FISHING HISTORY

Commercial salmon fishing catch records from the Alaska Peninsula region began in 1906 with a harvest of 135,000 sockeye salmon. Commercial fishing, however, began much earlier; as early as 1888, canneries existed at Thin Point and Orzinski Bay. South Peninsula pink salmon harvests were first reported in 1911. Salmon catches from 1915 to 1930 ranged from 2.2 million to 8.7 million fish each year. During the 1930s, catches increased to a high of 16 million fish, then declined again to less than seven million fish annually by 1950 (ADF&G 1984 b). Annual Alaska Peninsula salmon harvests since 1951 are shown in Figure 4-2. Catches remained relatively low throughout the 1950s, 1960s, and early 1970s. Among the worst years on record were 1974 and 1975 (Figure 4-2). In the late 1970s, harvests began to increase dramatically, reflecting a simultaneous recovery of both local and Bristol Bay salmon stocks throughout the state.

From its founding in 1911 until statehood in 1959, the cannery in King Cove depended primarily on company fish traps for harvesting salmon. However, a

FIGURE 4-2: TOTAL ALASKA PENINSULA COMMERCIAL SALMON CATCH AND TYPICAL SPECIES COMPOSITION, 1951-1985



* preliminary data

Source: Alaska Department of Fish & Game (1984b).

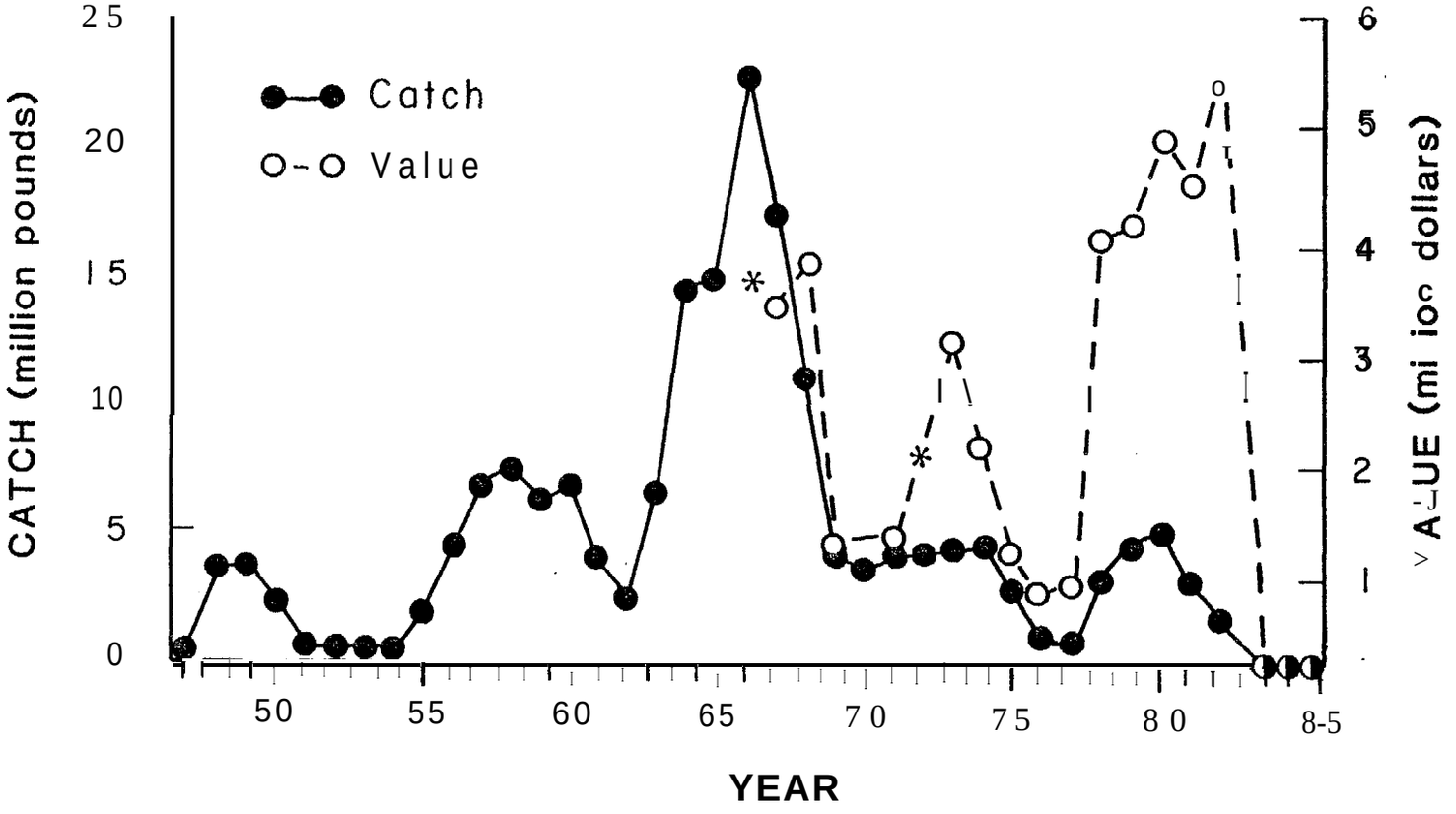
small seine fleet was also maintained because of the ever-present uncertainty of where the salmon would appear in any season. In addition, a few privately owned fishing boats fished for the cannery. Local fishermen who owned boats had no choice but to accept whatever price the cannery was willing to pay for their fish, as their harvest was considered supplementary to the cannery trap catch.

During these early years in King Cove's history, the cannery often supplied local residents with credit in the form of food and supplies during the winter, then received payment in the form of labor or a percentage of the fish harvest the following summer.

When fish traps were outlawed in 1959, the cannery became dependent on local residents for a steady supply of product for the first time. In spite of low salmon populations during the 1960s, the local King Cove fleet rapidly expanded to harvest fish no longer being taken by the traps. Fishermen either leased boats from the cannery with payments being a percentage of their catch or they bought boats with financing through the cannery. Fishermen who were unable to afford their own boats and could not lease a boat from the cannery participated in the fishery by setnetting or beach (hand) seining from small skiffs. During this period, the most common fishing strategy for the King Cove fleet was a combination of drift gillnet fishing in June for sockeyes followed by "beach seining" or hand purse seining from small boats for pink salmon from late July through mid-August. The first three weeks of July was a period of reduced fishing activity when many fishermen just put out a set gillnet or did not fish at all.

In 1947, King Cove fishermen began harvesting king crab; however, until 1958 they had to travel to Sand Point to sell their catch, as the local cannery did not begin processing king crab until that time. The modern king crab pot fishery began in South Peninsula waters in 1961, the year that the use of trawl gear for crabbing was outlawed. King crab harvests in South Peninsula waters peaked in 1966 with a catch of 22.6 million pounds (Figure 4-3). During this period of high catches, the local King Cove fleet consisted of small boats with most fishermen fishing only 15 to 30 pots. Because of the relatively low level of effort, crab fishing persisted through most of the year and closed only during the summer when crab were in a soft shell condition.

FIGURE 4-3: SOUTH PENINSULA KING CRAB CATCH AND EX-VESSEL VALUE, 1947-1985



* Data prior to 1967 not available : data for 1972-73 not available

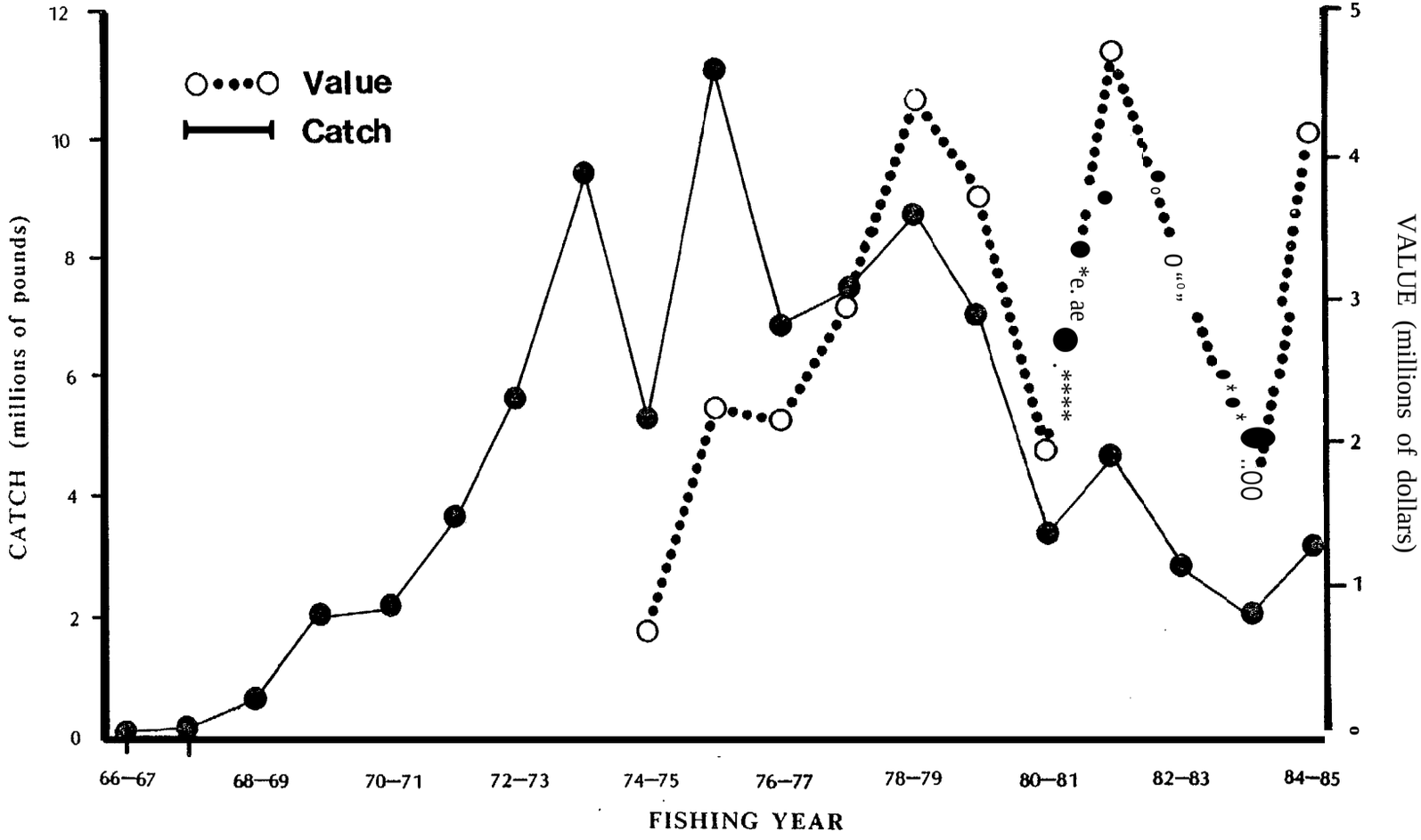
Source: Alaska Department of Fish & Game (1984a).

In the early 1970s, salmon stocks remained low and king crab stocks in South Peninsula waters declined. King Cove fishermen, however, continued to fish salmon in the summer and crab in the winter, although the king crab harvest began to be supplemented with Tanner crab fishing. Tanner crab catches steadily increased in the late 1960s through the 1973-74 season. Catches then declined in response to decreasing Tanner crab populations (Figure 4-4). However, because of relatively low effort, catch declines did not truly reflect the magnitude of the population's decline (Resource Analysts et al. 1984a). When the Bristol Bay king crab fishery expanded in the second half of the 1970s, several King Cove fishermen began working as crew members or skippers on the larger Bristol Bay crab boats. There were, however, few instances of King Cove fishermen actually buying the large boats necessary to crab in the Bering Sea. During the early 1970s, some King Cove fishermen also targeted halibut (E.R. Combs, Inc. 1981).

Fishing in the late 1960s and early 1970s was very different from current conditions. Salmon stocks were low and crab stocks were declining. Both fish and shellfish prices were low. Boats were small and were either leased from or financed by the cannery, and fishermen fished all year for modest incomes. Local women commonly worked in the cannery during these lean years to supplement the family's income from commercial fishing. Nevertheless, most families needed store credit in the winter and spring to purchase supplies. In addition, people commonly left the village either for full-time employment or to work outside the village during the winter, returning for salmon fishing in the summer.

The second half of the 1970s brought major changes to the fishing industry in King Cove. In 1973, Alaska's limited entry program for commercial fisheries was enacted. The stated purpose of the act was to "promote the conservation and sustained yield management of Alaska's fishery resource and the economic health and stability of commercial fisheries in the public interest and without undue discrimination" (AS 16.43). Implementation of the program began in 1975. This program changed the nature of commercial salmon fishing in King Cove, as it did throughout the state. The beginning of the limited entry program can be said to mark the start of the modern King Cove salmon fishery and set the stage for transformation of the fishing industry in King Cove.

FIGURE 4-4: SOUTH PENINSULA TANNER CRAB CATCH AND EX-VESSEL VALUE, 1966-67 TO 1984-85



Note: Ex-vessel value data prior to 1974-75 not available

Source: Alaska Department of Fish and Game (1984a).

SUMMARY

In summary, the history of human existence in the Aleutian Islands region underscores the continuous marine orientation of its inhabitants. Pre-contact Aleuts successfully exploited their environment by taking advantage of the abundant marine, coastal, and terrestrial resources of the Aleutian Islands. The diverse ecosystems of the region provided a wealth of species and the Aleuts developed harvest techniques that yielded access to a wide variety of niches within this diverse environment. The harvest of marine mammals, fish, shellfish, birds, and edible plants formed the resource base of their culture prior to contact with Europeans.

Russian occupation was characterized by the over exploitation of specific resources and the decline of the region's traditional Native culture. Pre-contact Aleut reliance on a wide variety of species was replaced by the harvest of a few select resources that were in demand in a distant cash economy. Over exploitation of the sea otter and northern fur seals eventually led to decreased populations and harvest levels. In addition, food requirements of the Russian work force led to extinction of the Steller's sea cow. The depletion of economically viable species played a role in Russia's selling of Alaska to the United States in 1867.

Under U.S. rule, as under Russian rule, industry's initial response to the rich ecosystems of the region was to over harvest a very limited number of species, inevitably resulting in decimated resource stocks, More recent harvests of the region's resources have also targeted a limited number of species, although they are managed more carefully for sustained yield.

Consistent with historical patterns, King Cove's founding was a function of renewable resource harvesting in that the salmon cannery was the impetus for settlement. Central to understanding King Cove community dynamics, from the city's founding to the present day, is the fact that life in King Cove has always revolved around the commercial fishing industry and the subsistence harvest of natural resources. Additionally, residents' drive for local control and independence has been an important dynamic in the town's development, and the community has been highly effective at achieving its goals.

V. OVERVIEW OF THE KING COVE ECONOMY

This section is beyond the original scope of work for the Harvest Disruption Effects Study. However, given the community's economic dependence on fisheries resources, the economic structure of the community is likely to change under the assumptions of the disruption scenarios. Quantifying the disruption's effects requires a description of the current economy to be used as a baseline against which the changes brought on by the disruptions can be evaluated.

It is important to recognize that the cross-sectional profile presented below is limited to a single base year. However, the economic activities of the community occur in response to a continuous stream of events that change over time. For example, income to fishermen (an integral element of King Cove's economy) varies depending on the amount of fish caught and the market value of the catch, as well as other factors. Cross-sectional analyses can best be viewed as a static model of a dynamic system. Despite these limitations, cross-sectional economic analysis of a community provides valuable insight for addressing the effects induced by introducing changes to the economy from one or a series of events.

EMPLOYMENT AND INCOME IN KING COVE

Table 5-1 summarizes 1984 King Cove employment and income data. The economic profile is based primarily on the 1984 calendar year; all employment data, as well as wage and transfer income, are based on 1984. However, commercial fishing income data from 1982 are used to approximate 1984 fishing income as the 1982 CFEC files were the most current and complete data set available. Hence, the profile presented in Table 5-1 is a composite of 1982 and 1984 data that is representative of a typical year of income and employment in King Cove.

Employment within King Cove is divided into two basic types: wage employment and non-wage employment. Wage employment includes a variety of positions such as administration, teaching, maintenance, and seafood processing. Wage employment opportunities are primarily available in the private sector, but

TABLE 5-1: REPRESENTATIVE EMPLOYMENT, INCOME, AND SUBSISTENCE REPLACEMENT VALUE IN KING COVE

Wage[1]	Annual Income[2]	Percent Subtotal	Total	Percent Total
City of King Cove	$391.926	9		
11 full-time positions				
8 part-time positions				
King Cove Corporation	$153,000	4		
4 full-time positions				
7 part-time positions				
4 seasonal positions				
King Cove School District	$992,448	24		
2S full-time				
2 part-time				
Peter Pan Seafood: Administration[3]	$538,192	13		
5 full-time permanent				
10 seasonal full-time				
2 part-time seasonal				
Peter Pan Seafood: Processing	$1,929,217 [5]	46		
324 seasonal positions				
(20 local residents and				
304 non-local residents)				
Federal Positions (Post Office)	$26,520	1		
1 full-time				
1 part-time				
Other Private Business	$138.100	3		
2 full-time permanent				
7 part-time permanent				
SUBTOTAL Wage Employment	$4,169,403	100	$4,169,403	48
Non-Wage[1]				
Estimated Net Fishing Income[6]	$3,430,500 [7]	82		
58 salmon permit holders				
174 salmon crew members				
Subsistence Replacement Value*	$763,000	18		
SUBTOTAL Non-Wage Employment	$4,193,500	100	$4,193,500	49
Government Transfer Payments				
State Funded Programs to Individuals:				
Alaska Permanent Fund Dividend[9]	$135,000	57		
Alaska Longevity Bonus[10]	$24,000	10		
Energy Assistance Program[10]	$23,288	10		
State Assistance Program[10,11]	$37,000	15		
Supplemental Security Income[10]	$19,500	8		
SUBTOTAL Gov. Transfer Payments	$238,788	100	$238,788	3
TOTAL			$8,601,691	100

1. Wage employment represents wages paid to individual employees whereas non-wage employment represents gross income to commercial fishermen (before fishing expenses).
2. The income figures shown are for the base year 1984 unless cited differently. Annual wages for all of the positions listed are aggregated to show the total under each category.
3. The positions shown under administration include management of the seafood processing operation and the store.
4. Based on data from Peter Pan Seafoods, Inc. The number of processing positions varies depending upon the species being processed. The employment figures shown reflect the number of processing workers needed to process salmon, which accounted for 96 percent of processing wages paid in 1984, The relative amounts of processing labor required varies somewhat from year to year for each species, depending on the size of the harveat and product forms produced. The relative proportion of local and non-local processing workers also varies from year to year.
5. Based on data presented in Table 6-24.
6. Only salmon employment is shown as this represents maximum employment (i.e., it includes other fishermen as crew members). See Chapter VI for details on fishing related employment.
7. Data from CFEC Census Division files on gross commercial revenues derived from salmon, crab, herring, and halibut fishing. The total 1982 ex-vessel value for King Cove fishermen (approximately $5,726,000 for salmon, $1,395,000 for crab, and $220,000 for halibut), combined with crew factors for each fishery and a mean crew share percentage of 11.8 percent per crew member, were used to develop estimated net income values for King Cove captains and crew members. Crew factors used in this analysis were 4,11 crew per boat including captains for salmon fishing, 3.44 for crabbing, and 3.36 for halibut fishing.
8. Based on 1985 data presented in Chapter VII (Table 7-6) and rounded to the nearest $1,000.
9. Data from the Alaska Department of Revenue.
10. Data from the Alaska Department of Health and Social Services.
11. Includes: Old Age Assistance, Aid to the Blind, Aid to the Permanently Disabled, Aid to Families with Dependent Children, and Food Stamps.

Source: Stephen R. Braund & Associates (1985).

also in municipal, state, and federal governmental entities. Non-wage employment and income in King Cove is comprised entirely of commercial fishing and subsistence harvest (discussed in Chapter VII).

Wage employment contributed 46 full-time positions, 25 part-time positions, and 340 seasonal positions to the 1984 King Cove economy. The total income from wage employment during 1984 was just over $4 million. The Peter Pan Seafoods, Inc. fish processing facility accounted for 46 percent of the total community wage income in 1984. However, only 20 of the 324 fish processing jobs at the plant were held by local residents. The remaining 304 processing jobs were filled with transient workers brought in to fill seasonal labor requirements. Five of the administrative positions at the cannery are full-time. The remaining positions are filled seasonally. As with processing jobs, many of the administrative positions are filled by non-locals (see Chapter VI). If only wages paid to King Cove residents were included in Table 5-1, the domination of the wage sector by PPSF and the overall importance of the wage sector to the King Cove economy would be significantly reduced. The second largest employer in King Cove is the School District with 23 full-time positions and two part-time positions. Other employers in the community (in declining order of total annual wages paid) are: the City of King Cove, the King Cove Corporation, other private businesses, and the U.S. Postal Service.

Earned non-wage income in King Cove, including the replacement value of subsistence production, accounted for an estimated $4,193,500 or approximately 48.8 percent of the community's gross 1984 income. (As discussed above, 1982 commercial fishing revenues were used to estimate the contribution of commercial fishing to the King Cove economy due to incomplete 1984 fishing revenue data.) All income in this category is derived from participation in commercial fishing, either as captains or crew members, and from local subsistence harvests. Commercial fishing incomes were based on net fishing income (i.e., crew shares and captains' income after expenses). Crew shares of 11.8 percent of gross revenues per crew member (based on field data) and crew factors for each fishery were used to estimate total crew payments. Captain's payments were assumed to equal one crew share The estimated value of the subsistence harvest was based on the cost of replacing subsistence foods with store-bought foods (see Valuation of Subsistence Harvests for a thorough discussion on this valuation methodology).

Government transfer payments to individuals are another source of income to the residents of King Cove. Payments are made under a variety of state programs, including Permanent Fund " Dividends and the Food Stamp program. The total amount of income to the community from government transfer payments varies from year to year as funding for the different programs or the local need for services changes. State transfer payments to King Cove residents in 1984 totaled $238,788 with permanent fund dividends and' longevity bonuses accounting for 67 percent of these payments. Income-related transfer payments represented only three percent of the community income in 1984.

The income received by King Cove residents is presented in Table 5-2. Although approximately $8.6 million enters the community in the form of wages, non-wage income (including a dollar equivalency value for subsistence production), and transfer payments (Table 5-1), much of this money leaves the community in the hands of non-local workers. For example, only a small component of the PPSF processing workers are King Cove residents. In 1984, local workers accounted for only $30,000 of the $1.9 million paid by PPSF in labor expenses. In addition, non-local crew members frequently fish with King Cove boats, especially during salmon season. Finally, many of the jobs and incomes from the King Cove School District also go to temporary or short-term residents of the community. Due to the spending and savings patterns of school teachers, much of their income flows out of the local economy with little or no impact.

Dependence of the City's Budget on the Commercial Fishing Industry

The 1984 funding sources for the City of King Cove are shown in Table 5-3. Substantial portions of the city's budget are derived from the commercial fishing industry. Revenue from the State of Alaska accounted for 44 percent of the city's income. Two-thirds of this revenue was derived from a 50 percent refund of the fisheries business tax ("raw fish tax") paid by PPSF to the State of Alaska. This tax, based on the price paid by processors to fishermen for fish and shellfish, represented $322,423 or 30 percent of the total revenues to the City of King Cove in 1984. The tax varies from one percent to five percent depending on the type of fishery resource and whether the business is a shore-based or a f loating processor (AS 43.75.15). For example, a tax of 4.5

TABLE 5-2: SUMMARY OF INCOME AND SUBSISTENCE REPLACEMENT VALUE TO KING COVE RESIDENTS[1]

Category	Annual Dollars	Percent Subtotal	Total	Percent Total
Wage				
City of King Cove	$391,926	21		
King Cove Corporation	$153,000	8		
King Cove School District	$744,336	([2]) 40		
Peter Pan Seafood: Administration	$387,192	([2]) 21		
Peter Pan Seafood: Processing	$30,000	2		
Federal Positions (Post Office)	$26,520	1		
Other Private Business	$138,100	7		
SUBTOTAL Wage Income	$1,871,074	100	$1,871,074	33
Non-Wage				
Commercial Fishing[3]			$2,745,800	49
Subsistence Replacement Value			$763,000	14
Transfer Payments			$238.788	4
TOTAL			$5,618,662	100

1. Includes only permanent King Cove residents.

2. These data are from Table 5-1 and represent money paid to permanent King Cove residents only (i. e., seasonal workers associated with seafood processing and PPSF transient administration employees are not included). Also, because of spending and savings patterns of school teachers, only 75 percent of their income is included here.

3. Commercial fishing incomes used in Table 5-1 have been adjusted to remove crew shares paid to non-local crew and to reflect higher crew shares paid to local residents. Specifically, local crew shares were estimated at 12.5 percent per crew member. Local crew factors (i.e., the average number of local residents including captains per King Cove boat) were 2.93 local residents per boat for salmon fishing, 3.19 for crabbing, and 3.36 for halibut fishing. Total 1982 commercial fishing revenues for King Cove fishermen used in this analysis were: $5,7'26,000 for salmon; $1,395,000 for crab; and $220,000 for halibut.

Source: Stephen R. Braund & Associates (1985).

TABLE 5-3: REVENUES TO THE CITY OF KING COVE IN 1984

Funding Source	Amount	Total Funding	Percent of Total
Federal Funding			
Federal Revenue Sharing[1]	$58,533	$58,533	5
State of Alaska			
Shared Revenue[2]			
Fisheries Business Tax[3]	$322,423		30
Municipal Assistance	72,211		7
Liquor License Tax	3,250		<1
Amusement & Gaming Development	704		<1
Aid to Local Governments	75,546		7
Total State Funding		$474,134	
Local Sources[5]			
Sales & Use Tax	$131,972		12
Other Revenues	18,730		2
Utilities[6]	303,373		28
Boat Harbor[6]	100,013		9
Total Local Funding		$554,088	
Total City Funding from all Sources		$1,086,755 [7]	100

1. Data from U.S. Department of Revenue.
2. Data from Alaska Department of Revenue.
3. This is the King Cove share (50 percent) or the "raw fish tax" paid by PPSF.
4. Data from Alaska Department of Community and Regional Affairs.
5. Data from the City of King Cove.
6. These revenues are more than 100 percent offset by the cost to the City of King Cove of providing service.
7. Total revenue was approximately equal to total expenses in 1984,

Source: Stephen R. Braund & Associates (1985).

percent is levied on salmon processed by shore-based processors. Currently, 50 percent of the fisheries business tax is returned to the city where the tax is collected. In 1981, only 20 percent of the tax was returned to the city.

The city sales and use tax is also dependent on fishery resources. A two percent tax on sales within King Cove generated $131,972 for the city in 1984. Processor sales comprise the greatest source of these tax dollars. In fact, the proportion of these taxes paid by PPSF are large enough that relations between PPSF and the city were strained when the tax was increased by one percent in 1984. Together, the city sales and use tax and the fisheries business tax contributed approximately 42 percent of the City of King Cove's revenue in 1984.

ECONOMIC PROFILE SUMMARY

The information presented above provides an outline of the different components of the King Cove economy. This information, including wage income, non-wage income (entirely from commercial fishing and the replacement value of subsistence harvests), and government transfer payments to individuals, is summarized for King Cove residents in Table 5-2. Total gross income for permanent King Cove residents from economic activities during a composite base year was $5.6 million, of which approximately $1.9 million (33 percent) was from wage employment, $2.7 million (49 percent) from commercial fishing income, $763,000 (14 percent) from subsistence harvest dollar equivalents, and $238,788 (four percent) from transfer payments. Income derived from commercial fishing is the largest component of the King Cove economy. In addition, nearly one-quarter of the wage income is derived from the fish processing sector, linking additional jobs and income in the community to the commercial fishing sector. The replacement value of the subsistence harvest represents the third largest share of income to local residents and is discussed in Chapter VII.

From this profile several conclusions are evident:

1. The King Cove economy is clearly dependent on the harvest of fishery resources.
2. Non-wage employment in the commercial fishing industry is the most important source of income to the majority of King Cove residents.

3. Wage employment positions," particularly in the King Cove seafood industry and to a lesser extent in other sectors, are dominated by nonresidents.
4. Government transfer payments to King Cove residents are limited and of much less importance than in Bristol Bay and Bering Sea coastal communities (Frank Orth & Associates and Stephen R. Braund & Associates 1983; Wolfe et al. 1984).
5. The city government is heavily dependent on income sources directly related to the commercial fishing industry, particularly the refunded fisheries business tax and the local sales and use tax.
6. Subsistence harvest dollar equivalents (i. e., replacement values) account for a sizeable portion of King Cove residents' income, but is overshadowed by the dominant role of commercial fisheries.

VI. COMMERCIAL FISHING AND PROCESSING

THE CONTEMPORARY INDUSTRY

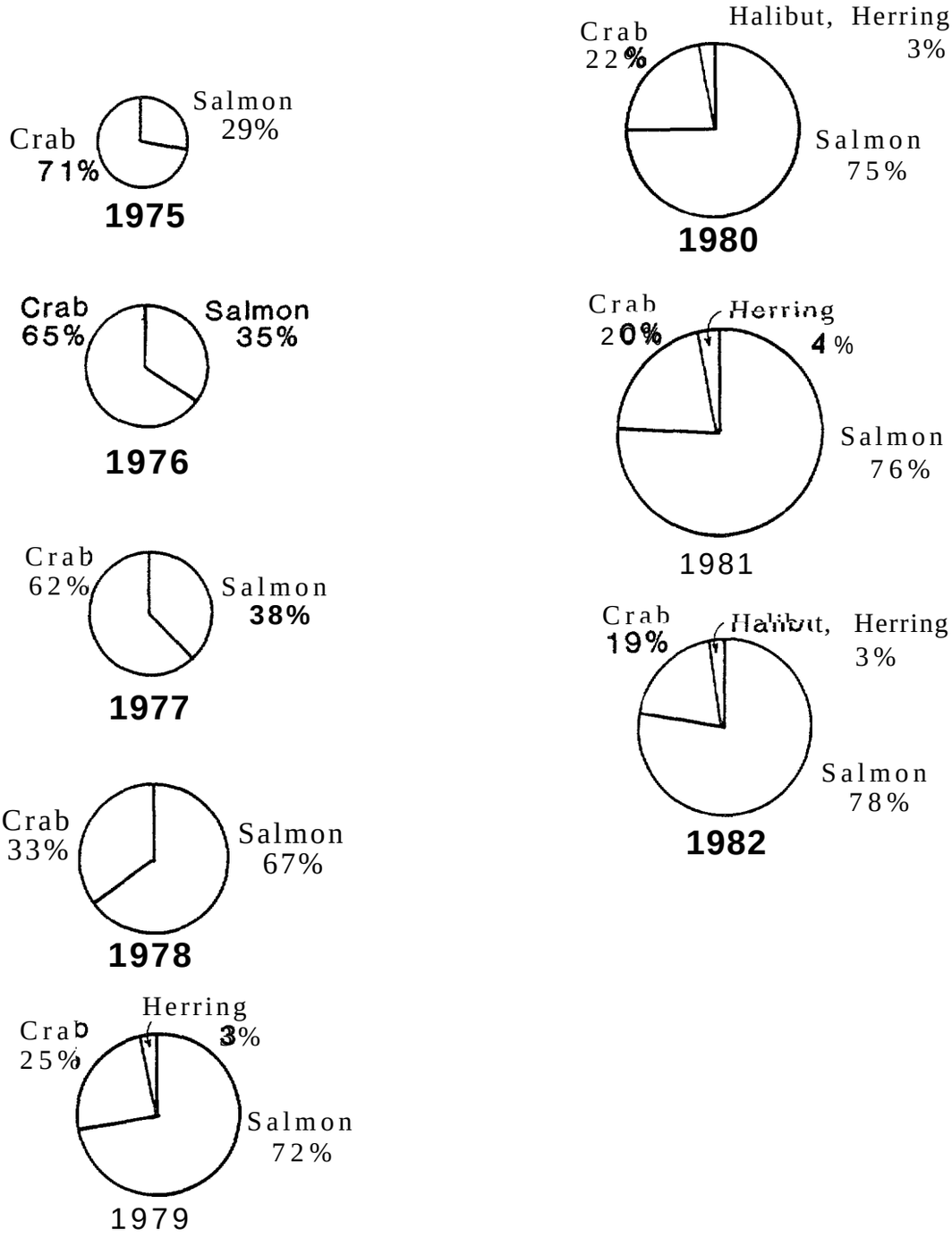
The fishing industry in King Cove, as in the entire Alaska Peninsula region, has enjoyed a period of unequaled prosperity during the last seven years, despite the demise of the region's commercial king crab fishery. Currently, the King Cove fishing economy is dominated by the summer salmon fishery, with Tanner crab being the species of secondary importance. King Cove fishermen also participate to a limited extent in the Gulf of Alaska halibut fishery, and the Port Moller and Bristol Bay herring fisheries. In 1985, one King Cove fisherman also long-lined for black cod.

The PPSF cannery in King Cove is the largest salmon cannery in Alaska. The "cannery" (as it is locally known) is equipped to both can and freeze fish and shellfish and, with only minor modifications, is capable of processing any species of fish. Salmon is currently the mainstay of the plant, but crab, halibut, herring, and black cod (in 1985) are also processed. Relatively few lifelong King Cove residents are employed by the cannery, although many of the cannery's management employees live in King Cove most of the year.

The magnitude and importance of commercial fishing to the community of King Cove, as well as this industry's explosive growth and transformation since 1976, are demonstrated by the following points:

- In 1976, a total of 38 King Cove residents held CFEC permits in a combination of commercial salmon and crab fisheries where the total catch equaled 7.4 million pounds and was worth $2.7 million. In 1982, the last year for which complete data are available, 74 King Cove fishing captains harvested over 15 million pounds of salmon, crab, herring, and halibut valued at $7.3 million (Figure 6-1, Table 6-1). This represents a 97 percent increase in the number of permit holders, a 100 percent increase in the total catch, and a 170 percent increase in the value of the harvest between 1976 and 1982.

FIGURE 6-1: VALUE OF KING COVE'S COMMERCIAL FISHERIES BY SPECIES, 1975-1982



NOTE: Circle size is proportional to total value of the catch

Source: Commercial Fisheries Entry Commission, Census Division Files, 1975-1982.

TABLE 6-1: TOTAL LANDINGS AND EX-VESSEL VALUE OF CATCH MADE BY KING COVE FISHERMEN, 1976-1982

YEAR	NO. OF PERMIT HOLDERS[1]	LANDINGS[2] (LBS)	VALUE($)
1975	NA	NA	660,000
1976	38	7,395,000	2,696,000
1977	37	5,395,000	2,509,000
1978	44	11,517,000	5,374,000
1997	56	12,078,000	6,989,000
1980	65	20,754,000	7,417,000
1981	71	14,274,000	9,145,000
1982	74	15,777,000	7,341,000
1983	81	NA	NA
1984	75	NA	NA

1. Individuals may have held CFEC permits for more than one fishery, but in this table they are only counted once.

2. Includes salmon, crab, halibut, and herring catches.

NA Not" Available.

Source: CFEC (1985), data files.

- In 1975, crab and salmon earnings combined brought King Cove fishermen a total of $660,000 of which crab provided 71 percent and salmon only 29 percent. Since then, both crab and salmon earnings have increased; total salmon earnings have accounted for greater than 70 percent of the community's fishing income since 1979 (Figure 6-l).

- Commercial fishing has become a much more competitive, highly capitalized business since 1976. The fisheries are more lucrative, the fishermen more efficient, and the seasons shorter and more intense. In short, competition for the resource is increasing.

- Each captain hires between one and five crew members, depending on the fishery and the gear employed. With the recent increase in gear and effort, not enough local labor is available to crew all the King Cove vessels during the salmon season even though every interested, able-bodied man and some women commercial fish each year.

- The PPSF cannery in King Cove has processed between 30 and 59 million pounds of fish and shellfish each year since 1979. Salmon comprises the majority of the plant's product. Tanner crab is of secondary importance. Halibut, roe herring, and in some years dungeness crab are also processed in King Cove.

- The cannery hires in excess of 300 temporary workers during the summer salmon season, very few of whom are local residents.

- The City of King Cove obtains revenue from the commercial fishing industry through a direct sales tax on fish, through revenues from the operation of the boat harbor, and through the municipal share of state raw fish tax receipts collected from the cannery in King Cove. In 1984, the combined revenues to the city from these three sources totaled nearly $500,000 (City of King Cove 1984b).

Interdependence of King Cove Fishermen and Peter Pan Seafoods, Inc.

The relationship between King Cove fishermen and PPSF is one of mutual

dependence. This interdependence is central to both the economic viability and social dynamics of the community. In this section, the cannery/community relationship is described from the limited perspective of the markets and services that the cannery provides local fishermen, and the raw product local fishermen provide the cannery. Other aspects of the community/cannery relationship are described in Chapter VIII.

The' King Cove fishing fleet provides PPSF with a significant proportion of the total raw product it handles each year (Table 6-2). Between 1979 and 1984, the proportion ranged from 17 to 35.6 percent of the plant's total throughput. The cannery's dependence on the local fleet for raw product varies considerably by species. The plant obtained 16 to 41 percent of the salmon it processed between 1979 and 1984 from the King Cove fleet. Most of the remaining salmon that PPSF processed came from other Alaska Peninsula fishermen, although the cannery also processes sockeye salmon from Bristol Bay during the peak of that run (early July). When the Bering Sea king crab fishery was strong in the late 1970s, local harvests accounted for relatively little of the cannery's king crab production. However, as Bering Sea harvests dropped, the relative importance of local product increased until 1982 (the last local king crab season), when the King Cove fleet provided 42 percent of the plant's production. The local fleet supplies most of the cannery's Tanner crab. For the minor species (herring, halibut, and dungeness crab), the importance of the local fleet varies from year to year.

King Cove fishermen are, in turn, quite dependent on the cannery as a market for their fish, although this dependency is not as extensive as in the past. PPSF currently purchases about 60 percent of the total King Cove salmon catch. With the closing of the Pan Alaska plant in Dutch Harbor during the winter of 1984-85, the percentage of the King Cove fleet's salmon purchased by PPSF increased, as several fishermen who previously sold to Pan Alaska began selling to PPSF.

King Cove fishermen are most dependent on PPSF for a pink salmon market and least dependent on PPSF for a sockeye salmon market since cash buyers also purchase sockeye salmon. For species other than salmon (e.g., Tanner crab and halibut), King Cove fishermen's reliance on the local cannery is virtually

TABLE 6-2: INTERDEPENDENCE OF THE KING COVE FISHING FLEET AND PETER PAN SEAFOODS, INC.

A. Proportion (%) of Peter Pan Cannery Production Provided by the King Cove Fishing Fleet, by Species, 1979-1985

YEAR	SALMON	KING CRAB	TANNER CRAB	HALIBUT	HERRING	DUNGENESS CRAB	TOTAL
1979	28.3%	6.8%	27.6%	1.00%	1.00%	*	24.90/o
1980	41.80/o	12.2%	*	*	*	*	35.60/o
1981	16.5%	29.5%	*	*	100%	0%	I7.3%
1982	33.70/0	42.2%	77.00/0	30.8%	0%	o%	17.1%
1983	24.0%	0.09'0	56.0%	2.7%	0%	0%	24,90/o
1984	35.3%	*	89.5%	91.4%	0%	*	35.6%
1985	31.2%	0.0%	80.80/0	90.1%	0%	00/0	NA

B. Proportion (o/o) of the King Cove Fleet Catch Purchased by Peter Pan, by Species, 1979-1985

1979	75.2%	**	49.0%	100%	**	*	69.9%
1980	60.8%	74.0%	0.0%	**	o%	*	57.8%
1981	50.3%	86.00/0	0.0%	*	**	*	46.9%
1982	64.00/o	98.0%	**	1 00%	0%	0%	64.4%
1983	62.70/o	*	NA	NA	o%	0%	NA
1984	***** ***** ********** NOT AVAILABLE ********** *****						
1985	6(3-720/.(])	*	100%	1 00%	NA	*	NA

1. Proportion depends on species; highest for pinks.

* A. No production by Peter Pan; B. No fishing by King Cove residents.

** Because of confidentiality precautions of the CFEC, the King Cove catch cannot be determined.

NA Not Available.

Sources: Peter Pan Seafoods, Inc. (1985), personal communication; CFEC (1985), data files; Stephen R. Braund & Associates (1985), field interview data.

complete. During the 1980-1981 Tanner crab season, PPSF plant did not buy Tanner crab because of a plant shutdown to overhaul the crab processing equipment. Local fishermen sold their catch 'to one of two floating processors. One floater was anchored in King Cove throughout the season; the second was in King Cove for part of the season and in Captains Harbor in Belkofski Bay for part of the season.

Fishermen also depend on the cannery for a number of essential services including fuel purchases, credit for groceries during the fishing season, obtaining replacement parts for vessels, mechanics, bookkeeping, holding mail, and fleet insurance.

Major Issues Facing King Cove Fishermen

Major issues facing the King Cove fishing industry are summarized below. Each issue is discussed in more detail in subsequent sections of this chapter.

- Access to the Salmon Fishery. Limited entry effectively excluded some King Cove residents from becoming permit holders. These individuals lost their opportunity for free entry into the now lucrative (and expensive to enter) Alaska Peninsula salmon fisheries.

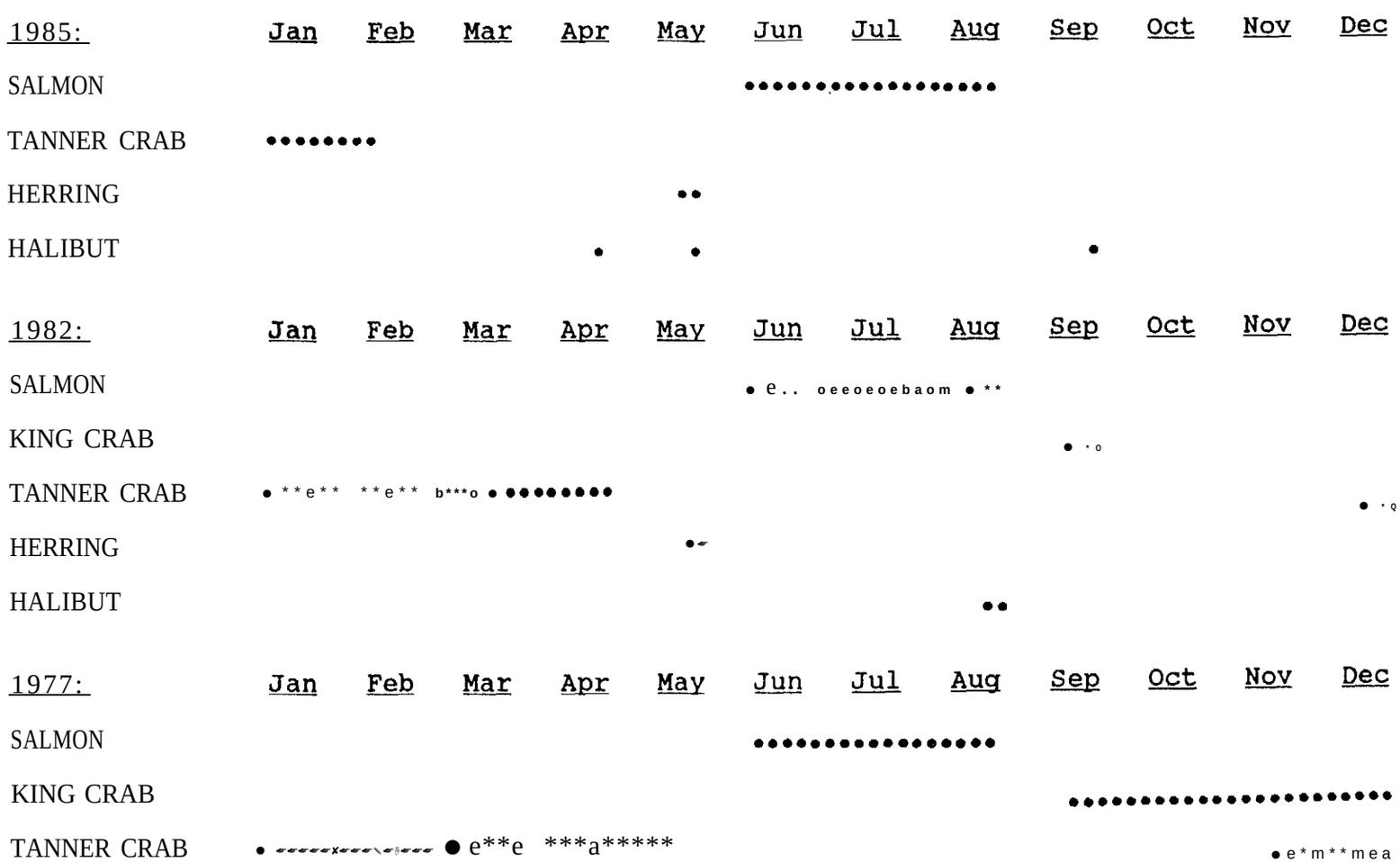
- Increased Effort and Competition in the Salmon Fishery. The pattern of increasing effort stemming from full utilization of permits is occurring throughout the Alaska Peninsula Salmon Management Area. This trend has resulted in fewer fishing days and an ever-increasing advantage for efficient, well equipped fishermen. This, in turn, pushes fishermen into buying bigger, more efficient vessels (increased capitalization) which only exacerbates the situation. The effects of increased effort are most apparent in the South Unimak June fishery. By 1984, the amount of gear had increased 216 percent since 1976. Fishermen took the entire quota in just four fishing periods (Holmes 1984). In 1985, effort levels were similar to 1984; however, there were nine fishing days, but only six with good fishing conditions (A. Shaul, ADF&G, personal communication, 1985).

o Reduced Fishing Seasons. During the 1960s and 1970s, King Cove fishermen were actively involved in fishing activities throughout much of the year (Figure 6-2). By the early 1980s, a combination of increased fishing effort and declining stocks of both Tanner and king crab had considerably reduced overall fishing time. In 1982, for example, the king crab season lasted approximately a month from September into early October. Tanner season began in January and lasted until early April. While the overall duration of salmon season was the same in 1982, increased fishing effort sharply reduced the total number of fishing days. In 1985, there was no king crab season and Tanner crab fishing was limited to only a month. The added short seasons for halibut and herring do not significantly extend the King Cove fishing season.

o Regulation Changes. A major issue of concern to both drift gillnet and seine fishermen in King Cove is regulation of the South Unimak June sockeye and chum fishery. The allowable South Unimak harvest quota is set at 6.8 percent of the forecasted Bristol Bay sockeye harvest. Bristol Bay and Yukon River fishermen have proposed that the Alaska Board of Fish reduce the South Unimak sockeye and incidental chum harvests. As of June 1985, these proposals have not been adopted; nevertheless, attempts to further restrict this fishery continue. Any such limitations could have a significant financial impact on King Cove salmon fishermen.

o Speciesrsification. Salmon and crab have dominated the fishing economy of King Cove since the 1950s. In the late 1960s and early 1970s, King Cove fishermen diversified into halibut fishing, but stopped in the mid-1970s. Beginning in 1979, there has been some diversification into herring and later again into halibut fishing (Table 6-3), but these fisheries remain relatively minor (Figure 6-l). With the exception of one vessel fishing for black cod in 1985, the King Cove fleet has yet to enter the groundfish fisheries. While there is interest in fishing black cod, the relatively small size of the King Cove vessels presents a significant impediment to such diversification. Dungeness crabbing is considered a "scratch" fishery because the investment for pots is not worth the return.

FIGURE 6-2: ANNUAL CYCLE OF COMMERCIAL FISHING ACTIVITIES
IN KING COVE: 1977, 1982, 1985



Sources: ADF&G (1984a, 1984b).
Stephen R. Braund and Associates (1985).

STEPHEN R. BRAUND & ASSOCIATES 1986

TABLE 6-3: KING COVE RESIDENTS' PARTICIPATION IN THE AREA'S FISHERIES, BY SPECIES, BY YEAR, 1976-1984[1]

YEAR	SALMON	KING CRAB	TANNER CRAB	HERRING	HALIBUT	OTHER[2]
1976	33	12	9	0	0	0
1977	33	9	13	0	0	0
1978	39	10	11	0	0	0
1979	45	11	11	5	0	1
1980	53	13	16	3	4	0
1981	61	20	18	3	0	0
1982	58	19	21	9	12	3
1983	69	2	30	4	NA[3]	2
1984	66	1	20	3	NA[3]	1
1985[4]	NA	0	16	5	10	1

1. An individual may participate in more than one permit fishery for any particular species (i.e., if an individual holds two salmon permits he is counted once in this table).

2. Other includes herring roe on kelp, Dungeness crab and sable fish.

3. Permit data for participation in the 1983 amd 1984 halibut fisheries are not currently available.

4. 1984 data are based on Stephen R. Braund & Associates field interview data.

Source: LZH Associates (1985) with data from CFEC files.

COMMERCIAL FISHING STRATEGIES

In this section, species fished and gear used by King Cove fishermen during the period 1976 to 1984 are discussed. Since 1975, in order to harvest any fish species within Alaska state waters, a permit must be obtained from the CFEC. Of all the fish and shellfish species harvested by King Cove residents, only salmon is controlled under a limited entry system. Permits for other fisheries are available each year to any fisherman who applies for one and pays the minimal licensing fee.

Fishing strategies employed by King Cove fishermen have changed over the last ten years primarily in response to the following three factors:

Limited Entry The institution of limited entry in 1975 had a profound effect on fishing strategies. The number and type of salmon permits possessed by an individual became the primary determinant of his overall fishing patterns. King Cove fishermen's concern about the potential enactment of a limited entry system for halibut fishing has been one factor causing a recent increase in participation in the halibut fishery.

Population Increases in King Cove. Individuals too young to receive limited entry permits eventually sought entry in the fishery as captains. In response, fathers began to transfer one of their multiple salmon permits to their sons. Such permit transfers contributed to the trend of specialization by King Cove salmon fishermen.

Fluctuations in Resources and Markets. The number of salmon available for harvest increased dramatically in the late 1970s, making it possible to successfully fish with only one salmon gear type throughout a season. The crab fishery boomed in the late 1970s because of high prices, then crashed in the early 1980s because of severe resource declines. Bering Sea herring stocks increased in the late 1970s and a new coastal fishery for roe herring began during this period.

Combinations of Permits Fished

Participation of King Cove residents in each fishery is shown in Table 6-3. The fishing strategies employed by King Cove fishermen in terms of the combinations of species harvested and gear utilized are summarized in Tables 6-4 and 6-5. The majority of King Cove fishermen currently only fish for salmon (Table 6-4). The actual number of "salmon only" fishermen has more has more than doubled since 1976. This is a reflection of the trends toward specialization and intensification in the salmon fishery first noted in 1981 (E.R. Combs, Inc. 1982),

During the 1976 to 1984 period, between eight and 20 individuals (representing about 25 to 40 percent of the total number of salmon fishermen) fished for both salmon and crab. In general, salmon fishermen who also crab have the larger boats in the King Cove fleet. In the late 1970s, fishermen who fished both salmon and crab usually fished Tanner and king crab, although a number of individuals targeted one crab species or the other. Because of the small size of their boats and familiarity with local waters, these combination fishermen, with few exceptions, limited their crab fishing to the South Peninsula fishing district or near shore waters in the Dutch Harbor district. In 1984, 11 out of 14 fishermen who fished both salmon and crab fished with seine gear during the salmon season (Table 6-5). In 1985, all but one of the large salmon seiners (longer than 42 feet) in King Cove fished in the Tanner crab fishery.

A small number of fishermen in King Cove specialized in crab fishing during the qualifying years for limited entry (i.e., late 1960s and early 1970s) when it was possible to fish for crab for nine months in either local waters or in the Bering Sea. Crabbing was steady work and in those days, paid better than salmon fishing. These individuals did not qualify for, and in several cases have been unable to obtain, a salmon permit. From 1976 through 1984, between four and 11 individuals have pursued the crabbing only strategy and, up until 1982, did quite well. By 1983, the king crab fishery throughout the Westward Region had crashed and commercial king crabbing was terminated in both South Peninsula and Bristol Bay waters. Tanner crab harvests were also low. Reliance solely on crab was no longer possible for King Cove fishermen. One vessel, a large crabber owned by PPSF, continues to pursue king crab in the

TABLE 6-4: FISHING STRATEGIES OF KING COVE FISHERMEN, 1976 TO 1984

Number of Individuals in Each Category

YEAR	SALMON ONLY	CRAB ONLY	SALMON & CRAB	SALMON, CRAB & OTHER[1]	SALMON OR CRAB, & OTHER[1]	OTHER ONLY	TOTAL NO. PERMIT HOLDERS
1976	25	5	8	0	0	0	38
1977	22	4	11	0	0	0	37
1978	29	6	10	0	0	0	45
1979	33	11	10	1	2	1	58
1980	40	9	11	1	3	1	65
1981	42	11	16	0	3	0	72
1982	30	6	15	5	10	7	73
1983[2]	48	10	18	2	2	1	81
1984[2]	52	7	12	2	0	2	75

1. Other includes halibut, herring, herring roe on kelp, and Dungeness crab.

2. Data on halibut permits are not available; hence are not included.

Source: LZH Associates (1985) based on data provided by the CFEC, Special data run, March 18, 1985.

TABLE 6-5: SALMON FISHING GEAR USED BY COMBINATION CRAB/SALMON FISHERMEN IN THE KING COVE FLEET, 1976-1984

Number of Permit Holders in Each Category

YEAR	PURSE SEINE	PURSE SEINE & DRIFT GILLNET	DRIFT GILLNET
1976	1	6	1
1977	1	8	2
1978	3	7	0
1979	0	11	0
1980	2	4	5
1981	6	4	6
1982	9	3	7
1983(1)	10	2	8
1984(1)	10	1	3

1. The king crab fishery was closed; crabbing was for Tanner crab only.

Source: LZH Associates (1985) based on data provided by the CFEC, Special data run, March 18, 1985.

Bering Sea. Other King Cove crab fishermen now limit crabbing efforts to Tanner crab in South Peninsula waters.

In 1979, small numbers of King Cove fishermen began herring fishing, and in 1980, halibut fishing (Table 6-3). Individuals who diversified their strategies to include these other species included both fishermen who harvested salmon and crab as well as individuals who did not have permits for either salmon or crab (Table 6-4).

Trends

In 1981, E.R. Combs, Inc. (1982) identified the following four fishing strategies in King Cove:

Strategy A: Salmon fishing only with a combination of drift gillnet and seine gear;
Strategy B: Salmon fishing with a combination of drift gillnet and seine gear plus crabbing;
Strategy C: Limit seining for salmon and crabbing;
Strategy D: Salmon fishing only with drift gillnet gear.

This study estimated that 25 to 30 vessels pursued Strategy A; six vessels Strategy B; five to six vessels Strategy C; and five to seven vessels pursued Strategy D. The Combs study also identified two trends. The first was a tendency for King Cove fishermen to intensify rather than diversify their fishing efforts. Intensification of the salmon fishery was manifested through the following practices: buying larger, more efficient vessels; expanding geographic ranges; and utilizing all salmon permits. E.R. Combs, Inc. also identified a secondary, weaker trend called specialization, i.e., the tendency to lease permits and the growth of drift gillnet fishing only as a fishing strategy.

Current fishing strategies demonstrate that the trends of intensification and specialization identified by E.R. Combs, Inc. have continued and nearly reached their limit. In 1984, only 10 out of 66 salmon fishermen (13 percent) utilized a combination of permits during the salmon season. Thirty-two salmon fishermen exclusively fished seine gear, 20 exclusively fished drift gillnet gear, and

four exclusively fished set gillnet gear. Interestingly, set gillnetting has emerged as a viable fishing strategy since the Combs study was performed in 1981.

The King Cove fleet has diversified into new fisheries to a greater extent than was predicted by the Combs study. Since 1979 when the Alaska roe herring fishery began to develop in Bristol Bay, small numbers (three to nine) of King Cove fishermen have participated both in the Bristol Bay and the Port Moller roe herring fisheries. In the early 1980s, discussions began about instituting a limited entry program for halibut in Alaska. This possibility, coupled with the recovery of halibut stocks in the Gulf of Alaska, caused a substantial number (12) of King Cove fishermen to begin halibut fishing in 1982. The value of both the herring and halibut fisheries is minute when compared to the traditional salmon and crab fisheries (Figure 6-1). Nevertheless, participation in these fisheries by King Cove fishermen is motivated by a desire to keep future options open, a desire to fish (the preferred activity for male residents in King Cove), a desire to utilize existing capital equipment, and the prospect of additional fishing income.

SALMON FISHING

Salmon Limited Entry

The limited entry system was instituted for the Alaska Peninsula salmon fisheries in 1975. The CFEC issued permits on the basis of gear types utilized in the fishery. Hence, it was possible for an individual to obtain up to three salmon permits - a purse seine permit, a drift gillnet permit, and a set gillnet permit - depending on his particular fishing history. A total of 87 Alaska Peninsula/Aleutian Islands Region (Area M) salmon permits (36 seine, 37 drift gillnet, and 14 set gillnet) and two Bristol Bay salmon permits have been issued to King Cove residents by the CFEC. An individual cannot own more than one permit for a particular gear type, but can own permits in more than one gear fishery. Permits were issued on the basis of a complicated point system that primarily considered participation in each fishery during the years 1969 through 1972.

During field discussions, nine King Cove residents stated that they had essentially fished all. their lives but had failed to qualify for a salmon permit because they did not fish during the critical years. People did not fully understand the significance of limited entry when it was first instituted. They did not understand that a permit determined who had free entrance to the fishery, nor that permits would become valuable commodities.

People did not fish during the 1969 to 1972 period for several reasons. As stated above, salmon fishing was much poorer during the early and mid-1970s than it is today, and supporting a family on salmon fishing alone was difficult. Consequently, some individuals either left King Cove or pursued activities other than fishing. Of the nine individuals who failed to qualify: two left King Cove to attend trade schools; two left to serve in the military; two went to work for Reeve Aleutian Airways in Cold Bay (one condition of their employment being they not take summers off to salmon fish); one suffered an extended illness during the four year qualifying period; one fished crab year round; and one crewed rather than obtain his own gear license. All nine individuals believed they had been treated unfairly by the state and should have been able to obtain salmon permits.

Permit Transfers

Salmon limited entry permits are freely transferable on the open market; consequently, transfers began soon after permits were issued. Initially, Alaska Peninsula salmon permit prices were fairly low. As salmon stocks and the value of the fishery increased, so did the price of permits (Table 6-6). Permit prices began skyrocketing in 1979 and by 1984, the average prices paid for Alaska Peninsula salmon permits were $243,333 for a seine permit, $186,429 for a drift gillnet permit, and $50,374 for a set gillnet permit (Alaska CFEC 1985). Since limited entry was instituted in 1975, there have been 138 permit transfers (sales or gifts) made by or to King Cove residents with transfers highest in 1982 and 1983 (Figure 6-3).

Two types of permit transfers are allowed under existing CFEC regulations: emergency transfers and permanent transfers. Emergency transfers can only be made in the event of illness, injury, or another emergency and are only valid

TABLE 6-6: MEAN PRICES OF ALASKA PENINSULA SALMON PERMITS, 1975-1984

PERMIT TYPE	YEAR	NUMBER[1]	MEAN PRICE ($)
Seine	1975	0	-
	1976	0	
	1977	1	*
	1978	5	66,000
	1979	5	102,500
	1980	2	*
	1981	2	*
	1982	2	*
	1983	6	195,000
	1984	3	243,333
Drift Gillnet	1975	0	-
	1976	4	6,333
	1977	7	10,286
	1978	5	15,000
	1979	4	60,625
	1980	11	92,454
	1981	10	123,500
	1982	14	128,833
	1983	10	157,700
	1984	7	186,429
Set Gillnet	1975	0	
	1976	3	*
	1977	4	5,150
	1978	2	*
	1979	0	
	1980	6	15,625
	1981	9	54,278
	1982	11	54,636
	1983	10	55,420
	1984	8	50,374

1. Number of monetary permit transfers.

* In instances when there are less than four transactions, the CFEC does not release data due to confidentiality statutes.

Source: Alaska CFEC (1984), Annual Report.

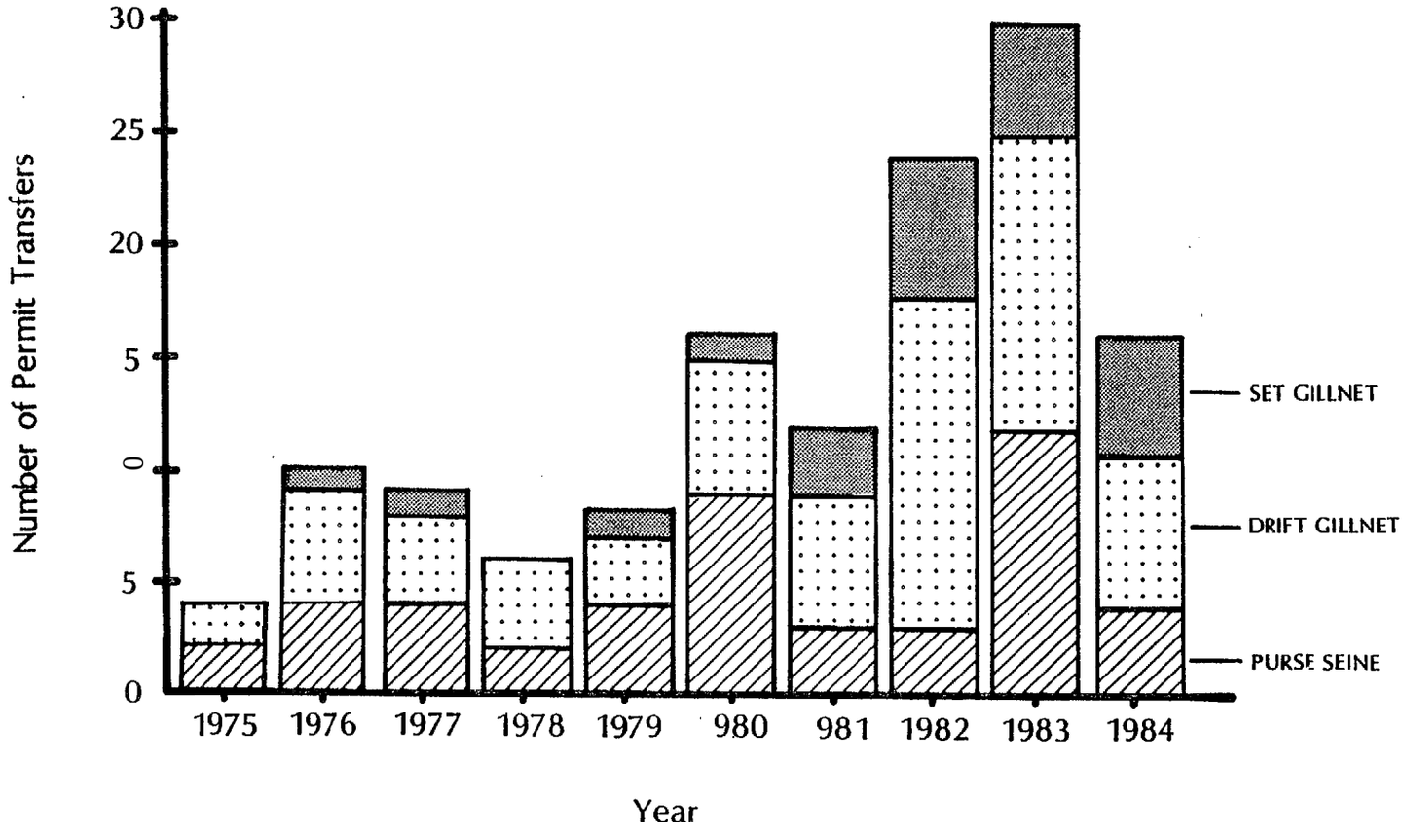
for one season. To make a Permanent transfer (even if it is a gift), an individual must file a notice of intent to transfer with the CFEC along with a copy of the sales contract or gift form. The form must be on file for 60 days before the permanent permit transfer will occur. In King Cove, permits are commonly transferred to another person (usually a relative) with the expectation that it will be returned when requested. It should be emphasized that all legal rights rest with the person to whom the permit has been transferred.

Permit transfers and sales are made for a variety of reasons. In the early years of limited entry, marginal fishermen who did not view fishing as their primary occupation sold their permits to make some money. In the late 1970s and early 1980s, a number of the more professional fishermen sold one of their multiple permits as a way to finance the purchase of a more modern and efficient vessel to take advantage of the increasingly lucrative salmon fishery. Other permit transfers were made to relatives, especially to sons as they grew into adulthood and were ready to start their own fishing ventures. Permits were also transferred to relatives in order to have each permit at work throughout the fishing season.

Over 50 percent of the permit transfers made involving King Cove residents have been between members of the community (Table 6-7). Most intra-community transfers involve the transfer of permits from an individual with multiple permits to an individual without a permit. Thirty-six permits have been transferred by King Cove residents to nonresidents and 18 permits have been transferred from nonresidents into King Cove. The net effect of all these transfers has been a loss of 18 permits (two seine permits, 11 drift gillnet permits, and five set gillnet permits) from King Cove during the 10 year period of limited entry. This represents a loss of 21 percent of the permits initially issued to King Cove residents by the CFEC (six percent of the purse seine permits, 30 percent of the drift gillnet permits, and 36 percent of the set gillnet permits). The full significance of this loss of permits will be realized as King Cove population continues to grow.

There has been the most activity in drift permit transfers: 65 transfers during the 10 year period, with a peak in transfers occurring in 1982 and 1983. Over half of the transfers were made from one King Cove resident to another.

Figure 6—3: SA .MON PERMIT TRANSFERS TO AND BY KING COVE RESIDENTS, 1975 — 1984



SOURCE: CFEC DATA FILES

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TABLE 6-7: ALASKA PENINSULA SALMON PERMIT TRANSFERS
TO AND FROM KING COVE
FISHERMEN BY RESIDENCY, 1975-1984

	PURSE SEINE	DRIFT GILLNET	SET GILLNET	TOTAL
CFEC Permits Issued to King Cove Residents	36	37	14	87
Within Community Transfers[1]	35	36	10	81
Permit Losses to:				
Other AK Peninsula Residents[2]	2	4	3	9
Non-Alaska Peninsula[3]	5	15	6	26
Alaska Department of Commerce	0	1	0	1
Permit Gains from:				
Other Alaska Peninsula Residents	3	6	4	13
Non-Alaska Peninsula	2	3	0	5
Net Change[4]	-2.	-11	-5	-18

1. CFEC Category KRL
2. CFEC Category RRL
3. CFEC Categories RRN, RUN, N
4. Changes in the numbers of permits held by King Cove residents in any year can also result from individuals with permits moving into and out of King Cove.

Source: LZH Associates (1985) based of data provided by CFEC, Special computer run, April 10, 1985.

Forty-seven seine permits have been transferred during the 1975 to 1984 period with 35 (74 percent) being within-community transfers. Only seven of these permits have been transferred to individuals outside the community. This loss has been largely offset by five permits being gained from other Alaska Peninsula fishermen and non-local fishermen. There has been a net loss of only two seine permits from King Cove.

Until the last two years, set gillnetting has not been a primary fishing strategy for King Cove residents. Owners of multiple permits viewed set gillnet permits as the most expendable, valuable primarily for obtaining a down payment on a new boat. CFEC records show a maximum of six set gillnet permits issued to King Cove residents have been used in any year. The fact that not all of these permits are active demonstrates the relatively low level of importance of this fishery to King Cove residents.

Salmon Fishing Techniques and Strategies

Salmon fishing strategies can be thought of as a combination of gear utilized, geographic areas fished, and seasonal timing. Combinations of salmon permits fished by King Cove fishermen for the period 1976 to 1984 are shown in Table 6-8. Several trends are apparent. After the initial few years of increasing numbers of permits caused by new issues from the CFEC, the total number of active salmon permits held by King Cove residents stabilized between 75 and 79. In contrast, the number of salmon permit holders has increased dramatically, from 33 in 1976 to a high of 69 in 1983. The average number of salmon permits held per individual has dropped from a high of 1.9 in 1977 to a low of 1.1 in 1983.

King Cove fishermen employ the following four salmon fishing techniques:

Power seining is a relatively new fishing technique for King Cove fishermen. It requires a large boat (42 feet to 58 feet), uses a large, deep seine usually 250 fathoms in length and 2 1/2 to 5 3/4 strips deep. Mesh size is 3 1/8 to 4 inches. Seine leads vary in length. Some of the small seiners use no leads, while some large seiners usc leads of up to 200 fathoms.

TABLE 6-8: SALMON FISHING STRATEGIES OF KING COVE RESIDENTS, 1976-1984

YEAR	PS	DGN	SGN	Ps & DGN	PS & SGN	DGN & SGN	Ps, DGN & SGN	TOTAL ACTIVE PERMITS	TOTAL IND	ACTIVE PERM/ IND
1976	2	9	1	19	0	0	1	53	33	1.6
1977	5	5	1	20	0	1	1	56	33	1.9
1978	8	5	1	24	0	1	0	64	39	1.6
1979	7	6	1	27	0	1	3	79	45	1.8
1980	14	15	1	20	1	0	2	78	53	1.5
1981	24	17	1	15	0	0	2	78	61	1.3
1982	24	20	1	13	1	1	0	75	58	1.3
1983	29	26	5	8	0	0	1	79	69	1.1
1984	32	20	4	8	0	2	0	76	66	1.2

Ps: Purse seine
DGN: Drift gillnet
SGN: Set gillnet
PERM Permits
IND: Individual

Source: LZH Associates (1985) based on data from the CFEC, Special computer run.

Beach seining involves two skiffs - a lead skiff (usually about 20 feet in length) and a small end skiff - and a smaller seine than that used for power seining. The end skiff holds the end of the net stationary while the lead skiff circles the fish, eventually meeting the end skiff and completing a circle. The net is then gathered into the lead skiff by the four or five crew members in the boat until the purse section is reached. The purse is then closed. Fish are brailed out of the net to a tender. When the large power seiners beach seine, the large boat is essentially used as a tender.

Drift gillnetting is carried out by 32 to 42 foot vessels. Two 100 fathom shackles of gear are used. Gillnet depth varies from 90 to 180 meshes with the deeper gear being used when fishing in South Peninsula waters. Fish are gilled in the drifting net. The nets are brought aboard the vessel by a hydraulic roller, and the fish are individually picked out of each net.

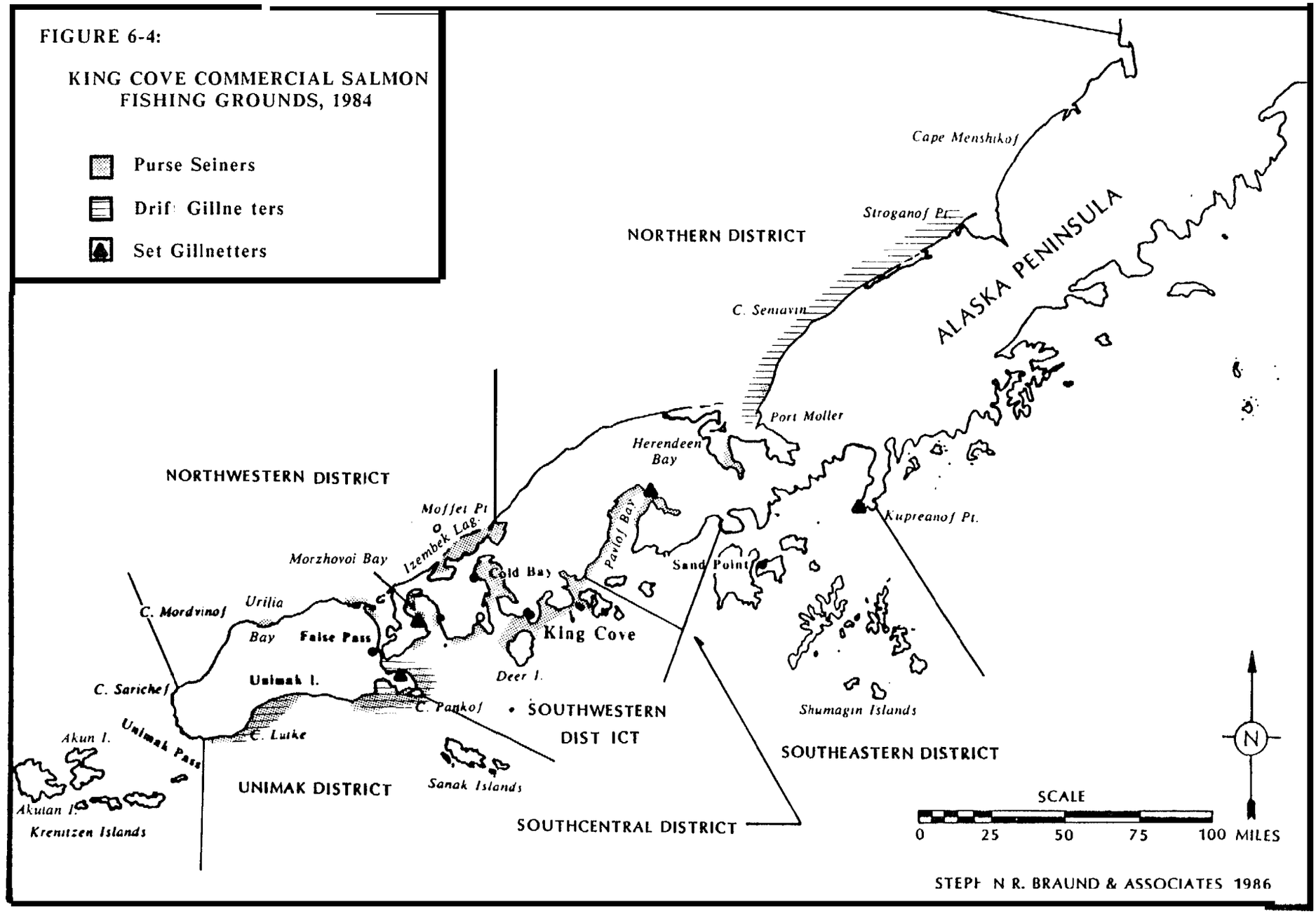
Set gillnetting is carried out from a shore location, called a set gillnet site. Two 100 fathom shackles of gear are utilized. The outer end of the gillnets are anchored to the bottom. Fish are picked from the gillnet by bringing sections of the net on board a large skiff and picking the fish out of the net.

Fishing Grounds

The fishing grounds utilized by King Cove salmon fishermen over a fishing season vary from year to year and from fisherman to fisherman, but depend in large part on the gear utilized. Alaska Peninsula salmon permits can be fished throughout ADF&G Salmon Management Area M which has an eastern boundary of Cape Menshikof on the north shore and Kupreanof Point on the south shore, and a western boundary at the end of state waters on the Aleutian Islands. However, there is no commercial salmon fishery west of Unalaska Island. While King Cove fishermen have undoubtedly fished throughout this entire area at one time or another, current fishing patterns concentrate the King Cove fleet's effort from Unimak Bight to Pavlof Bay on the south shore, and from Urilia Bay to Stroganof Point on the north shore. Primary fishing grounds by gear type are shown in Figure 6-4. King Cove seiners also frequently fish the waters around Unalaska

FIGURE 6-4:

KING COVE COMMERCIAL SALMON FISHING GROUNDS, 1984



Island. However, it is rare that there are many King Cove boats there at any one time (A. Shaul, ADF&G personal communication, 1986).

Seiners start their fishing season by participating in the June fishery for sockeyes and chums in Unimak Bight. One seiner fished in Urilia Bay during June of 1984 and did extremely well. In early July, some seiners will go to the north shore and continue to seine for chums and sockeyes in Herendeen and Moller bays. Several seiners will fish in Izembek Lagoon for chums, but getting tender service there is sometimes difficult. Other seiners will move east along the south shore and seine for pinks along the east shore of Pavlof Bay or in Canoe Bay. During August, when it is legal to fish right up to the stream mouths, most seiners move to shallow waters near King Cove and beach seine for pinks.

Drift gillnet fishermen also begin their season in June in the South Unimak fishery, but favor the more protected fishing areas such as East Anchor. When this fishery is over, almost all drifters travel to the north shore through False Pass to the Port Moller area. The gillnetters then fish in the surf zone from Port Moller to as far east as Stroganof Point.

Individuals that drift and seine follow the drift gillnetters' fishing pattern until August when they return to local waters near King Cove to beach seine.

There are relatively few set gillnetters in King Cove. This is primarily due to the lack of good set gillnet sites in the immediate vicinity of King Cove. Set gillnet sites used by King Cove fishermen in 1984 and 1985 are shown in Figure 6-4. The Pavlof Bay site is considered an excellent site and a consistent producer. The owner, however, only operates one shackle of gear because he cannot find a second good location in the vicinity for the other allowable shackle. This fisherman has also set gillnet for salmon as far west as Stepovak Bay. Other locations that were mentioned as good set gillnetting sites by King Cove residents during interviews include Izembek Lagoon (for chum salmon), Thin Point, the Ikatan area, and East Anchor Bay.

King Cove Fleet Salmon Catches and Earnings

Detailed data on salmon catch and earnings by species and fishing district made by individual King Cove fishermen were obtained from the CFEC for the years 1980 and 1983. These years were chosen for detailed analysis as they represented one very good and one relatively poor fishing season.

The 1980 fishing season was the record catch year for sockeye salmon in the Alaska Peninsula Salmon Management Area and, with the exception of 1984, it was also the record pink salmon catch year. Chum catches were also good in 1980, being just over the recent five year average (Table 6-9). Fish prices were high and no limits were set on deliveries by the region's canneries. The total ex-vessel value of the 1980 Alaska Peninsula salmon fishery was $37.8 million, the third highest in history (Table 6-10).

In contrast, 1983 was the poorest salmon season since 1978. It had the lowest total catch since 1978, with pink salmon catches being the lowest since 1977 and just 48 percent of the recent 5-year average. However, 1983 sockeye and chum harvests remained close to the 5-year average. The total ex-vessel value of the 1983 fishery was $30.9 million, the lowest of the "good" salmon years the Alaska Peninsula has enjoyed since 1979.

Species Composition

In both 1980 and 1983, pink salmon comprised the largest proportion of the King Cove fleet's catch. However, its relative dominance in 1980 was much higher, reflecting the greater availability of fish (Table 6-1 1). In 1980, pink salmon accounted for 59.7 percent of the King Cove salmon fleet's catch and 52.1 percent of its gross earnings. In 1983, pinks accounted for 39.5 percent of the catch but only 24.6 percent of the earnings. While the sockeye catch in 1983 totaled fewer pounds than in 1980, its relative importance in terms of the proportion of fleet earnings was greatly increased in this very poor pink salmon season. In 1980, earnings from sockeye harvests totaled about $3.7 million and accounted for just over 20 percent of the fleet's total earnings; in 1983, they totaled $2.6 million and accounted for 52 percent of the

TABLE 6-9: ALASKA PENINSULA SALMON. CATCH BY SPECIES, 1974-1985
(in thousands of fish)

YEAR	PINK	SOCKEYE	CHUM	KING	COHO	TOTAL
1974	110.2	452.6	106.8	5.6	33.4	708.6
1975	62.0	501.9	141.6	2.2	28.2	735.9
1976	2,367.5	1,016.1	606.1	7.0	26.1	4,022.7
197'7	1,449.5	782.8	372.3	6.0	36.2	2,645.8
1978	6,075.4	1,477.5	710.2	15.0	124.0	8,400.1
1979	6,575.5	3,141.4	548.7	19.2	469.3	10,742.1
1980	8,263.2	5,019.3	2,051.4	21.6	402.1	15,647.6
1981	5,047.1	4,100.1	2,477.1	28.5	317.8	11,979.6
1982	6,757.2	3,781.3	2,603.6	39.9	494.0	13,666.0
1983	2,831.0	4,499.0	2,048.0	48.0	205.0	9,796.0
1984	11,616.7	4,053.0	2,453.2	32.0	507.6	18,662.3
1985(1)	4,400.0	4,580.0	2,039.0	28.0	331.0	11,378.0
1O-YR AVG (75-84)	5,066.4	2,837.2	1,401.2	21.9	261.0	9,593.8
5-YR AVG (80-84)	6,827.3	4,290.5	2,326.7	34.0	385.3	13,878.2
HIGH (YR)	11,616.7 (1984)	5,019.3 (1980)	2,603.6 (1982)	48.0 (1983)	494.0 (1982)	18,302.0 (1984)
LOW (YR)	62.0 (1975)	452.6 (1974)	106.8 (1974)	2.2 (1975)	26.2 (1976)	708.6 (1974)

1. Preliminary estimate.

Source: ADF&G (1984 b), Annual Management Report, Alaska Peninsula - Aleutian Islands Region; A Shaul (1985), ADF&G Personal Communication.

TABLE 6-10: EX-VESSEL VALUE OF ALASKA PENINSULA SALMON CATCH BY SPECIES, 1975-1985
(in thousands of dollars)

YEAR	PINK	SOCKEYE	CHUM	KING	COHO	TOTAL
1975	70	1,286	212	17	99	1,684
1976	2,782	2,163	1,408	63	143	6,559
1977	1,140	2,163	1,408	63	197	5,900
1978	6,400	6,595	2,590	275	631	16,491
1979	9,020	20,660	1,815	516	3,544	35,555
1980	14,000	16,000	6,000	300	1,500	37,800
1981	7,973	23,834	8,059	540	1,662	41,578
1982	6,420	18,954	7,680	942	2,686	36,691
1983	2,883	21,971	4,689	893	753	30,962
1984	10,897	19,218	4,845	690	2,529	38,179
1985[1]	3,630	26,190	4,212	548	2,279	36,859

1. Preliminary Data,

Sources: E.R. Combs (1982); ADF&G (1984 b), Annual Management Report Alaska Peninsula - Aleutian Islands Region; A. Shaul (1985), ADF&G Personal Communication.

TABLE 6-11: PROPORTIONAL COMPOSITION OF KING COVE'S SALMON CATCH AND EARNINGS, BY SPECIES AND GEAR TYPE, 1980 AND 1983

1980

CATCH

TOTAL CATCH = 18,229,623 LBS

PERCENT OF TOTAL CATCH

GEAR	PINK	SOCKEYE	CHUM	COHO	KING	%TOTAL
Ps	66%	14%	17%	3%	<1%	91%
DGN	1%	76%	23%	1%	<1%	9%
SGN	0	100%	0	0	0	<1%
Total KC Fleet	60%	20%	17%	3%	<1%	

EARNINGS

TOTAL EARNINGS = $5,567,818

PERCENT OF TOTAL EARNINGS

GEAR	PINK	SOCKEYE	CHUM	COHO	KING	%TOTAL
Ps	60%	18%	19%	2%	1%	86%
DGN	0	75%	23%	0	2%	14%
SGN	0	100%	0	0	0	<1%
Total KC Fleet	52%	26%	19%	2%	<1%	

1983

TOTAL CATCH = 11,037,809 LBS

GEAR	PINK	SOCKEYE	CHUM	COHO	KING	%TOTAL
Ps	49%	17%	33%	1%	<1%	78%
DGN	<1%	74%	25%	1%	1%	19%
SGN	50%	24%	26%	0	<1%	3%
Total KC Fleet	40%	28%	31%	1%	<1%	

TOTAL EARNINGS = $4,984,531

GEAR	PINK	SOCKEYE	CHUM	COHO	KING	%TOTAL
Ps	34%	38%	26%	1%	1%	67%
DGN	3%	83%	12%	1%	1%	30%
SGN	33%	49%	18%	0%	<1%	3%
Total KC Fleet	25%	52%	22%	1%	1%	

PS - Purse Seine; DGN - Drift Gillnet; SGN - Set Gillnet

Source: LZH Associates (1985) based on data provided by the CFEC, Special computer run.

earnings. Chum catches and earnings were similar in both years, but because of the reduced total earnings in 1983, the relative importance of chum earnings increased.

Geographic Location of the Catch

While King Cove fishermen fish throughout Area M, the greatest proportion of their catch comes from the Unimak, Southwestern, Southcentral, Northern, and Northwestern districts (Figure 6-4). In 1980, over half of the fleet's earnings came from catches made in the Southwestern District which encompasses the waters in the immediate vicinity of King Cove. Twenty-two percent of the fleet's earnings came from Unimak District catches (Table 6-12). The importance of local waters is undoubtedly related to the high abundance of pink salmon found there in 1980.

In 1983, the Unimak District produced the most income for the King Cove fleet, accounting for 34 percent of its earnings (Table 6-12). The Southwestern District was of secondary importance, followed by equal contributions of the Northern Districts and the Southcentral District. As in 1980, there was little effort or catch in the Southeastern District which is considered to be Sand Point's fishing ground.

Catch and Earnings by Gear Type

Purse seine gear has taken most of the King Cove fleet's salmon harvest and accounted for most of its earnings since 1976. Drift gillnet gear catches most of the rest of the fish, with set gillnet gear being of only minor importance (Figure 6-5).

In 1980, fishermen using seine gear accounted for 86.4 percent of the total fleet's earnings, drift gillnet fishermen caught 13.5 percent of the earnings, and set gillnet fishermen caught less than one percent. In 1983, when pink returns were poor, seine gear catches accounted for 67 percent of the total fleet earnings, drift gillnet gear accounted for 30 percent, and set gillnet gear accounted for three percent (Table 6-1 1).

TABLE 6-12: PERCENTAGE OF THE KING COVE FLEET'S EARNINGS BY FISHING DISTRICT, 1980 & 1983

Gear	Northern/ Northwestern	South-Central	South-Eastern	South-Western	Unimak
		1980			
PS	0	1I%	5%	61%	23%
DGN	44%	0%	0%	43%	13%
SGN		**** Data Not Available *****			
TOTAL EARNINGS	7%	9%	4%	58%	22%
		1983			
PS	8?40	26%	4%	24%	38%
DGN	46%	0%	0%	25%	29%
SGN	0%	44%	0%	56%	0%
TOTAL EARNINGS	19%	I 99'0	3%	25%	34%

Ps: Purse Seine
DGN: Drift Gillnet
SGN: Set Gillnet

Source: Stephen R. Braund & Associates and LZH Associates (1985) based on data from the CFEC, Special computer run.

FIGURE 6-5: KING COVE SALMON CATCH AND EARNINGS
BY GEAR TYPE, 1976-1983

Source: CFEC data files.

The relative importance of earnings from sockeye and pink salmon catches are dramatically different for fishermen who utilize seine and drift gillnet gear, Drift gillnetting is excluded by regulation from the productive Southcentral and Southeastern fishing districts where much of the Alaska Peninsula's pink salmon are harvested. Hence, drift gillnet fishermen must make their living from sockeye and chum harvests. In 1980, a year with excellent pink returns, earnings from pink salmon catches constituted less than one percent "of total earnings for drift gillnet fishermen, while comprising 60 percent of seine fishermen's earnings. In 1983, when pink catches were poor throughout the Alaska Peninsula, pink catches still accounted for 34 percent of seiners' earnings. Earnings from sockeye catches accounted for 75 percent of drift gillnet fishermen's incomes in 1980 and 83 percent of their incomes in 1983. In contrast, earnings from sockeye harvests accounted for only 18 percent of seiners' earnings in 1980, but 38 percent of their earnings in 1983. Earnings from chum catches were of secondary but still significant importance to both gear types in both 1980 and 1983 (Table 6-1 1).

Geographic Location of Salmon Catch by Gear Type & Species

The fishing districts utilized by the King Cove fleet vary significantly by gear type (Table 6-12). Little purse seine activity occurs in the Northern and Northwestern districts. Most of the seine fleet's pink salmon catch is taken in the three southern districts with the catch being concentrated in the Southwestern District in 1980 and spread among the three districts in 1983. The geographic distribution of the catch in 1983 reflects the need to range farther from home waters during a poor season. By far the largest proportion of the seine fleet's sockeye catch in both 1980 and 1983 came from the Unimak District, 87 percent in 1980 and 70 percent in 1983. Chum salmon were taken from all districts with considerable variation between 1980 and 1983 as to which districts were most important.

King Cove drift gillnet fishermen concentrate their efforts in the northern districts and the Unimak and Southwestern districts, with close to half their earnings coming from the two northern districts in both 1980 and 1983 (Tables 6-13 and 6-14).

TABLE 6-13: PERCENTAGE OF KING COVE PURSE SEINE CATCH BY SPECIES TAKEN IN ALASKA PENINSULA FISHING DISTRICTS

Species[1]	Northern/ Northwestern	South-Central	South-Eastern	South-Western	Unimak
			1980		
PINK	0%	5%	4%	86%	4%
SOCKEYE	0%	1%	1%	11%	87%
CHUM	0%	42%	5%	35%	17%
			1983		
PINK	0%	60%	35%	35%	1%
SOCKEYE	3%	2%	5%	20%	70%
CHUM	26%	17%	3%	14%	36%

1. Combined, pink, sockeye, and chum catches accounted for 97% of the purse seine fleet's earnings in 1980 and 98% in 1983.

Source: Stephen R. Braund & Associates and LZH Associates (1985) based on data provided by the CFEC, Special computer run.

TABLE 6-14: PERCENTAGE OF KING COVE DRIFT GILLNET CATCH BY SPECIES TAKEN IN ALASKA PENINSULA FISHING DISTRICTS

1980

Species [1]	Northern/ Northwestern	South-Central[2]	South-Eastern[2]	South-Western	Unimak
SOCKEYE	36%	0%	0?40	51%	13%
CHUM	68%	0%	0%	20%	12%

1983

SOCKEYE	49%	0%	0%	24%	27'%
CHUM	22%	0%	0%	33%	44%

1. Combined sockeye and chum catches accounted for 98% of the drift gillnet fleet's earnings in both 1980 and 1983.

2. Drift gillnetting is excluded from these districts by regulation.

Source: Stephen R. Braund & Associates and LZH Associates (1985) based on data Provided by CFEC, Special computer run.

Catch and Earnings by Individuals

Average gross earnings of King Cove" fishermen by salmon fishing strategy from 1975 to 1980 and for 1983 are presented in Table 6-15. Average incomes have varied widely from year to year, with seine fishermen always having the highest gross incomes, followed by combination gear fishermen, followed by drift gillnet fishermen, followed by setnetters.

When earnings are aggregated by fishing strategies, however, large variations in individual earnings are masked. Earnings by individual and by fishing strategy in 1980 and 1983 are illustrated in Figure 6-6. As with most fisheries, there are relatively few individuals who make significantly more than the average income; those fishermen who do earn high incomes are called highliners. Many fishermen make less than the average earnings.

In 1980, seine fishermen earnings ranged from less than $50,000 to more than $300,000. In 1983, a much poorer fishing year, seiner gross income ranged from $7,301 to $267,154, with most seiners grossing less than $150,000 and seven grossing less than $50,000. Median seiner income was $91,595.

All King Cove drift gillnet fishermen grossed less than $50,000 in 1980. In 1983, most drift gillnet fishermen grossed between $25,000 and $50,000, with the median income being $40,297. The income range was $3,506 to $111,970. In 1983, set gillnet fishermen made significant earnings with four out of five fishermen grossing more than $24,000.

Individuals fishing a combination of gear generally grossed more than individuals who used drift gillnet gear only, but less than those who only used seine gear. This tendency may be a reflection of the larger, more efficient vessels utilized by seine gear only fishermen.

King Cove Fleet Performance Compared to Other Alaska Peninsula Fishermen

Pink salmon is relatively more important to the King Cove fleet than to the Alaska Peninsula fleet as a whole, and sockeyes are relatively less important. Chum salmon are the third most important species to both the King Cove and

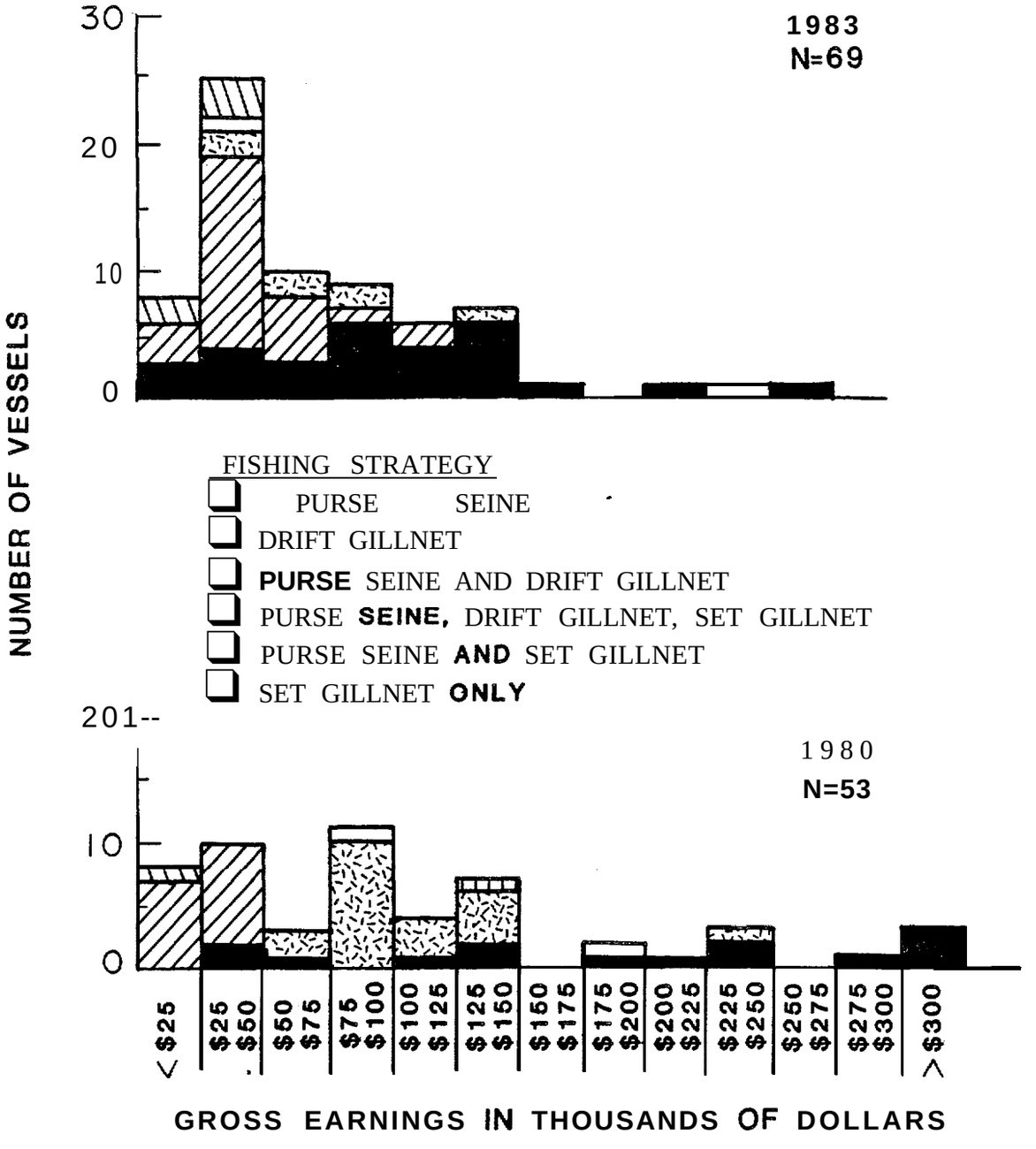
TABLE 6-15: KING COVE FE? HERMEN'S AVERAGE SALMON CATCHES AND GROSS EARNINGS BY FISHING STRATEGY, 1975 to 1979, 1980 AND 1983

Gear Type	1975	1976	1977	1978	1979	1980	1983
Type I: PS, DG, SG							
Gear Operators	0	1	1	0	2	2	1
Average Landings (LBS)		272,160	98,130		370,271	456,262,	106,712
Average Earnings		$76,556	$34,998		$183,041	$131,243	$44,921
Type H: PS, DG							
Gear Operators	16	19	19	27	25	20	8
Average Landings (LBS)	21,522	211,789	102,470	280,380	250,013	365,169	227,563
Average Earnings	$7,326	$58,019	$32,834	$102,782	$119,058	$106,866	$92,761
Type 111: 'PS, SG							
Gear Operators	0	0	0	0	1	0	0
Average Landings (LBS)					25,147		
Average Earnings					$16,697		
Type IV: DG, SG							
Gear Operators	O,	0	1	1	1	0	0
Average Landings (LBS)			71,071	107,614	114,886		
Average Earnings			$38,626	$79,773	$127,612		
Type V: PS							
Gear Operatore	3	2	6	4	5	14	29
Average Landings (LBS)	12,911	43,599	56,453	188,958	269,246	626,904	243,771
Average Earnings	$4,634	$11,772	$17,017'	$63,253	$135,619	$190,614	$97,750
Type VI: DG							
Gear Operators	9	8	4	4	5	15	26
Average Landings (LBS)	16,745	42,176	39,613	64,301	75,814	53,787	66,764
Average Earnings	$6,841	$14,407	$23,810	$46,621	$86,652	$23,839	$46,795
Type VII: SG							
Gear Operators	0	0	1	1	0	1	4
Average Landings (LBS)			37,774	1,544		2,681	61,060
Average Earnings			$12,896	$ 947		$ 1,421	$29,180

PS - Purse Seine; DG - Drift Gillnet; SG - Set Gillnet.

Sources: 1975 - 1979 data from E.R. Combs, Inc. (1982); 1980 and 1983 information from LZH Associates (1985) based on data from the CFEC, Special computer run.

FIGURE 6-6: KING COVE SALMON FISHERMEN'S GROSS EARNINGS BY FISHING STRATEGY



Source: CFEC data files.

Alaska Peninsula fleets. Except for Nelson Lagoon fishermen and a few individual King Cove fishermen, coho salmon and king salmon are of little commercial importance in the Alaska Peninsula region. It should be noted that the relative importance of the different species changes from year to year.

In 1980, the only year for which comparative data are available, the King Cove fleet earned a total income of about $5.6 million or about 14.7 percent of the ex-vessel value of the entire Alaska Peninsula salmon fishery.

King Cove seine fishermen held 29 percent of the permits and earned 26 percent of the total gross earnings in that fishery in 1980. Average income for King Cove seine fishermen was $133,360 compared to average gross earnings of $132,838 for all Alaska residents in the Alaska Peninsula seine fishery, and to nonresident average gross earnings of $225,007 (Focht 1984). Nonresident seiners tend to have limit seiners, whereas the local seine fleet in 1980 consisted mostly of smaller seiners and vessels that also derived part of their income from drift gillnetting.

AJso in 1980, King Cove fishermen held 22 percent of the Alaska Peninsula drift gillnet permits but earned only 14 percent of this fishery's gross earnings. Average gross earnings in this fishery for King Cove residents were $21,476, compared to a mean gross of $26,714 for all Alaska residents, and $51,136 for nonresidents (Focht 1984). In 1980, less than half of King Cove drift gillnetters exclusively drifted, hence their earnings in this fishery would be expected to be lower than the nonresident Port Moller fleet that uses drift gillnet gear throughout the season.

In 1983, the King Cove fleet took about 16.2 percent of the total Alaska Peninsula salmon earnings. Earnings by gear type are not available for the aggregated Alaska Peninsula data set.

Summary

The patterns that emerge from examination of King Cove fishermen salmon catches and earnings for the years 1980 and 1983 include:

- Most of the fish harvested by the King Cove fleet are taken by seine gear. Drift gillnet gear accounts for a smaller but still significant proportion of the catch and value. Set gillnet gear accounts for only a very small percentage of the King Cove salmon catch.

- Pink salmon is the species of primary importance to seine fishermen, with sockeye and chum harvests being of secondary importance. In years with poor pink harvests, total earnings of seiners can be significantly reduced and the relative importance of sockeye and chum harvests increases. Seiners concentrate their fishing efforts in the Unimak and southern fishing districts.

- Drift gillnet fishermen are extremely dependent on sockeye salmon harvests for their earnings. Chum salmon are of secondary importance, with other salmon species making no significant contribution to their earnings. Drift gillnet fishermen primarily fish in the northern fishing districts, the Unimak District, and the Southwestern District. They are excluded by regulation from the other two south peninsula districts.

- Fishermen who fish a combination of purse seine and drift gillnet gear use both gear types to harvest sockeyes and chums, but harvest all pink salmon with seine gear. In both 1980 and 1983, the earnings from seine harvests accounted for the majority of their earnings, 83 percent in 1980 and 65 percent in 1983.

Expenses

Fishing costs are usually classified as either capital costs, operating costs, or fixed costs. Capital costs include purchases of equipment and durable goods with an expected useful life of more than one year. They include fishing gear, vessels, and permits that are purchased. Operating costs are the annual out-of-pocket dollars that must be spent in order to harvest fish. They include fishing licenses and permits, fuel and oil costs, groceries, gear repairs, and payments to crew. If there is no fishing, there are no operating expenses. Fixed costs are payments that are associated with maintaining one's fishing operation and they must be made whether or not a vessel fishes. They

include such things as boat loan payments, moorage and gear storage fees, and insurance. Operating and fixed costs together are the annual cash outlays that a fishermen must make from his gross earnings. While operating costs are somewhat proportional to gross earnings, fixed costs are not. Fixed costs are the same whether one grosses $1,000 or $1,000,000 in any year; moreover, these costs in large part determine an. individual's vulnerability to an event that greatly reduces his gross earnings.

Capital Costs

Representative capital costs for entering the Alaska Peninsula salmon fisheries are illustrated in Table 6-16. The seine fishery requires the largest capital investment; the set gillnet fishery requires the smallest. The high cost of entry into the purse seine and drift gillnet fisheries effectively excludes most individuals, unless they have free access to a permit (i.e., they received one from the CFEC or from a relative) or boat.

Operating Expenses

Annual operating expenses are different for each gear type and are highest for power purse seiners, less for beach seiners, somewhat less for drift gillnetters, and smallest for set gillnetters. The largest annual operating expense is crew payments; fuel and groceries comprise the bulk of the other operating expenses.

Crew Payments. Crew payments are made as a proportion of the total earnings of a vessel. The higher a vessel's earnings, the higher the crew's earnings. The earnings of crew members are called crew shares. While individual crew shares vary widely, the proportion of a vessel's total earnings paid out in crew shares is less variable, ranging from 20 to 50 percent with a median value of 40 percent. With the exception of one vessel, all the seine boat cases documented paid a total of 40 to 50 percent of their gross earnings in crew shares. Because drift fishermen have fewer crew members, a smaller proportion of their gross is spent on total crew payments. Individual crew shares depend on the skipper, the gear type, the total number of crew members, the relationship between the

TABLE 6-16: CAPITAL COSTS FOR ENTERING ALASKA PENINSULA SALMON FISHERIES

Full Purse (Power) Seining	
Permit[1]	$243,000
Vessel[2,3]	$300,000- 600,000
Gear[3] (250 fathom purse seine with lead)	$20,000- 30,000
Power skiff[3]	$22,000- 45,000
Power block[3]	suQQ- 3.500
Total	$587,500- 921,500
Half Purse (Beach) Seining	
Permit[1]	$243,000
Vessel*	$150,000 - 300,000
Gear[3] (250 fathom purse seine)	$8,000- 10,000
Two skiffs and outboards[3]	$5,000- 6,000
Power block[3]	$Lxu- 3.500
Total	$408,500 - 562,500
Drift Gillnetting	
Permit[1]	$186,500
Vessel[2,3]	$150,000- 250,000
Gear[3] (200 fathoms)	$8,000- 10,000
Reel and hydraulics	$6,000
Total	$350,500- 452,000
Set Gillnetting	
Permit[1]	$50,000
Skiffs[3]	$5,000
Nets[3]	$7,000
Total	$62,000

1. Mean Alaska Peninsula Seine Permit Price, 1984 (CFEC 1985).
2. Vessel prices can vary greatly depending on whether a new or used vessel is bought, the design, size and power of the vessel, and auxillary equipment such as electronics purchased.
3. Costs based on discussions with key informants.

Sources: Stephen R. Braund & Associates and LZH Associates (1985).

skipper and crew member, and a crew member's responsibilities. In 1985, individual crew shares on King Cove boats ranged from seven percent to over 20 percent of . the gross revenues with a mean of 11.8 percent (including wages paid in salmon, Tanner crab, and halibut fisheries). These individual crew payments approximate average crew share values of 10.36 percent used by Berman (1986) and 15.6 percent and 8.7 percent used by Larson (1984) for drift gilnetting and power seining (respectively) in southeast Alaska. In some cases, crew shares are a straight percentage of gross earnings. In other cases, crew members pay for a part of the vessel's fuel and groceries. In general, since gross fishing revenues in King Cove are high, crew shares paid by the King Cove fleet are generous when compared to shares paid in other fishing locations. Further discussion of crew structure and the differential payment of crew shares to individuals is found in Kinship and the Commercial Fisheries.

Fuel and Groceries. Fuel and grocery expenses during the salmon season largely depend on the size of the boat. The larger boats that power seine need the most fuel. Half purse seiners spend about $6,000 to $7,000 on fuel and oil for the salmon season; full or power seiners spend double that amount. Fuel costs for drift gillnetters are about $4,000 per season. Diesel was selling for $1.23 per gallon in King Cove during January of 1985. Grocery costs can vary widely from boat to boat and depend on the size of the crew, where the food is purchased, and whether they eat salmon on board the boat.

Fixed costs

Fixed costs vary considerably among King Cove fishermen and are largely a function of an individual's debt structure. Borrowing money to purchase boats is a fairly recent phenomenon in King Cove. As discussed in the history section, prior to 1978, boats were mostly bought through the cannery and payments were taken as a proportion of earnings. If it was a poor season, a man did not lose his boat.

Loan payments. The first major source of new capital to King Cove fishermen was a State of Alaska fishing loan program that made capital

available to qualified applicants at below market interest rates. Since 1978, 21 King Cove residents have received a total of 24 loans for an aggregate total principal of $1,893,413. As of April, 1985, there were 16 outstanding loans to 16 individuals with an aggregate outstanding balance of $1,018,153. Interest on State of Alaska fishing loans obtained in 1978 and 1979 was 7 percent; on loans obtained in 1980, 1981, and 1982, about 9.5 percent; and on loans between 1983 and 1985, 10.5 percent. In 1982, the Commercial Fisheries and Agricultural Bank (CFAB) also began making fishing loans. Between then and May of 1985, 21 King Cove residents received 41 loans. Currently, 33 outstanding loans to 17 individuals total $2,563,925. Terms of CFAB loans vary widely depending on when and for what purpose they were made (e.g., permit purchase, new vessel purchase, or working capital). However, the loan costs and interest rate of CFAB loans are substantially higher than the subsidized State of Alaska loans.

The vast majority of boat and permit loans that are financed in King Cove are financed through one of the above programs. Taken together, 33 King Cove individuals currently have outstanding fishing loans. The aggregate balance of these loans is $3.58 million.

Interview data on loan payment histories were obtained from 17 individuals. Of these, six people no longer had payments. The size of the payment varied widely depending the terms of the loan and on whether an individual was paying off both a permit and a vessel.

Reported interest rates varied between seven percent on several state loans and 23 percent on a vessel loan obtained from a boat building company. Two individuals with loans from CFAB had a floating interest rate which in 1983 was 17.5 percent and in 1984 was 14.7 percent. Reported annual vessel payments ranged from $11,800 to $66,500. It should be noted that both the individuals with the highest and lowest vessel payment also had permit payments to make which brought their total annual loan payments to $61,800 and $96,500, respectively. For permit purchases that were financed by the seller (two cases), the individual paid off the permit in a relatively short time. One example is a $250,000 seine permit bought with $100,000 down; then $50,000 payments were due each of the following three years.

Insurance. Insurance is the other major fixed cost. Most of the King Cove fleet is insured through Peter Pan's fleet insurance program. As such, they have favorable rates. However, even with the savings of being part of a fleet insurance program, insurance costs have risen dramatically over the last five years and represent a significant fixed cost for most vessels. Generalizing about insurance rates is difficult because rates depend on the fisheries in which the boat participates. For example, rates for vessels that crab are much higher than for vessels that just fish salmon, and seine boat rates are higher than drift gillnet boat rates. Rates also vary depending of the level of protection desired and the age and value of the vessel.

Insurance rates for eight vessels were obtained. For large seine boats that fish both salmon and crab, annual insurance premiums are about $20,000 per year; insurance premiums for smaller seiners and combination vessels are between $6,000 and $8,000. Insurance for drift gillnetters is about $1,200.

Other. Other fixed costs include moorage fees and gear storage fees. Annual boat moorage fees in King Cove range from about $238 for a 34 foot boat to over $500 for a 48 foot vessel.

Markets

Most King Cove fishermen sell the majority of their salmon catch to PPSF. The percentage of the catch by species that the cannery bought in 1980 and 1983 (the only years for which data are available) are shown in Table 6-17. Pan Alaska, which operated out of Dutch Harbor through the 1984 season but closed in 1985, was PPSF's only major "full service" competitor for King Cove fishermen's catch. There are a large number of cash buyers competing with Peter Pan for sockeyes during the June fishery in South Unimak.

If only the major salmon species are considered, King Cove fishermen are most dependent on Peter Pan for purchase of their pink salmon. During the South Unimak June fishery which targets on sockeyes, there is significant competition for the fish. This competition is provided by a fleet of floating processors

TABLE 6-17: PROPORTION OF KING COVE SALMON CATCH PURCHASED BY PETER PAN SEAFOODS, INC. 1980 AND 1983

	1980			1983		
	FLEET CATCH (X 1,000 lbs)	PPSF PURCHASE (X 1,000 lbs)	%	FLEET CATCH (X 1,000 lbs)	PPSF PURCHASE (X 1,000 lbs)	%
KING	20	7	35%	62	23	37%
SOCKEYE	3,695	1,837	so%	3,122	1,349	43%
COHO	486	161	33%	64	44	69%
PINK	10,885	7,095	650/0	4,360	3,635	83%
CHUM	3,143	2,023	64%	3,430	2,966	86%
TOTAL	18,229	11,123	61%	11,038	8,017	72%

Source: LZH Associates (1985) with data provided by the CFEC and Peter Pan Seafoods, Inc.

that buy fish there on their way to Bristol Bay. These floaters are called cash buyers and are primarily interested in sockeyes. Cash buyers are credited by local fishermen with raising sockeye and chum prices. Individuals who usually sell their fish to PPSF are known to sell to cash buyers in June. The cash buyers usually pay several cents more per pound than do the canneries. Several King Cove seine fishermen, however, stated a variety of reasons they did not sell to cash buyers: first, because they feared losing their market with the cannery for pinks; second, because the cash buyers did not like seine fish due to large variability in size among fish caught by a seine; and third, because the cash buyers were often slow unloading deliveries.

Fish Prices

Fish prices are negotiated with the area's buyers by the Peninsula Marketing Association (PMA) (see also Political Organization). Separate contracts are negotiated with PPSF and the other canneries. Price negotiations start in the spring but the contract is often not signed until the fishing season begins. Prices are set for each species with different prices for fish that will be canned (lower price) rather than frozen. Price agreements have taken the following three basic forms:

1. Set prices (1981,1983).
2. A minimum price agreement at the beginning of the season with a final settlement being made after the season is over. The final price is determined by the wholesale price of the pack (1982).
3. A split payment where a set amount is paid at the end of the season in August, and an April bonus is also paid (1984).

The sockeye price that PMA negotiates with the Peter Pan is a minimum price, as Peter Pan makes an attempt to match prices set by the cash buyers on the grounds. During any opening, some tenders may be buying fish that will be frozen while others will be buying fish that will be canned. A fisherman is told when he delivers the price he will receive for his fish. Pink prices are often not set until mid-July.

While price is the most important consideration, other factors also play a role in determining where a fisherman will sell his catch. These factors include

services provided by the buyer and the presence or absence of catch limits. In 1984, extraordinarily large pink runs resulted in limits being placed on fishermen's deliveries. The delivery limit at PPSF was 30,000 lbs. per opening, whereas at Pan Alaska it was 50,000 lbs. This limit, while not always strictly adhered to (i.e., if a fisherman delivering to PPSF had a poor day and only got 15,000 pounds, the next day he might be allowed to deliver 45,000 pounds), resulted in a more even distribution of the catch among the large and small seiners.

Salmon Management

The Alaska Peninsula salmon fishery is managed by ADF&G. The goal of management is to optimize sustained yield of the fisheries. Techniques used for management include aerial surveys, counting towers, commercial catch reports, forecasts, and stock analyses. While parts of the Alaska Peninsula fishery open on May 1, it is rare to have catches reported prior to the last week in May. The fishery remains open until September. Certain sections have scheduled weekly openings; however, actual fishing periods in most districts are opened and closed by emergency order.

In both the north and south peninsula areas, salmon may be taken by set gillnets, drift gillnets, and purse seines, although some gear restrictions exist in certain districts. For example, except in the Ikatan Bay section, drift gillnets are excluded from the Southwestern District, and purse seines are excluded from several sections of the Northern District. These regulations shape fishing strategy of these gear users. Management issues associated with the June South Unimak fishery are discussed in Chapter XI.

TANNER CRAB FISHING

Overview

The King Cove Tanner crab fishery occurs in the South Peninsula District and is exclusively for Chionoecetes bairdi, the larger of the two Tanner species found in Alaska waters. Tanner crab fishing in this area began with small landings in the late 1960s as fishermen sought to supplement declining king crab

catches. Catches steadily increased until the 1973-1974 season and peaked during the 1975-1976 season. Catches since then have declined (Figure 4-4) in response to decreasing populations. Because of low effort, catch declines do not accurately reflect the magnitude of the population's decline (Resource Analysts et al. 1984a). The South Peninsula District's lowest catch since 1970 occurred in 1984 when only 2.1 million pounds of Tanner crab were harvested. This low catch was compounded by a low price ($1.02/pound) making the 1984 Tanner season the worst since 1975. The pre-season prediction for the 1985 season was that catches would be of similar magnitude as 1984. ADF&G set a pre-season guideline harvest quota for the district at 1.93 million pounds Plus or minus 25 percent (Table 6-18).

Participation in the Tanner crab fishery by King Cove residents between 1976 and 1981 followed participation levels in the king crab fishery, with between nine and 13 King Cove fishermen holding Tanner crab permits each year between 1976 and 1979 (Table. 6-3). Permit holdings then began to increase and peaked at 30 in 1983. It should be noted that the number of permit holders does not necessarily correspond to the number of vessels in the fishery. More than one individual per vessel may hold a permit and make landings from that vessel. Such events are common in fisheries that are not limited as individuals want to have a record of participating in the fishery.

Tanner crab landings by the King Cove fleet between 1976' and 1985 followed patterns similar to those of the South Peninsula as a whole (Figure 6-7). Peak landings were made in 1979, then continued to fall until 1985 when they improved substantially. Earnings from Tanner crab also declined in the early 1980s until 1985, a record year for fleet earnings.

The 1985 Tanner Crab Season

Preparations for the 1985 Tanner crab season began just after the new year when vessels began moving their pots. The season opened on January 15. Sixteen local vessels participated in the 1985 South Peninsula Tanner crab fishery. In addition, a PPSF vessel that is registered in King Cove but crewed by nonresidents fished for Tanner crab in the Bering Sea. Data from this vessel are not included in this section.

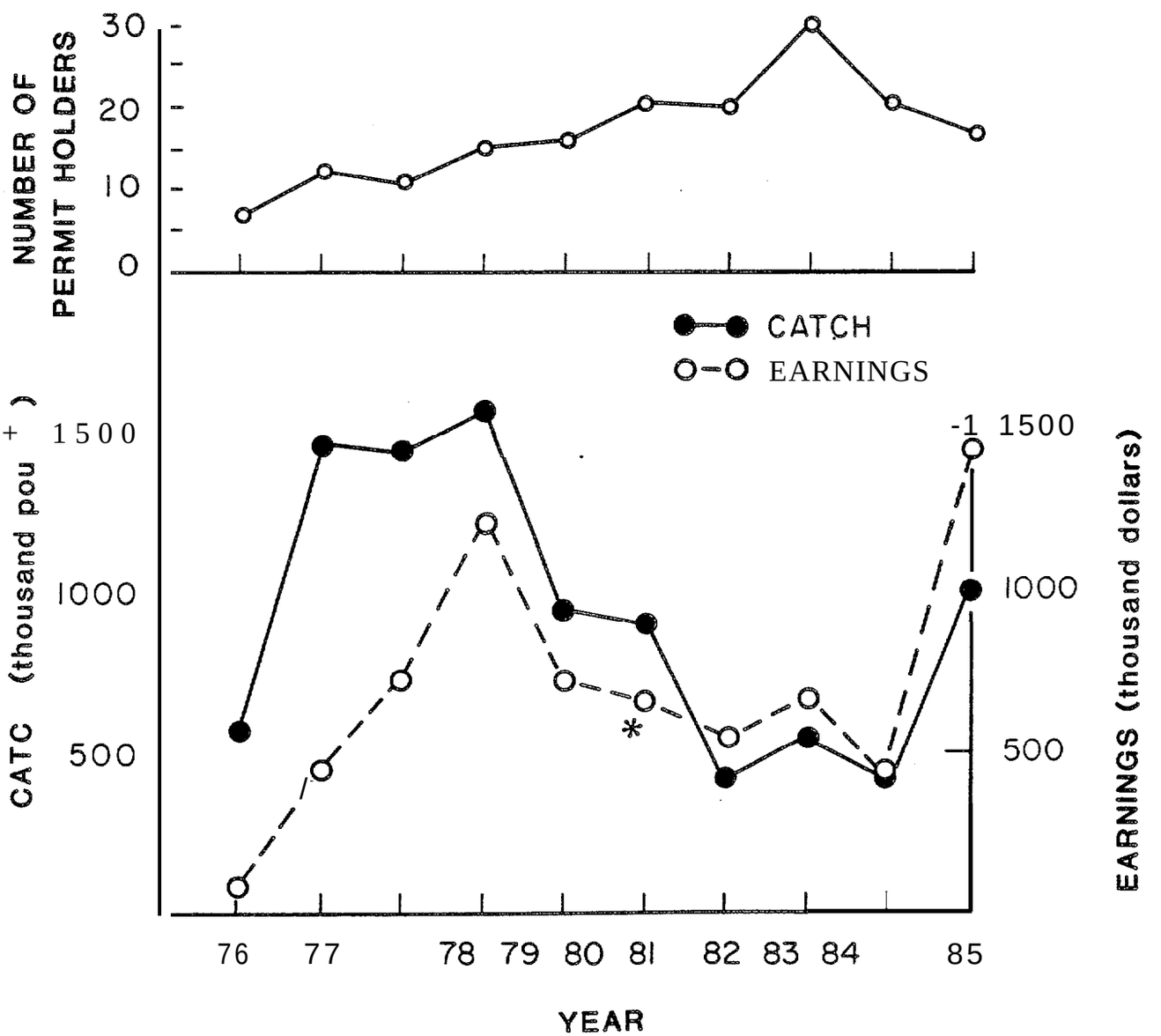
TABLE 6- 18: SOUTH PENINSULA TANNER CRAB HARVEST GUIDELINES AND CATCH BY SUBDISTRICT, 1985

SUBDISTRICTS	HARVEST GUIDELINES [1] (lbs)	CATCH (lbs)
Unimak Bight	30,000 lbs	112
Sanak	150,000 lbs	27,158
Ikatan/Morzhovoi	300,000 lbs	752,901
Cold Bay/Belkofski	400,000 lbs	717,064
Pavlof	680,000 lbs	879,338
Beaver/Balboa	50,000 lbs	36,913
Stepovak	160,000 lbs	59,642
Unga	160.000 lbs	76.558
TOTAL	1,930,000 lbs ± 25%	2,549,686

1. ± 25% at the Department of Fish and Game's discretion, based on in season stock assessment.

Source: Stephen R. Braund & Associates (1985), Personal Communication from ADF&G field biologist.

FIGURE 6-7: CATCH, EARNINGS, AND PARTICIPATION IN THE SOUTH PENINSULA TANNER CRAB FISHERY BY THE KING COVE FLEET, 1976-1985



* catch and value are not reported for three King Cove vessels because of CFEC confidentiality requirements, hence, reported values are low

Source: Stephen R. Braund & Associates (1985) based on CFEC census files and personal communication with PPSF.

By the end of the less than four week season, the King Cove fleet had made 77 landings for a total catch of about one million pounds valued at $1.4 million to the fishermen. The 1985 season was by far the most lucrative Tanner season ever for the King Cove fleet. The season was not, however, without incident. Two relatively new large seiners sank during the season. One vessel was lost in the beginning of the season, and its crew continued to fish from a different vessel. The other vessel was lost towards the end of the season when most of the fishing was over. Fortunately, no lives were lost in either case.

The replacement of the vessel lost at the beginning of the season demonstrates the continued importance of kinship to residents of King Cove. Within minutes of the report that the vessel had sunk, two brothers of the vessel captain were on their way to the area to pick up the captain and crew. Throughout the rest of the season, the captain of the vessel that was lost used his brother's boat. If not for this generous action, the season would have been a total loss, as the season was not sufficiently long to settle with the insurance company and buy a replacement boat.

Fishing Vessels and Gear

Of the 16 King Cove vessels that fished for Tanner crab in 1985, all were seine boats during the salmon season and were between 47 and 52 feet in length. Only one relatively old, large seine vessel remained in the harbor during Tanner season, and this captain leased his crab pots to another fisherman. Each vessel fished between 70 and 180 pots with a median value of 120 pots per vessel. In general, the larger vessels fished the greater number of pots. King Cove vessels, even the largest seiners, are small crabbers. They can only carry between 15 and 25 pots on deck at one time. This means that positioning and re-positioning pots on the fishing grounds is a time consuming job. Consequently, skippers have relatively limited flexibility in switching fishing areas once the fishing season is underway, as time is a very critical factor in a short season. Another major difference between fishermen fishing the larger seiners versus the smaller seiners is the capacity of their holds. The smaller vessels were able to carry only about 12,000 pounds of crab (this included hauling some crab on the deck). The largest king crab vessels in the King Cove fleet can haul about 30,000 pounds of crab. Hence the small boats have to

deliver more frequently which reduces their fishing time. However, two of the smallest vessels were among the top six boats this year in landings.

Fishing Grounds

The King Cove Tanner fleet's efforts were dispersed into three fishing areas (Figure 6-8). Seven vessels started the season in the Ikatan/Morzhovoi Bay area; five vessels in the Lenard Harbor/Cold Bay area; and four vessels in the Trench area at the mouth of Belkofski Bay and the east side of Deer Island. With the exception of a Sand Point vessel which also fished in the Trench, there was no competition from outside boats in either Lenard Harbor/Cold Bay or the Trench. In the Ikatan/Morzhovoi Bay area, several large vessels (greater than 90 feet) from outside the South Peninsula region competed with the King Cove fleet.

Catches in the fishing areas used by King Cove fishermen far exceeded the pre-season projections (Table 6-18). In general, the King Cove vessels that fished in the Ikatan/Morzhovoi Bay area did not do as well as vessels that fished the other areas where there were less competition and better fishing conditions (i.e., calmer weather and sea state). Because of the time involved in moving pots from one fishing ground to another, vessels tended to stay on the same general fishing ground throughout the season.

Earnings

Tanner crab prices were negotiated on a sliding scale for 1985. The starting price was $1.35 per pound. The price increased as total cannery production increased until it reached an upper limit of $1.40 per pound when cannery production reached 800,000 pounds. The $1.40 per pound price was reached about two weeks into the season, but was applied to the entire season's catch. This was the highest price ever paid in King Cove for Tanner crab. Total earnings by the fleet were $1.4 million. Estimated individual vessel earnings (based on SRB&A field data) ranged from just under $25,000 to about $180,000 with a median of $72,500. The distribution of gross earnings by vessel is illustrated in Figure 6-9. Because of the good price for crab, even the boats at the low end of earnings had a good season.

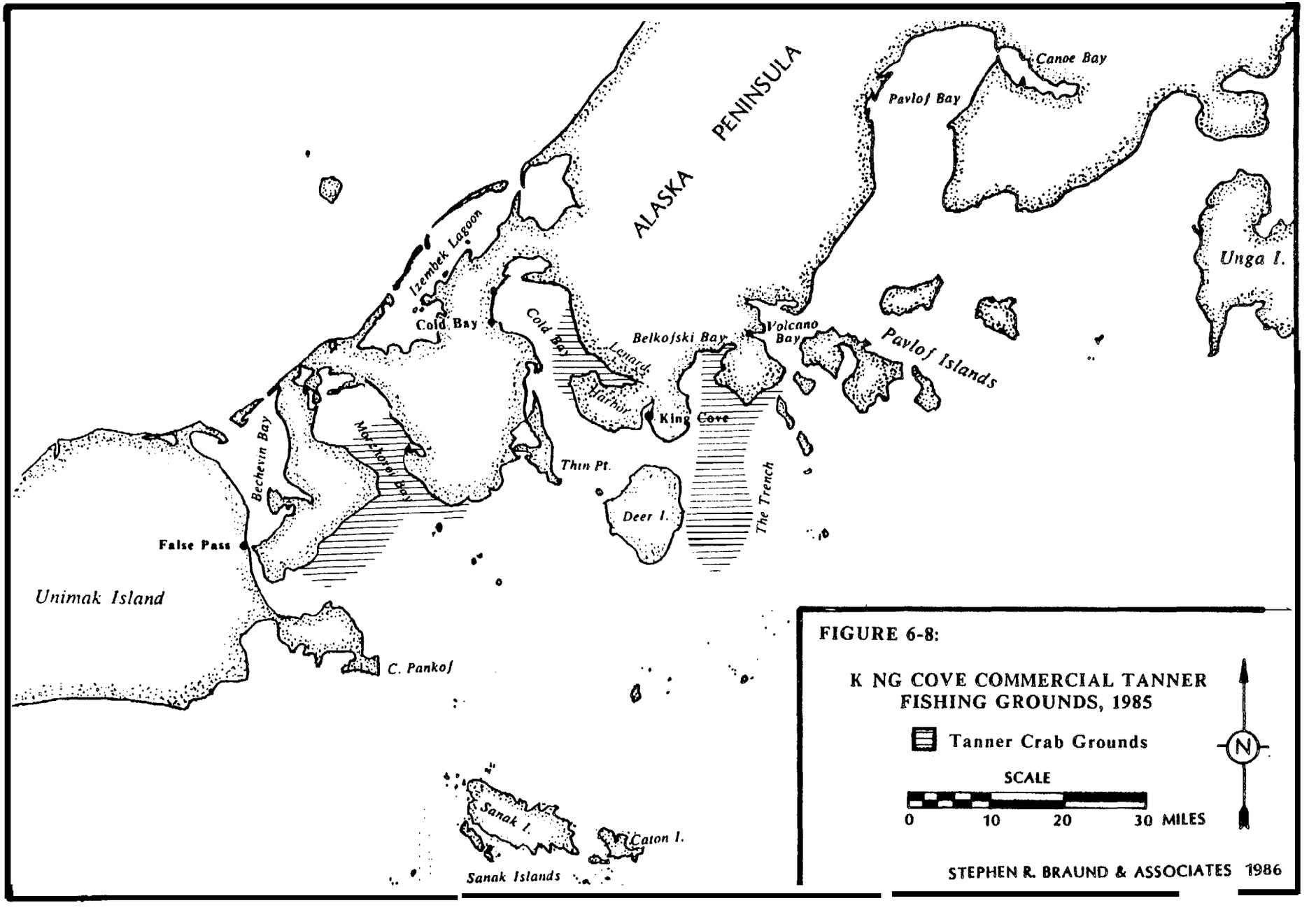
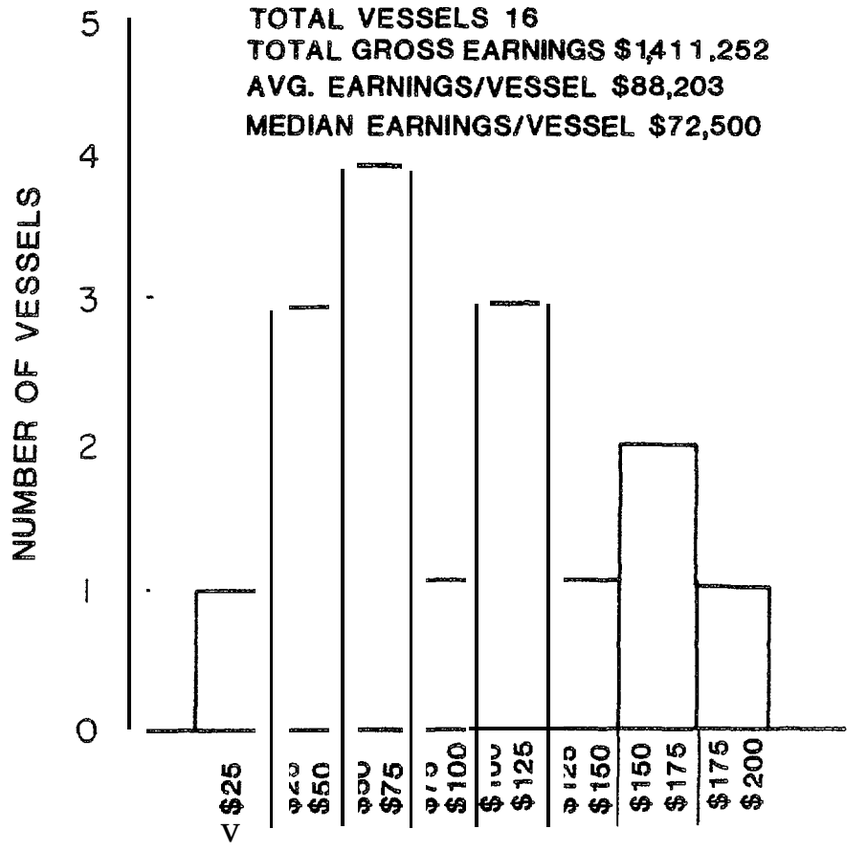

ALASKA PENINSULA
Canoe Bay
Pavlof Bay
Unga I.
Izembek Lagoon
Cold Bay
Cold Bay
Belkofski Bay
Volcano Bay
Pavlof Islands
Leonard Harbor
King Cove
Bechevin Bay
Mortensen Bay
Thin Pt.
Deer I.
The Trench
False Pass
Unimak Island
C. Pankof
Sanak I.
Caton I.
Sanak Islands
FIGURE 6-8:
K NG COVE COMMERCIAL TANNER FISHING GROUNDS, 1985
Tanner Crab Grounds
N
SCALE
0 10 20 30 MILES
STEPHEN R. BRAUND & ASSOCIATES 1986

FIGURE 6-9: ESTIMATED DISTRIBUTION OF GROSS EARNINGS OF THE 1985 KING COVE TANNER CRAB FLEET



Source: Stephen R. **Braund** and Associates (1985).

Crew

Crew members on all King Cove crabbers were local residents. The large seiners fished with a skipper plus three crew members and the smaller vessels with a skipper plus two crew members. A detailed discussion of the 1985 Tanner crab crew composition is found in Kinship and the Commercial Fisheries. Typical crew shares for Tanner fishing are between 10 and 15 percent of a vessel's gross earnings with arrangements about who pays for fuel and groceries varying from skipper to skipper. Based on vessel earnings, crew shares ranged from a low of about $4,000 to a high of around $26,000. Conversations with crew members from a vessel with a relatively low gross revealed satisfaction with the season.

Other Expenses

All King Cove vessels that participated in the Tanner crab fishery also participated in the salmon fishery. Detailed information on vessel expenses is mentioned previously in Expenses. In this section, only the additional costs related to crabbing are discussed. These costs are summarized in Table 6-19 and include the pots, pot storage and handling costs, fuel, and groceries for the season. In addition, insurance rates for vessels that crab as well as salmon fish are significantly higher than for vessels that just salmon fish.

Factors Contributing to Relative Vessel Success in 1985

Without any reservations, the 1985 Tanner crab season was a success for the King Cove fishing fleet. However, the season was more successful for some fishermen than for others. In examining differences between the high earning and the low earning boats, several factors are apparent in determining success.

Choosing the Best Fishing Ground. Fishermen who fished the Trench had the highest average earnings in 1985 - $128,000 compared to a fleet average of $87,000. Vessels in the Morzhovoi/Ikatan Bay area had the lowest average gross earnings - $73,000. This low average is of significant consequence when one considers that only larger vessels fished this area. The relatively small vessels that fished in the Lenard Harbor area had an

TABLE 6-19: ESTIMATED EXPENSES OF THE KING COVE TANNER CRAB FLEET, 1985

Capital Costs	
1) Pots ($400/pot)	
Range (70-180 pots)	$28,000-$72,000
Median (120 pots)	$48,000
Annual Costs	
1) Pot storage ($3/pot)	
Range (70-180 pots)	$210 - $540
Median (120 pots)	$360
2) Fee for moving pots across dock ($2/pot)	
Range (70-180 pots)	.$140 -$360
Median (120 pots)	$280
3) Fuel	
Range	$1,000-$3,000
Median	$2,000
4) Groceries	NA
5) Total crew share payments	20% - 30% of gross earnings[1]

1. Gross earnings ranged from $25,000 to $180,000 and averaged $88,203,

Source: Stephen R. Braund & Associates (1985), based on field data.

average gross of $78,000. According to local opinion, one reason boats in this area did well was because there were relatively few boats fishing this popular fishing ground this year. In 1984, 11 boats fished in this area; in 1985 only five vessels fished here. The decision about where an individual fishes is made based on a number of factors including ADF&G pre-season surveys, prospecting, logistics, and intuition.

Having No Unforeseen Problems. Mechanical difficulties plagued six vessels to varying degrees during the fishing season. Any event that causes fishermen to lose fishing time hurts their earnings. Difficulties ranged from a lost propeller to engine trouble. One vessel skipper chartered a plane from King Cove to Anchorage, then flew to Seattle to get a replacement part and was back on the fishing grounds in 48 hours. He figured that the expense of the trip was justified to reduce his down time. Another skipper lost half of one delivery (about 15,000 pounds of crab worth $2"1,000) because one of the pumps in his hold failed and the crabs died (the cannery can only buy live crab). Some of the vessels that had mechanical problems were still managed to have successful seasons, but the two low earning boats of the fleet both had mechanical troubles.

Having No Catastrophes. Two King Cove vessels sank during the 1985 Tanner season. Both vessels were insured; however, in one case the vessel was not insured at replacement value. Information was not available regarding the other vessel's insurance

Being a "Good" Fishermen. Several skippers in King Cove are widely regarded as "highliners"; "everything they do just turns to gold." These highliners performed well in the 1985 Tanner fishery. There was little surprise in King Cove when the community learned which boats delivered the most crab.

Tanner Crab Management

The Tanner crab fishery within three miles of the shore (in state waters) is managed by ADF&G. In federal waters (from three to 200 miles offshore), Tanner crab are managed by NMFS under policies that are jointly developed by the

Alaska Board of Fisheries and the NPFMC. Tanner crab management objectives include the following

To maximize yield from harvestable surpluses;

To maximize the reproductive potential of the Tanner crab stocks;

To seek economic stability in the Tanner' crab industry.

In the South Peninsula District, the fishery was managed without a harvest guideline until the 1976-1977 season. Since then, guideline harvests have been developed each spring based on population estimates from annual pot surveys. The harvest level is adjusted in-season based on fishery performance data. In 1983, the Board of Fisheries made the South Peninsula District a super-exclusive registration area, meaning that if a vessel fished there it could not fish for Tanner crab in any other district. The purpose of this regulation was to limit effort. The NPFMC, however, did not adopt a similar regulation so the super-exclusive registration area never became operative.

HALIBUT

King Cove fishermen have always considered halibut fishing as a supplemental fishery of relatively minor importance to their overall fishing strategies. They harvested halibut in the early 1970s as a supplement to the poor salmon fishing (E.R. Combs 1982). However, the shortening of the halibut season, its conflicting timing with the South Unimak June salmon fishery, and the good earnings from salmon fishing combined to drive. King Cove fishermen away from the halibut fishery since 1976.

Beginning in 1980, King Cove fishermen have again been drawn t-o the halibut fishery, but for different reasons. Halibut stocks have been increasing during the last three years (International Pacific Halibut Commission 1984). Also, concern about the possibility of a limited entry system being instituted for halibut has stimulated participation. If King Cove residerits have no recent history of participation in the fishery and are excluded from a limited halibut fishery, an option they might someday need will be closed to them. In addition, crewmen wishing to become vessel owners are often unable to do so because of the high cost of salmon permits. These individuals perceive halibut limited entry as a major threat, closing a possible option for becoming vessel

owners. Finally, with the drastic reduction in overall fishing time resulting from closure of the king crab fishery and shortening of the Tanner crab fishery, some King Cove residents have entered the halibut fishery to occupy their time and put their boats to work. These fishermen do not want to see their expensive boats sitting idle and therefore use the short spring halibut openings to "shake down" their boats and equipment in preparation for the summer salmon season.

The King Cove halibut fishery occurs in International Pacific Halibut Commission (IPHC) Statistical Area 33, which is located within Regulatory Area 3B. Fishing effort and catch in Regulatory Area 3B is relatively low compared to areas in the vicinity of Kodiak in the eastern Gulf of Alaska. Halibut catches in Statistical Area 33 have increased significantly since 1982 (Table 6-20). The increased catches reflect both the important recovery of the halibut population that is occurring throughout the western Gulf of Alaska and increased fishing effort in Area 3B. The Regulatory Area 3B halibut fishery is dominated by larger vessels from outside the Alaska Peninsula area.

In 1980, four King Cove residents obtained permits, to fish for halibut. Data on their landings are not available. In 1982, 12 King Cove fishermen landed 19,092 pounds of halibut which was worth $21,000. Landings in 1983 totaled 15,650 pounds. In 1984 a total of 73,547 pounds of halibut were landed by King Cove fishermen, a huge increase over previous landings. In 1984, halibut openings were scheduled in late May and in mid-September. This was the first year that some openings did not conflict with salmon season, allowing King Cove salmon fishermen to actively participate in the halibut fishery.

In 1985, the first scheduled halibut opening in Regulatory Area 3B was a 48 hour opening beginning on April 27. While 16 vessels signed a cannery "expression of interest" list, only 10 vessels ultimately made landings. A combination of very poor weather and low price (only $.50 per pound) inhibited local effort. These 10 vessels landed 29,747 pounds of halibut, with individual vessel catches ranging from a low of 90 pounds to a high of 10,855 pounds. Three vessels caught more than 6,000 pounds each; the remaining seven vessels caught less than 1,000 pounds each. Halibut crews varied in size from one to four crew members plus the skipper.

TABLE 6-20: KING COVE FLEET HALIBUT LANDINGS AND CATCHES FROM IPHC STATISTICAL AREA 33 AND REGULATORY' AREA 3B 1976 TO 1985

YEAR	KING COVE FLEET (lbs x 1,000)	STATISTICAL AREA 33 (lbs X 1,000)	REGULATORY AREA 313 (lbs x 1,000)
1976	0	74	671
1977	0	580	1,405
1978	0	48	346
1979	0	10	56
1980	NA	17	120
1981	0	12	73
1982	19	201	4,800
1983	16	323	7,'751
1984(1)	74	174	6,430
1985(1)	100	NA	10,900

1. Preliminary data.

Sources: LZH Associates (1985) based on data from the International Pacific Halibut Commission (1976-1983) and (1985), Personal communication; Peter Pan Seafoods, Inc. (1985), Personal communication; CFEC (1985), Census files.

Extremely stormy weather caused the poor catches, as most boats were forced to stay in the protected waters of Belkofski Bay and not on the more exposed fishing grounds. The boats with large catches fished in the Sanak Island area. 1985 halibut fishing grounds used by King Cove fishermen are shown in Figure 6-10.

Three additional two-day openings were held in Regulatory Area 3B: May 27-29, June 24-25, and September 9-11. Effort by outside vessels was high during the latter two openings. Catches from Area 3B during 1985 reached a record 10.9 million pounds with local catches accounting for less than 10 percent (Table 6-20).

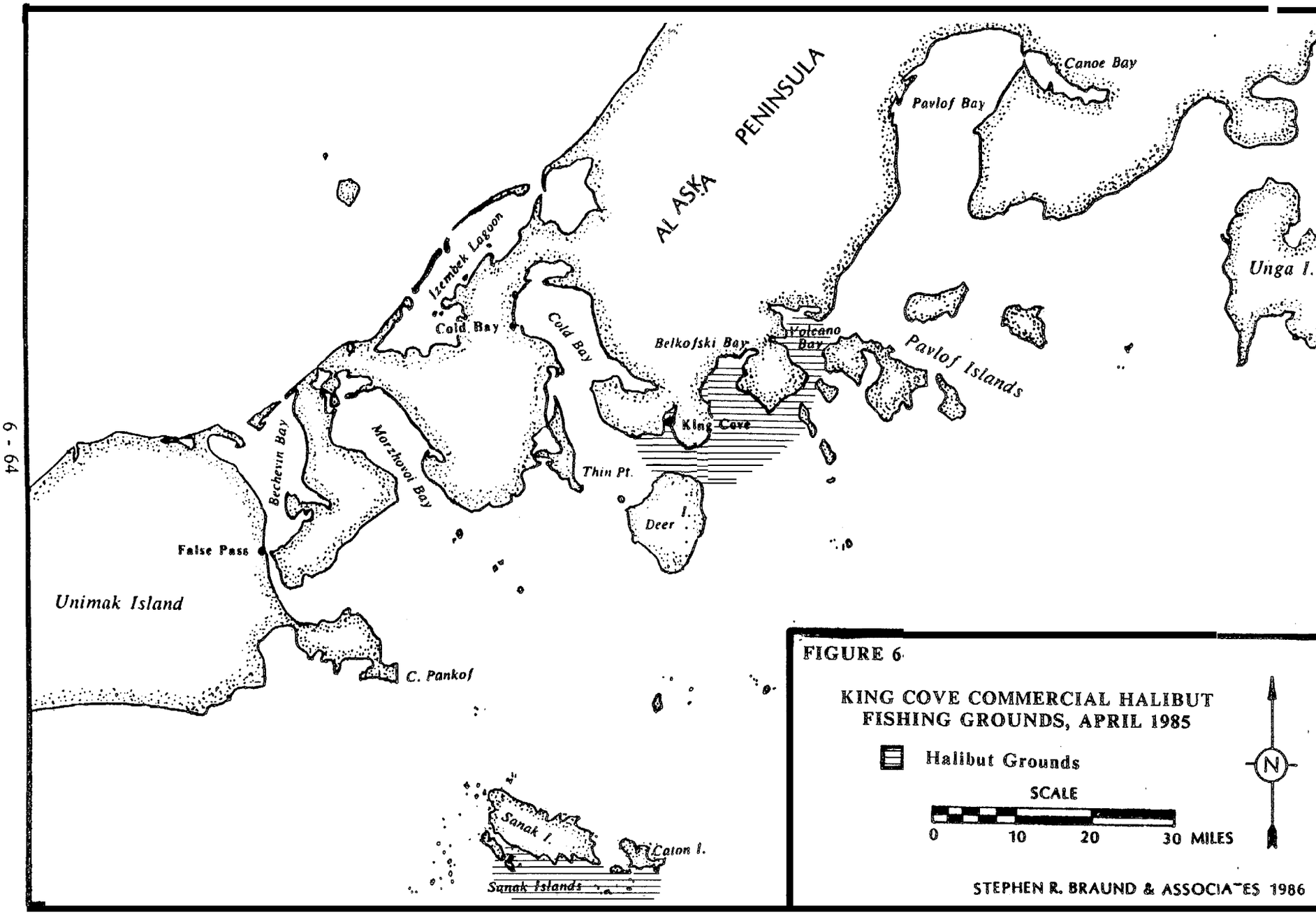
While the ADF&G and NPFMC have overall management authority for halibut in state and federal waters respectively, both agencies retain the IPHC as their managerial authority. The IPHC, established in 1923 by a convention between Canada and the U. S., establishes open and closed seasons, monitors the catch, and performs other similar management activities.

Since 1983, the NPFMC has considered instituting some kind of limited entry program for halibut. However, considerable controversy has kept such a program from being instituted to date.

HERRING

King Cove fishermen who fish for herring participate in the Bristol Bay and Port Moller fisheries, not the South Peninsula herring fishery. The late May to early June . timing of the South Peninsula roe herring fishery renders it unavailable to King Cove fishermen who are busy preparing for salmon season at that time.

As early as 1979, King Cove residents began obtaining herring permits. Five individuals made landings in Bristol Bay in 1979, and one individual made landings in the Norton Sound fishery. In 1980, three fishermen made landings in Bristol Bay. In 1981, there was a small effort in local (King Cove) waters (two boats) and only one individual fished in Bristol Bay. In 1982, four King Cove residents went to Bristol Bay to harvest roe on kelp. Their total harvest


ALASKA PENINSULA
Canoe Bay
Pavlof Bay
Unga I.
Izembek Lagoon
Cold Bay
Cold Bay
Belkofski Bay
Volcano Bay
Pavlof Islands
King Cove
Thin Pt.
Deer I.
Bechevin Bay
Morzhovoi Bay
False Pass
Unimak Island
C. Pankof
Sanak I.
Caton I.
Sanak Islands
FIGURE 6
KING COVE COMMERCIAL HALIBUT FISHING GROUNDS, APRIL 1985
Halibut Grounds
SCALE
0 10 20 30 MILES
N
STEPHEN R. BRAUND & ASSOCIATES 1986

was 15,320 pounds which was worth just over $11,000. In addition, five King Cove residents fished for roe herring in Bristol Bay that year. In 1983, King Cove roe herring fishing effort occurred in both Bristol Bay and Port Moller and in 1984 was limited to Port Moller. In 1985, both the Port Moller and Togiak herring seasons were later than usual, not starting until late May. Three King Cove vessels participated in the Port Moller fishery and two in the Togiak fishery. Because of confidentiality requirements of the CFEC, information on catches and landings made by the King Cove fleet are not available.

FISH PROCESSING

Overview

The King Cove Peter Pan Seafoods, Inc. facility is operated as a subsidiary of Nichiro Gyogra Kaisha, a large Japanese firm that bought the company from the Bristol Bay Native Corporation in 1980. The new owner gave Peter Pan access to much greater reserves of capital; the plant was expanded considerably in 1981. The Peter Pan facility in King Cove is now the largest canned salmon producer in the state. By 1985, the King Cove Peter Pan facility will have a production capacity equal to the combined capacities that both the King Cove and False Pass facilities had in 1979. Both frozen and canned product can be produced in King Cove. A flexible physical plant allows Peter Pan to process almost any species with only minor modifications. In 1985, the plant processed salmon, Tanner crab, halibut, herring, and limited quantities of dungeness crab and black cod.

The physical plant of the cannery is impressive. It has seven canning lines: three for one pound tall cans, three for half pound cans, and one for quarter pound cans. The total canning capacity is 700,000 to 800,000 pounds per day. The facility has a daily freezing capacity sufficient to freeze up to 250,000 pounds of salmon, 300,000 pounds of crab, 100,000 pounds of herring, or 50,000 pounds of halibut, and cold storage capacity of 1.5 million pounds of product. The combined canning and freezing capacity of the King Cove cannery is about 900,000 pounds per day for salmon. An additional one million pounds of salmon can be held in bins at the cannery. The facility also processes salmon roe.

The cannery has its own electrical generating system, owns the dock and bulk fuel tanks, sells fuel oil and home heating oil, has a machine shop, a hardware and parts store, a grocery store, a large mess hall which also serves as a community building during the winter, a new 70-bed bunkhouse, and a number of VIP houses.

The cannery's 1985 annual cycle of operation began with about a month of Tanner crab processing from mid-January to mid-February. The plant was then closed for maintenance. In 1985, it opened briefly in late April to process about 30,000 pounds of halibut (this took only 12 hours). The plant then opened in mid-May to process about 900,000 pounds of roe herring from Togiak, 60,000 pounds of black cod, and another 34,000 pounds of halibut. Salmon processing started in early June and continued through early September. The cannery also processed halibut in late August and dungeness crab in September. The plant will close until Tanner crab season begins next year. Prior to the widespread king crab closures in the Bering Sea and South Peninsula areas in 1983, the King Cove cannery operated year round. Cannery management expressed a desire to maintain a more steady flow of processing activities throughout the year and noted that the cannery was designed for year round operation. However, a combination of market conditions and resource fluctuations (e.g., king crab stock decline) has prevented this goal from being realized.

Species Processed

While the plant is physically capable of processing almost any species of fish or shellfish, the potential profitability of an operation ultimately determines which species are actually processed. The cannery must consider start-up costs and operating costs in relation to the total number of pounds of product available to be processed, as well as the product's market price.

Information on raw product input to the Peter Pan cannery for the years 1979 to 1985 is shown in Table 6-21. Salmon is the major species processed, with pink salmon and sockeye salmon being the most important species, and chum salmon of secondary importance. Relatively little king or coho salmon is processed. Until 1982, king crab was the cannery's other major product and, in the mid-1 970s, its primary money-maker. Since 1982, Tanner crab has replaced king

TABLE 6-21: RAW PRODUCT INPUT TO PETER PAN'S KING COVE PLANT
1979 - 1985

RAW PRODUCT (X 1,000 LBS)

	1979	1980	1981	1982	1983	1984	1985
SALMON							
King	NA	25	110	71	158	93	119
Sockeye	NA	10,351	13,084	4,503	13,380	13,536	9,727
Coho	NA	568	659	931	477	917	709
Pink	NA	11,916	11,759	14,422	7,361	21,726	11,046
Chum	NA	3,736	10,746	7,665	6,249	7,046	3,957
TOTAL Salmon	25,701	26,596	36,358	27,542	27,626	43,327	27,557 (2)
KING CRAB	5,358	7,037	2,277	528	102	0	208
TANNER CRAB	2,796	0	0	835 (1)	1,013	523	1,248
DUNGENESS	0	0	24	56	125	0	195
HALIBUT	288	0	0	62	588	80	100
BLACK COD	0	0	0	0	0	0	57
HERRING	20	0	5	449	576	483	857
TOTAL	33,875	33,633	38,675	29,743	30,031	44,415	30,222

1. Includes December, 1981 production.

2. Preliminary estimate as of September 11, 1985; coho production still ongoing.

NA Not available.

Source: Peter Pan Seafoods, Inc. (1985), Personal communication.

crab as the cannery's secondary product. Small quantities of halibut have been processed each year since 1982 and herring since 1981. Dungeness crab was processed in King Cove in 1981, 1982, 1983, and 1985.

The salmon species mix processed at the King Cove cannery (Table 6-21) reflects the composition of the Alaska Peninsula local catch, except that in most years, Bristol Bay sockeyes are tendered to King Cove to be processed, resulting in a relatively higher proportion of sockeye production. The proportion of Peter Pan's salmon production, by species, supplied by the King Cove fleet is shown in Table 6-22. The amount of non-local fish brought to King Cove depends on the local supply of fish relative to the available processing capacity. In 1983, a very poor pink salmon year on the Alaska Peninsula, the cannery processed eight million pounds of Bristol Bay salmon; this represented about 30 percent of the total salmon through the plant. This non-local salmon kept the cannery from having a very poor year. In 1984, when Alaska Peninsula pink salmon runs were excellent, six million pounds of Bristol Bay fish were brought in (mostly in early July when the Bristol Bay run peaks and local fisheries are in a lull). It should be remembered that the King Cove plant has very large capacity and high fixed costs; consequently, it must handle a large amount of product if it is to be profitable. Therefore, if excess capacity exists, the cannery will tender in fish from wherever they are available. Peter Pan has brought in salmon from as far away as Kodiak and Prince William Sound, and crab from Adak and St. Matthew Island to keep the cannery operating.

Most of the King Cove plant's salmon production is canned. However, the precise proportion of each year's salmon production that is canned versus frozen depends on specific customer requirements and/or the company's marketing strategy for that year. Until two years ago, all pink salmon were canned, as were most of the sockeyes and cohos. In 1982, 88 percent of the King Cove cannery's salmon production was canned and only 12 percent frozen. In 1983, all the pinks, about 81 percent of the sockeyes, and 88 percent of the cohos were also canned. In 1984, 488,000 cases arid six million pounds of frozen salmon were produced, including one million pounds of pinks which were frozen in the round for a Japanese customer. As of September, 1985, about 218,000 cases of canned salmon and 7,232,000 pounds net weight of frozen salmon were produced. All crab, halibut, and herring are frozen.

TABLE 6-22: PERCENTAGE OF THE TOTAL SOCKEYE, PINK, AND CHUM SALMON BOUGHT BY THE PETER PAN CANNERY FROM THE KING COVE FLEET, 1980 TO 1985

	1980	1981	1982	1983	1984	1985
SOCKEYE	17V0	8%	190!0	1 0%	1 5%	22%
PINK	60%	20%	42%	49%	47%	35%
CHUM	54%	54%	35%	30%	42%	64%

Source: Peter Pan Seafoods, Inc. (1985), Personal communication.

The amount of herring or halibut" processed each year by the cannery can vary quite widely, but is not large when compared to salmon or crab production. Herring is usually custom-packed for another processor during the Togiak and Port Moller herring seasons. With the exception of 1983, the King Cove cannery has not aggressively purchased halibut. The cannery buys all the fish caught by local boats and also takes an occasional delivery from "outside" boats that choose to deliver in King Cove. In 1983, however, many of the large halibut boats from outside the area came to the western Gulf of Alaska to fish because of the timing of fishing openings. Processors in Dutch Harbor, where these boats would usually deliver their catch, were busy processing bait herring. Peter Pan then decided to buy halibut from the big boats, and ended up with over 500,000 pounds of product. Based on experience from that season, they decided that in the future they would only be interested in handling smaller quantities of halibut (up to about 70,000 pounds annually).

Employment

The Peter Pan cannery is the major employer in King Cove. Workers can be classified in three categories:

1. Skilled employees who spend considerable periods of time in King Cove, and in some cases, consider King Cove to be their primary residence.
2. Local King Cove residents who work in unskilled positions in the cannery.
3. Non-local, unskilled labor brought into King Cove and housed in cannery housing for salmon and crab processing.

The 18 positions included in the first category are listed in Table 6-23, Several individuals in these positions are second generation cannery employees, some of whom live in King Cove with their families year round while others only bring their families to King Cove during the summer. These cannery professionals participate in town life, and while they certainly form a distinct subgroup within the King Cove population, they regularly interact with other town residents.

The number of employees in the last two categories can vary widely from year to year depending on the projected production level, the product forms that will be produced, and in the case of local residents, the success of the family's

TABLE 6-23: FULL TIME PETER PAN CANNERY PERSONNEL, 1985

POSITION	YEARS IN PRESENT POSITION
GENERAL MANAGER	NA
FRESH FROZEN MANAGER	4
OFFICE MANAGER	6
POWER PLANT OPERATOR	4
FISHERMEN ACCOUNTANT	2
ACCOUNTANT	14
RECEPTIONIST	1
MAINTENANCE FOREMAN	7
SHIPPING AND RECEIVING CLERK	5
ELECTRICIAN	12
NIGHT WATCHMAN	NA
GROCERY STORE MANAGER	4
HARDWARE STORE/PARTS MANAGER	6
STORE CLERKS (2)	NA
MAIL/AIRPORT DRIVER	NA
LAUNDRY ROOM	NA
TOTAL WAGES PAID: $538,192	

Sources: Peter Pan Seafoods, Inc. (1985), Personal communication; Stephen R. Braund & Associates (1985).

fishing season. The number of part-time employ ees, " days worked, and total labor expenses allocated by species processed in 1983 and 1984 are shown in Table 6-24. Cannery labor expenses are high, totaling almost $3.9 million in 1984 and $3.6 million in 1983. About half of the labor expense is direct wages, benefits, and transportation; the other half is associated costs. Local workers earn $6.25 per hour as a base wage. Nonresident workers who are fed and housed by Peter Pan earn a base wage of $5.90 per hour.

With the exception of quality control personnel, all seasonal cannery workers belong either to the Alaska Fishermen's Union or to the International Longshoremen Warehouse Union. Thirty-five to 40 percent of the cannery work force is female. About half of the non-local workers are Filipino and half are college students. All of the non-local workers are housed and fed by Peter Pan, and work a long (8:00 a.m. to midnight) shift. The average earnings for cannery workers during the 1984 salmon season were $4,000 to $6,000 for about two months of work (second week of June to the second week of August).

Seasonal employment is highest during the summer salmon season when over 300 workers may be brought into King Cove. In 1983, seven percent of the 28'3 person salmon labor force was local. During 1984, only six percent of the 324 person salmon labor force consisted of King Cove residents. In 1985 there were 317 cannery employees, of which only 15 (four percent) were King Cove residents.

Overall employment for crab processing is much lower than for salmon processing, but both the number and relative proportion of local workers is higher. In 1983, King Cove residents accounted for about 33 percent of the Tanner, dungeness, and king crab processing labor crews. In 1984 and 1985, only Tanner crab was processed. In 1984, local residents accounted for 34 percent of the crab processing work force.

Cannery employment during the 1985 Tanner crab season began with 51 workers. Of these, only 17 were non-local, in this case from the Fairbanks area. The local work force could be characterized as recent high school graduates, widowed women, and men who could not get on a crab boat as crew but needed money. The cannery experienced personnel problems throughout the season with

TABLE 6-24: KING COVE CANNERY LABOR ANALYSIS, 1983 AND 1984

	1983	1984
SALMON		
Total Labor Expense[1]	$2,888,032	$3,692,762
Number of Man-Days Worked	23,229	24,054
Number Employees	283	324
Percent Local Employees	7 %	6 %
KING CRAB		
Total Labor Expense[1]	$80,737	
Number of Man-Days Worked	548	no
Number Employees	60	processing
Percent Local Employees	33 %	
TANNER CRAB		
Total Labor Expense[1]	$207,278	$133,916
Number of Man-Days Worked	1,410	806
Number Employees	65	59
Percent Local Employees	34%	34 %
DUNGENESS CRAB		
Total Labor Expense[1]	$35,240	
Number of Man-Days Worked	338	no
Number Employees	60	processing
Percent Local Employees	33.%	
HALIBUT		
Total Labor Expense[1]	61,441	$6,809
Number of Man-Days Worked	563	31
Number Employees	15	10
Percent Local Employees	0	0
ROE HERRING		
Total Labor Expense[1]	$27,341	$24,947
Number of Man-Days Worked	259	232
Number Employees	24	24
Percent Local Employees	13 %	8 %

1. About 50 percent of labor expenses are wages, fringe benefits, and transportation costs.

Source: Peter Pan Seafood, Inc. (1985), Personal communication.

high absenteeism for local employees and significant numbers of locals quitting prior to the end of the season. About halfway through the season, the cannery hired five high school students to work in the evenings because they were short-handed. Cannery supervisors said they would bring in additional non-local labor for next year's crab processing.

A few local residents were employed by the cannery to process roe herring in 1983 and 1984; no locals participated in halibut processing in either year. Halibut processing during the April 1985 opening lasted only about 12 hours. The full-time cannery staff handled the 30,000 pounds of product without needing to hire additional labor.

Final Markets

PPSF sells its fish and shellfish products to customers in the U.S., Europe, and Japan. The entire canned salmon pack is shipped from King Cove to Seattle. From there it is sold to customers primarily in Europe. Most of the frozen salmon is shipped directly to Japan. Tanner crab is sold both to Japanese and domestic customers; all halibut is sold domestically.

SUMMARY

The Industry. The commercial fishing industry in King Cove consists of a successful and interdependent fishing fleet and processing facility. Almost all members of the community are involved in the fishing industry in some way. Fishermen are mostly local King Cove residents who skipper boats ranging from skiff size up to 58 feet in length, with most boats being between 32 and 48 feet. PPSF owns the large, modern, and versatile processing facility located in King Cove. The contemporary fishing industry in King Cove is competitive and highly capitalized.

Commercially Important Species. Sockeye and pink salmon are the species of primary importance to the fishing industry in King Cove, with Tanner crab being of secondary importance. Relatively small quantities of the other salmon species are also harvested and processed. In addition, comparatively small numbers of King Cove fishermen also fish for halibut and herring.

Fishing Strategies. The number and type of salmon permits held by an individual are the primary determinant of his fishing strategy. Most King Cove fishermen only fish for salmon, with a combination of salmon and crab fishing being the second most common fishing strategy. Most purse seine permit holders with relatively large boats pursue this latter strategy.

Salmon Permits. Salmon fishing in King Cove, as throughout Alaska, is controlled under a limited entry permit system. Area M (the geographic area in which King Cove fishermen fish) salmon permits are among the most valuable in the state. Between 1975 and 1984, 138 permits have transferred from or to King Cove residents. Most transfers have been among community members and relatives. However, transfers to nonresidents have resulted in a net loss of 18 permits from the community or 21 percent of the total number of permits initially issued.

Salmon Fishing Techniques and Strategies. Most King Cove fishermen power seine, beach seine, or drift gillnet for salmon; there are few set gillnetters. The majority of fishermen use the same gear (and permit) throughout the salmon season. The predominance of using only one gear (and permit) throughout the season is a new phenomenon in King Cove and reflects both the community's population growth and the highly competitive nature of the area's salmon fisheries.

Salmon Fishing Grounds. Fishing grounds are determined by the gear utilized. Both purse seine and drift gillnet fishermen intensively fish in the Unimak area in June. Drift gillnetters then fish in the Northern and Northwestern districts throughout the rest of the season, whereas most seining effort is in the more local waters of the Southwestern and Southcentral districts. There is little effort by King Cove residents in the Southeastern District.

Earnings. Gross earnings among King Cove salmon fishermen vary widely. In general, seiners gross the most money, then drift gillnetters, and lastly set gillnetters. Even among individuals who -utilize the same gear and fishing strategy, the range of earnings is broad. As with earnings, expenses are highest for seiners and least for set gillnetters. The primary determinant of

net earnings among King Cove fishermen is the size of their fixed costs, wit% the most important component of fixed costs being boat or permit loan payments.

Tanner Crab. In 1985, 16 King Cove vessels participated in the South Peninsula Tanner crab fishery. The 1985 season was the most lucrative to date for the King Cove fleet, but still did not approach the combined earnings from king and Tanner crab from 1980 to 1982.

Halibut. Participation by King Cove fishermen in the Gulf of Alaska halibut fishery is increasing. Income from halibut, however, is likely to remain minor compared to salmon and crab. King Cove fishermen are at a competitive disadvantage in this fishery because of the relatively small size of their boats and the timing of fishing openings which often conflict with salmon fishing.

Other Species. A small number of King Cove residents fish for herring in Bristol Bay. In 1985, one fishermen pursued black cod, and in some years there is some effort for dungeness crab. It is unlikely that the importance of any of these fisheries to King Cove residents will increase significantly.

Fish Processing. The PPSF processing facility in King Cove has a combined production capacity for salmon of close to one million pounds per day. The physical plant is flexible, allowing it to process any species with only minor modifications. While PPSF can tender product to the plant from large distances, the species mix of the plant generally reflects the availability of product from local waters.

Employment. PPSF hires large numbers of seasonal employees during the summer salmon season. Few King Cove residents seek employment at the processing plant, and in 1984 only six percent of a 324 person summer labor force was local. During the crab season, the labor force is much smaller, but the local labor force is proportionately higher.

Issues. Major issues facing the King Cove fishing industry in the coming years include: access to the salmon fishery; increased effort and competition in the salmon fishery; reduced fishing seasons; regulation changes; and species diversification.

VII. SUBSISTENCE

This chapter details SRB&A's findings related to King Cove residents' harvest of renewable resources for local use.. Issues covered include: levels of local dependency, environmental influences on harvest activities, subsistence economics (harvest and equipment costs), species used and harvest locations, production and distribution patterns, and species preference. Average household harvest quantities for primary subsistence resources are presented in this description. In addition, an estimation of the monetary replacement value of the subsistence harvest is presented for use in the harvest disruption effects analysis (Chapter XI).

As discussed previously (see Methodology), SRB&A's approach stresses the importance of economic activities in influencing other elements of the King Cove sociocultural system. The harvest of renewable resources is one of the preeminent economic and cultural characteristics of the people of the Aleutian Islands region. Analysis of the region's history has demonstrated that the extraction of renewable resources has been the driving force behind socioeconomic and sociocultural change for the past 250 years.

Subsistence activities remain important to the contemporary economic, political, social, and ideological makeup of the community. King Cove residents' harvest of renewable resources for local use is, in 1985, of secondary importance to commercial fishing activities. However, in the case of a harvest disruption, changes in the balance between subsistence and commercial activities would likely occur. Therefore, a thorough understanding of contemporary subsistence regimes is an essential element in the analysis of the effects of potential harvest disruptions because of the increased importance subsistence activities would likely assume.

LOCAL DEPENDENCE ON RENEWABLE RESOURCES

For the purposes of this study, subsistence is defined as the production and distribution of renewable plant and animal resources for local consumption and use. As shown by Table 7-I, King Cove residents enjoy a large and diverse resource base, with over 40 different plant and animal species harvested

TABLE 7-1: LOCAL RESOURCES USED BY KING COVE RESIDENTS, 1984- 1985(1)

Terrestrial Mammals
- Caribou (Rangifer tarandus)
- Wild Cattle

Fish
- King Salmon (Oncorhynchus tshawytscha)
- Chum Salmon (O. keta)
- Coho Salmon (O. kisutch)
- Pink Salmon (O. gorbuscha)
- Sockeye Salmon (O. nerka)
- Pacific Herring (Clupea harengus)
- Dolly Varden (Salvelinus malma)
- Pacific Halibut (Hippoglossus stenolepis)
- Pacific Cod (Gadus macrocephalus)
- Sable Fish or Black Cod (Anoplopoma fimbria)
- Red Snapper (Sebastes alutus)

Mollusks
- Butter Clam (Saxidomus gigantea)
- Razor Clam (Siliqua patula)
- Pacific Octopus (Octopus dolfleini)
- Snails
- Bidarkis
- Mussels

Other Marine Invertebrates
- Red King Crab (Paralithoides camtschatica)
- Tanner Crab (Chionoecetes bairdi)
- Dungeness Crab (Cancer magister)
- Pink Shrimp (Pandalus borealis)

Marine Mammals
- Harbor Seal (Phoca vitulina)
- Northern Sea Lion (Eumetopias jubatus)

Waterfowl and Other Birds
- Canada Goose (Branta canadensis)
- Brant (B. bernicla)
- White-Fronted Goose (Anser albifrons)
- Emperor Goose (Philacte canagica)
- Pintail (Arias acuta)
- Mallard (A. platyrhyncos)
- Green-Winged Teal (A. crecca)
- Common Goldeneye (Bucephala clangula)
- Barrow's Goldeneye (B. islandica)
- Bufflehead (B. albeola)
- Willow Ptarmigan (Lagopus lagopus)

Plants and Berries
- Mossberries (Empetrum nigrum)
- Blueberries (Vaccinium uliginosum)
- Cranberries (V. vitis-idaea)
- Salmonberries (Rubus chamaemorus)
- Wine Berries (Cornus suecica)
- Beach Celery (Heracleum lanatum)
- Petrouski (Ligusticum hultenii)

1. Species identified during SRB&A fieldwork, 1984-85.

Source: Stephen R. Braund & Associates (1985).

annually. Fieldwork during this study demonstrated that subsistence reliance in King Cove is not based solely on need. Income from commercial fishing is sufficient to meet the food demands of the local residents if they so desire. However, despite the relative affluence of the community, the data indicate that 60 percent of the meat, fish and fowl protein consumed in the community is locally derived. The field data also indicate that both King Cove residents' subsistence patterns and the local perceptions of those activities vary considerably from those patterns found in coastal communities further north (e.g., Arctic/Yukon/Kuskokwim).

King Cove Residents' Perceptions of Local Resource Use

Previous researchers have had "analytic problems [addressing] subsistence utilization of available resources" in the King Cove area (Impact Assessment, Inc. 1982). A consequence of the confusion over King Cove subsistence practices is the ambiguous and sometimes contradictory nature of secondary data on the subsistence activities of King Cove residents. The inadequacy of secondary source data was noted by Louis Berger and Associates (1983: III-E-81).

> There are very few data in the literature that would permit any accurate descriptions of current subsistence harvest volumes, or changes in underlying economic strategies tied to local resource extraction. Recent OCS work (Reed 1981 [Kish Tu 198 lb]) indicates that one-half of the local protein intake comes from subsistence products at King Cove; other sources (AEIDC 1978) indicate that subsistence is of minimal importance in King Cove. Similar difficulties emerge with most of the relevant literature.

During the initial field visit by SRB&A's study team, subtle differences in the way subsistence activities were perceived by King Cove residents, compared to perceptions of people living in other rural areas of the state, were observed. In most rural areas of Alaska, subsistence harvest activities are a central theme in local efforts to maintain or revitalize cultural ties and emphasize the importance of the lands and the resources to the community's well-being. King Cove residents' concern over renewable resources, on the other hand, focuses primarily on commercially harvested species and secondarily on subsistence harvest activities. This attitudinal difference between King Cove residents and other rural Alaskan residents who do not participate in

commercial activities is likely one cause of the ambiguities found in previous research efforts. Indeed, without the benefit of extended fieldwork in the community, the importance of subsistence harvest activities would likely be underestimated.

By the close of the initial field visit, it was clear to the study team that the term "subsistence" did not adequately describe King Cove residents' perceptions of their renewable resource harvest activities. Incidental harvests of fish and wildlife are a common occurrence during commercial fishing trips. Thus, the same individual who responded that subsistence use of king crab was relatively low in King Cove may be seen during the commercial Tanner crab season supplying a substantial quantity of king crab to an extensive network of households. The year-round availability of, and access to, many local resources is an additional factor influencing King Cove residents' perceptions toward renewable resource harvesting and is discussed below.

To King Cove residents, who have extensive use of and exposure to natural resources through their commercial fishing activities, the harvest of renewable resources for home use is considered a natural extension of their commercial harvest activities. It is important to note that, while currently of secondary importance to commercial fishing activities, participation in subsistence activities provides valuable practical experience in many of the same skills used commercially. Subsistence activities provide young King Cove residents with the opportunity to acquire resource harvest skills while becoming familiar with the operation and maintenance of the harvest equipment shared by both commercial and subsistence activities. With increasingly efficient commercial activities reducing overall commercial fishing time, participation in subsistence activities serves the valuable social and economic function of honing and improving harvest skills in less pressured situations than possible during the short commercial seasons.

Once aware of local perceptions related to subsistence activities, the study team was better able to successfully identify resource use patterns including harvest of resources for local use while primarily engaged in commercial harvest activities as well as more “classic” patterns of subsistence.

Level of Community Participation

The exceptional salmon seasons of the last five years have brought increased prosperity to most King Cove families. This prosperity, however, has not obviated either the need or local desire to harvest renewable resources for community consumption. The field data support the survey conducted by the Aleutians East Coastal Resource Service Area (AECRSA 1983). which indicated that, of the King Cove residents sampled, 87 percent fished, 76 percent hunted, and 84 percent picked berries for home use. In conversations with 17 heads of households, all of them participated in one or more harvest activity that produced food for home use. A detailed discussion of the relative importance of and local consumption of renewable resources is presented later in this chapter.

THE NATURAL ENVIRONMENT

Geographic and biotic features of King Cove and the surrounding region have been previously described in this report (see Study Area). The following discussion briefly highlights several related physical characteristics of the region that influence the subsistence harvest activities of King Cove residents.

The Maritime Influence

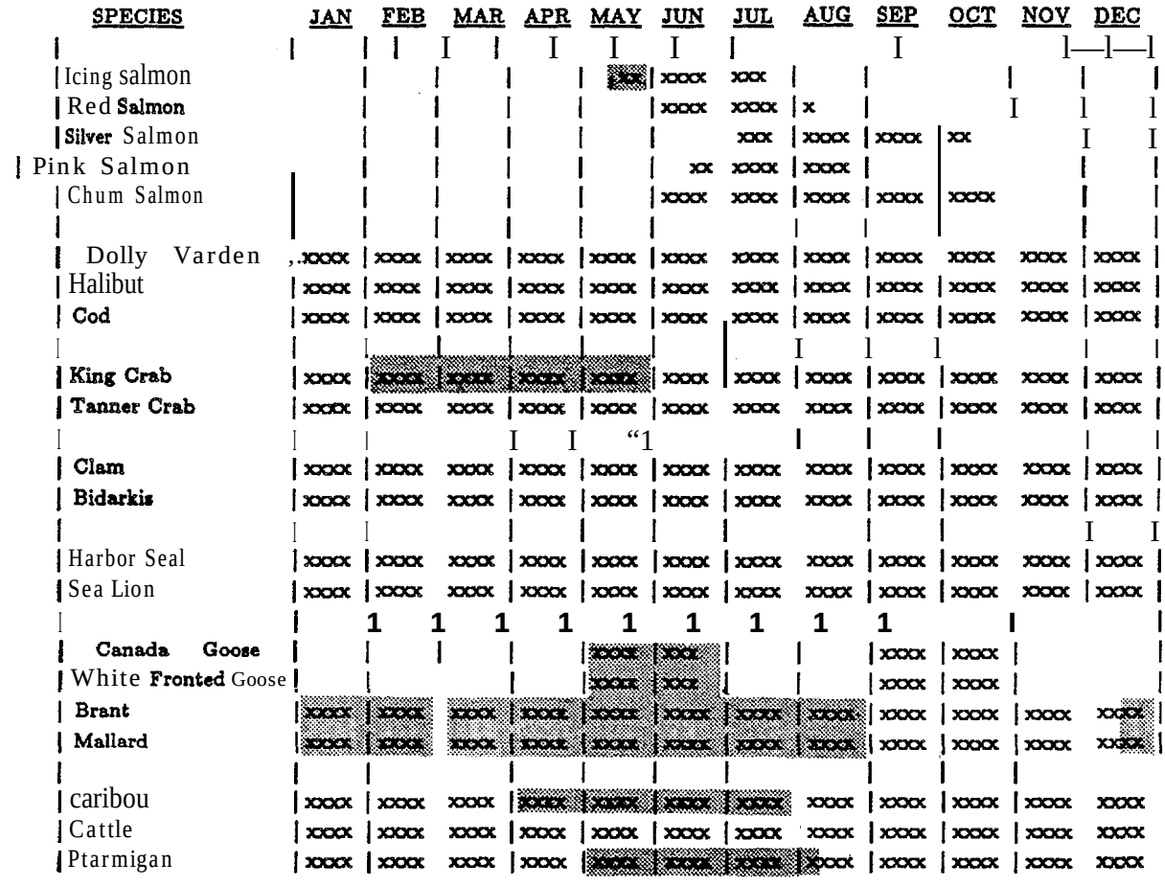
The influences of the maritime environment allow King Cove residents flexibility in overall subsistence harvest strategies unavailable to many rural Alaskans. Not only are the local waters perennially ice-free, but they are graced with abundant marine resources. This marine environment is complemented by terrestrial resource habitat that is restricted to a relatively small land area by the insular nature of the Alaska Peninsula. The volcanic origins of the peninsula and the adjacent islands confine the terrestrial resources to the narrow coastal plains. These plains, in turn, are readily accessible to the local residents by boat due to the numerous bays and lagoons that indent the coast. For King Cove residents the result is an environment rich in both terrestrial and marine resources readily available throughout the year.

As a consequence of this ice-free environment, local residents are able to rely on boats for access to resource harvest areas at all times of year. Subsistence activities such as berry picking, clam digging, trout fishing, and ptarmigan hunting do occur within walking or three wheeler distance of the community, but the vast majority of subsistence activities are oriented around boat access. The ability to use boats year round results in two distinct characteristics of local harvest strategies. First, King Cove residents are able to concentrate capital expenditures on one piece of harvest equipment rather than two or three (e.g., a river boat, an ocean boat, and a snow machine). Second, and more importantly, access to areas of resource abundance is not severely limited by seasonal weather. In other words, an individual who depends on a snowmachine for access to a given resource harvest area must wait until proper snow conditions exist before setting out. In King Cove, access to renewable resources can be limited on a daily basis by poor weather conditions, but is rarely limited on a seasonal basis.

Seasonality

The diversity and abundance of renewable resources and the ice-free nature of the marine environment are conditions shared by all communities located adjacent to the North Pacific or the Gulf of Alaska. In the case of King Cove, these maritime conditions result in a general subsistence harvest strategy that is not restricted by seasonal access to harvest areas. Figure 7-1 demonstrates how, with the exception of salmon, most resources used by King Cove residents are available for six months of the year or more. As a result, seasonal cycles of subsistence harvest activities in King Cove are a function of regulatory restrictions and the availability of free time. An interesting consequence of this access and availability is that relatively small amounts of subsistence foods are stored by local residents. Resources are harvested when they are desired or in short supply. When hunting caribou, for example, King Cove residents rarely take more than one animal at a time, preferring to "get them fresh three or four times a year."

FIGURE 7-1: AVAILABILITY AND REGULATORY CLOSURES FOR MAJOR SUBSISTENCE SPECIES, KING COVE 1985



x = One quarter of a month of reeource availability.

▒ = Sport and subsistence closures as set by ADF&G.

Source: Stephen R. Braund & Associates (1986).
U.S. Fish and Wildlife Service (1985).
Alaska Department of Fieh end Game (1985a,b,c,d).
Resource Analysts et al. (1984a).
E.R. Combs, Inc. (1982).

SUBSISTENCE ECONOMICS

Residents of the Aleutians region have been in contact with western economic principles and western goods and services for as long as any aboriginal population in Alaska. Throughout this historical period, local residents participated in the commercial harvest of renewable resources in addition to traditional subsistence harvests. Today, subsistence harvest activities are of secondary importance to commercial fishing activities in the overall economic profile of the community. This section documents the interrelationship between the cash and subsistence sectors of the local economy. Topics considered are the linkages between commercial and subsistence harvest activities, the direct costs of selected subsistence activities, and the influences of economic factors on participation in subsistence activities.

Linkages Between Commercial and Subsistence Harvest Activities

Since the establishment of King Cove in 1911, the local population has been involved in the commercial harvest of locally available resources, primarily salmon and crab. King Cove residents have also depended on subsistence harvest products for a significant portion of their food during this same 75 year period. Much of the harvest technology introduced into the region for commercial resource exploitation has subsequently been adapted for subsistence harvests. In addition, all of the resources King Cove residents harvest commercially are also harvested for home use. As a consequence of this long period of interaction between the commercial and subsistence sectors of the economy, the current relationship and linkages are complex.

Description of the interrelationship between subsistence and commercial harvest activities can be divided into three analytical problems. First, intentional and incidental catch of resources for home use occurs concurrently with commercial harvest efforts. Second, financial investments in harvest equipment (such as boats, motors, arid nets) are shared between commercial and subsistence activities. Finally, the cost and effort involved in the harvest of subsistence resources acquired during commercial harvest activities must be evaluated.

Concurrent Commercial and Subsistence Harvest Efforts

Local resource abundance, year-round access to harvest areas, and the opportunistic nature of King Cove residents often combine to make any outing from the community into a subsistence harvest venture at least in part. Participation in the salmon, Tanner crab, halibut, and most recently, black cod fisheries provides local residents with ample opportunities to combine commercial and subsistence harvest activities. The harvested resources are consumed both by the commercial fishing crews and by their families and friends in the community.

The local use of salmon provides an excellent example of the concurrent nature of commercial and subsistence harvest efforts. As discussed in Chapter VI (Commercial Fishing and Processing), increased participation and increasingly efficient gear have reduced the actual number of days local residents may fish commercially during the summer salmon season. During non-fishing days local residents normally return to the community rather than staying on the fishing grounds. This pattern results in numerous opportunities for local residents to "put up" salmon for home use that was actually caught during commercial openings.

The extent that local salmon fishermen consume salmon while commercial fishing varies considerably. Two factors were identified from informal interviews that influence on-board consumption: time of year and crew share arrangements. Almost all the captains and crew members noted that early in the summer when they are "fish hungry," consumption is high. However, as the season progresses and the novelty of fresh salmon wears off, consumption on many boats declines. Crew share arrangements have been described in detail previously (Chapter VI, Operating Expenses). Salmon consumption tends to remain high throughout the season on boats where crew shares are paid after fuel and grocery expenses are deducted. In this instance, salmon is seen as a method of cutting grocery expenses and hence increasing crew shares. On boats with such crew share arrangements, salmon is consumed on an average of three nights a week.

While all five species of salmon are available to King Cove residents from early in the summer, commercial fishermen focus their harvest for home use on selected species. The majority of the king and sockeye salmon consumed

annually in King Cove is caught by commercial fishermen during the June South Unimak fishery. In early August, commercially harvested pink salmon are retained in significant numbers for home smoking. Coho salmon are harvested as a subsistence activity after the commercial season. A complete description of salmon use and harvest estimates is presented below (Locally Harvested Renewable Resources).

The concurrent nature of subsistence and commercial activities for other species is not always as obvious or apparent as it is for salmon. For example, during the 1985 commercial Tanner crab season, King Cove residents took king crab for subsistence (Tanners are seldom consumed locally) and also harvested snails (which attach themselves to the pots), cod, octopus, and halibut which are occasionally found inside the crab pots. The use of seals provides another example of the concurrent nature of commercial and subsistence harvests. Seals are often trapped within the seine nets of local fishermen; while the fishermen are able to free most of these animals; those that are trapped in the net are eaten.

The Economic Value of Shared Harvest Equipment

The study team was unable t-o accurately assess the cost of harvesting a subsistence resource when the technology used was primarily for commercial resource exploitation. During discussions with field personnel, respondents consistently had difficulty differentiating between commercial and subsistence harvest costs, especially when subsistence resources were taken in conjunction with, or as a by-product of' a commercial fishing activity. Boat payments, repair costs, insurance and other operating expenses have been summarized (Chapter VI, Fixed Costs), but assessing the subsistence share of these expenses is impossible. Not only are these operating costs highly variable (depending on the age of the boat and level of participation in the different fisheries), the share of these expenses attributable to subsistence activities followed no consistent pattern. In addition, due to the considerable financial outlay required to participate in certain commercial fisheries (e.g., purse seining), allocation of even a relatively minor proportion of total operating equipment costs to subsistence would result in an inflated estimate of subsistence costs.

The study team, however, was able to identify average fuel expenses for several important subsistence harvest locations commonly used outside the context of commercial fishing .(Table 7-2). These average costs range from $44 for a round-trip to nearby Belkofski Bay to $197 for a trip to Pavlof Bay. Field data suggest that the expenses are usually shared equally among all participants. In some cases, however, the captain pays all expenses. As one resident stated, "If a group decision" is made to go on a hunting trip, expenses are shared; if you are invited by a boat owner, then he often pays." Regardless of how the fuel and grocery expenses are divided, there was no indication during the fieldwork that participants in subsistence activities shared in the burden of general operating costs, such as insurance, repairs, and moorage fees. In this regard, boat owners must be considered as primary subsistence providers for the community, as they incur an uneven share of the harvest costs.

Assessment of Subsistence Effort During Commercial Activities

Accurately estimating the level of effort of subsistence pursuits that occurred in conjunction with commercial activities was as difficult as placing an economic value on the subsistence component of harvest equipment shared between commercial and subsistence harvest efforts (e.g., vessels and gear). For example, when asked about the level of effort expended to harvest subsistence salmon, respondents were unsure whether to consider the entire length of a commercial fishing trip and all fuel and crew costs, or the amount of time required to remove 15 salmon from the hold. While data on the proportion of resources harvested for home use during commercial openings was collected for many species, the actual amount of time expended for subsistence harvest activities was not determined.

Direct Annual Costs of Some Subsistence Harvest Equipment

Table 7-3 presents a partial list of annual costs incurred by King Cove residents for subsistence equipment (exclusive of commercially used equipment). That is, none of the items listed are used for commercial activities. Although three-wheelers were not owned by all families, those families who did own them used them for subsistence as well as intra-community

TABLE 7-2: AVERAGE FUEL EXPENSES FOR IMPORTANT SUBSISTENCE HARVEST LOCATIONS[1]

Destination	Average Round-Trip Travel Time	Gallons of Fuel Used[2]	Fuel Expenses Per Trip[3]
Pavlof Bay	14.2	160	$197
Cold Bay	4.0	45	$55
Morzhovoi Bay	8.2	93	$114
Belkofski Bay	3.2	36	$44
Thin Point	3.4	38	$47
Sanak island	10.4	118	$145

1. Fuel cost incurred outside the context of commercial fisheries for major subsistence harvest trips. Estimates based on interviews with 10 King Cove boat owners. Boats ranged from 28 to 52 feet in length.
2. Based on an average fuel consumption of 11.3 gallons per hour.
3. Based on the local diesel fuel price of $1.23 per gallon.

Source: Stephen R. Braund & Associates (1985).

TABLE 7-3: PARTIAL LIST OF SUBSISTENCE EXPENSES "
KING COVE, 1984

Equipment	Cost Range	Average Cost	Estimated Life	Estimated Average Annual Cost
Three Wheeler	$1,200- $2,500	$1,680	3.3 years	$ 510
Rifle	$ 200- $ 600	$ 300	7.0 years	$ 43
Shotgun	$ 200- $ 580	$ 290	4.5 years	$ 64
Annual Costs				
Ammunition				$ 250
Diesel Fuel Expenses [1]				$ 380
Total Annual Cost				$1,247

1. Based on one-third share (average hunting party of three) of $1,137 (Table 7-2).

Source: Stephen R. Braund and Associates (1985).

travel. The relatively low value of these annual and repeated harvest costs once again demonstrates the importance of the use of commercial fishing vessels and gear in overall subsistence costs. Active participation in the commercial fisheries allows King Cove residents to effectively defray the high level of subsistence harvest costs expected for the volume of local resources harvested.

SUBSISTENCE HARVEST AREAS

The area used by King Cove residents for subsistence harvest activities can be divided into three overlapping categories on the basis of frequency and intensity of use and travel distance from King Cove (Figure 7-2). First, the maximum use area is represented by the farthest extent traveled for subsistence pursuits. Second, within the maximum use area is an area generally used for subsistence activities wherein the majority of subsistence harvests occur. Third, concentrated use areas occur where relative ease of access and/or resource abundance concentrate harvest efforts. The latter two spatial boundaries are a subset of the maximum use area, and the concentrated use areas all occur within the boundaries of the commonly used subsistence harvest area.

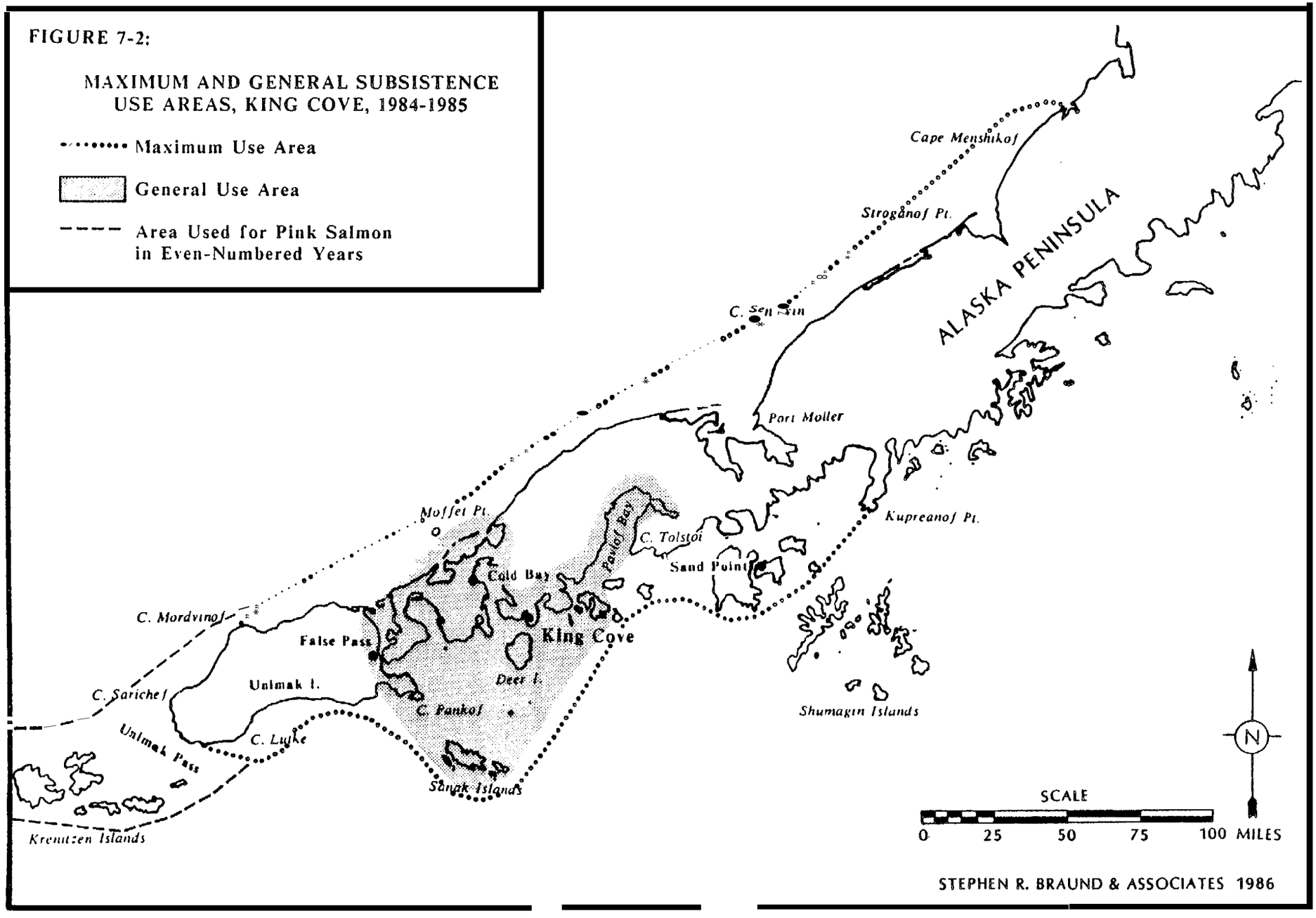
As detailed above, the overall orientation of King Cove subsistence activities is toward marine resources. Terrestrial use areas, with few exceptions, are accessed with commercial fishing boats or smaller skiffs with outboards. Consequently, most subsistence resource activities are focused within a few miles of the coast.

Maximum Use Subsistence Harvest Area

Because King Cove residents' subsistence harvest activities often occur incidents' to, and in conjunction with, commercial fishing activities, the maximum range of subsistence harvest activities coincides with the maximum range of King Cove residents' commercial fishing activities. As discussed previously (Chapter VI, Fishing Grounds), salmon fishing is the commercial activity that results in the greatest dispersal of the King Cove fishing fleet. The maximum use area for salmon also includes areas used for the commercial Tanner crab and halibut fisheries.

FIGURE 7-2:

MAXIMUM AND GENERAL SUBSISTENCE USE AREAS, KING COVE, 1984-1985



While "Area M" represents the largest area potentially used, King Cove residents currently do not commercial fish past Unalaska Island. Furthermore, the few King Cove boats that do fish salmon around Unalaska Island generally do so during even-numbered years when there are strong pink salmon runs. A more representative maximum subsistence use area would include only those waters and adjacent lands east of Unimak Pass to Cape Menshikof on the north shore of the peninsula and to Kupreanof Point on the south shore (Figure 7-2). Although this refinement diminishes the overall area potentially used by King Cove residents for subsistence, over 1,000 miles of coastal shorelines, lagoons, coves, and adjacent waters are available for the subsistence harvest of renewable resources.

King Cove residents' 'use of this extensive area is generally limited to the commercial salmon season (i.e., June through August). During the remaining nine months of the year, subsistence harvest activities generally occur much closer to the community. In addition, the concentration on the commercial salmon fishery during this period limits subsistence production to salmon and a few other harvests such as seals caught in a purse seine or razor clams from north shore lagoons.

The Generally Used Subsistence Harvest Area for King Cove

The majority of King Cove's subsistence harvest activities occur in a much smaller area, described here as the generally used subsistence harvest area (Figure 7-2). Field discussions indicated that the majority of King Cove subsistence harvest activity occurs on the south side of the Alaska Peninsula between Cape Pankof on the Ikatan Peninsula and Cape Tolstoi on the eastern shore of Pavlof Bay. Included in this area are three large bays (Morzhovoi Bay, Cold Bay, and Pavlof Bay) that transect the coastal mountain chain, vastly increasing the variety of habitat accessible to King Cove residents. In addition, Izembek Lagoon, Bechevin Bay, and the surrounding uplands provide productive habitat for razor clams, waterfowl, and caribou used by King Cove residents. Finally, some subsistence activities occur on offshore' islands. The Sanak Island group, 40 miles south of the community, is inhabited by wild cattle; these islands represent the farthest distance offshore King Cove

residents commonly travel for subsistence harvesting. The generally used harvest area varies slightly from species to species.

Concentrated Subsistence Harvest Areas

Within the area commonly used by King Cove residents for subsistence harvesting are concentrated use areas. Many subsistence harvest activities are focused within a few localized areas used to harvest one or more subsistence resources. Areas of concentrated use are either in close proximity to the community of King Cove or are areas with productive habitat that support large populations of preferred fish and wildlife. Figure 7-3 delineates the concentrated use areas in the immediate area surrounding King Cove. Actual harvest locations within these concentrated use areas vary from species to species and are indicated on the harvest maps for each species described in the following section.

LOCALLY HARVESTED RENEWABLE RESOURCES

King Cove residents harvest over 40 different renewable resources annually for domestic use (Table 7-1). This discussion considers the range, timing, and average quantity harvested for all the major species and species groups harvested by local residents. King Cove subsistence harvest activities primarily occur in three distinct physical provinces: marine, coastal (inter-tidal), and terrestrial. In each of these different physical settings, local residents target one resource or resource group of primary importance and a variety of secondary resources. During any subsistence foraging venture, several different subsistence resources in one or more of these distinct physical provinces may be harvested. Nonetheless, the physical differences in the ecosystems and harvest methods used support the division of local resource utilization methods by physical province. For each physical province, King Cove residents' subsistence harvest activities are considered in the order of importance to the local diet, Table 7-4 summarizes the importance of the various subsistence resources used in King Cove by participation and by average household harvest quantity.

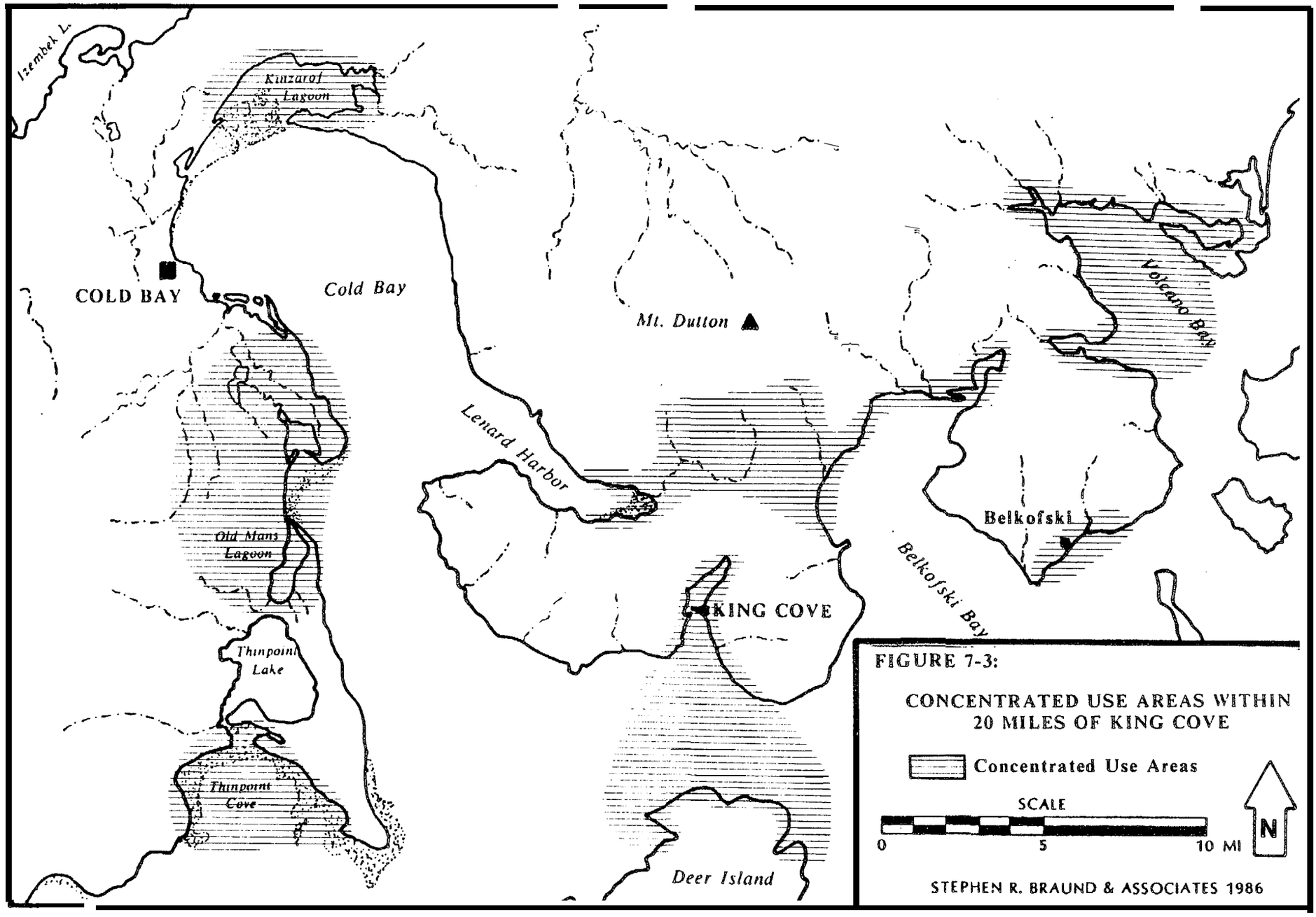

Izembek L.
Kinzarof Lagoon
COLD BAY
Cold Bay
Mt. Dutton
Volcano Bay
Lenard Harbor
Belkofski
Old Mans Lagoon
KING COVE
Belkofski Bay
Thinpoint Lake
Thinpoint Cove
Deer Island
FIGURE 7-3:
CONCENTRATED USE AREAS WITHIN 20 MILES OF KING COVE
Concentrated Use Areas
SCALE
0
5
10 MI
N
STEPHEN R. BRAUND & ASSOCIATES 1986

TABLE 7-4: LEVELS OF HOUSEHOLD PARTICIPATION AND USE OF LOCAL RESOURCES, KING COVE, 1984-1985[1]

Resource	Sample Size	Percent of Households art	Estimated Average Household Harvest[2]	Estimated Usable Weight (Pounds)[3]	Household Harvest Estimates (Pounds)	
MARINE						
King Salmon	24	33	5.0	18.0	90	
Churn Salmon	23	44	15.0	6.0	90	
Coho Salmon	26	96	40.0	6.0	240	
Pink Salmon	25	56	40.0	2.0	80	
Red Salmon	24	7s	25.0	4.0	100	
				SALMON SUBTOTAL		600
Herring	17	18	5.0	0.4	2	
Halibut	24	75	5.0	18.0	90	
Cod	2 3	52	5.0	6.6	33	
King Crab	26	84	11.0	1.5	17	
Tanner Crab	21	43	6.0	0.7	4	
Dungeness Crab	18	39	3.0	0.7	2	
Shrimp	17	6	NA	NA	NA	
Harbor Seal	17	65	1.0	50.0	50	
N. Sea Lion	17	24	0.26	150.0	38	
				OTHER MARINE RESOURCE SUBTOTAL		236
COASTAL						
Clams[4]	29	97	5.0	13.0	65	
Bidarkis[4]	17	89	2.0	6.0	12	
octopus	19	so	1.2	2.5	3	
Ducks	20	90	20.0	1.5	30	
Geese & Brant	21	91	20.0	3.5	70	
Dolly Varden	19	63	30.0	0.7	21	
				COASTAL RESOURCE SUBTOTAL		201
TERRESTRIAL						
Caribou	33	82	4.0	130.0	520	
Cattle	22	64	0.5	200.0	100	
Ptarmigan	21	38	18.0	0.5	9	
Berries[4]	18	90	1.0	NA	NA	
				TERRESTRIAL RESOURCE SUBTOTAL		629
				TOTAL ESTIMATED POUNDS PER HOUSEHOLD		1,666

L Includes those resources consumed by commercial fishing crews.
2. Quantity is measured in numbers of animals/fish unless otherwise noted.
3. Conversion figures baaed on SRB&A field estimates, Fell et al. (1984), Wolfe (1981), and ADF&G (1985), personal communication.
4. Measurement ie in 5 gallon buckets.
NA Data is not available.

Source: Stephen R. Braund & Associates (198S).

Marine

Of the three distinct physical provinces described, the marine ecosystem is the most important for two reasons. First, the largest proportion of all local foods is extracted from this province. Second, the waters of this environment provide King Cove residents with the major means of access to both the coastal and terrestrial harvest areas.

Salmon

Five species of Pacific salmon are harvested in the Alaska Peninsula-Aleutian Islands region, including sockeye, pink, king, chum, and coho salmon. These anadromous fish have an extensive range throughout the North Pacific Ocean. Sockeye (red) salmon migrate annually to natal streams in Alaska primarily in June and July, and because of large runs and good handling characteristics, bring a premium price in the commercial market. Pink salmon appear in significant numbers from July to September along the Pacific side of the Alaska Peninsula, where clear tributaries and short streams offer ideal spawning habitat. King salmon, the largest of the Pacific salmon, are not as abundant as red or pink salmon, though their distribution is broad. King salmon generally prefer large river systems for spawning. In Area M, king salmon spawn only in river systems on the north side of the Alaska Peninsula with no major runs west of Moffet Point. Chum salmon spawn in small clear streams on both sides of the Alaska Peninsula. Finally, coho salmon are most abundant along the Bering Sea side of the Alaska Peninsula.

King Cove residents' subsistence use of the five salmon species provides the community's most important source of protein. The harvest, consumption, and re-distribution of salmon during the commercial season have been discussed. This discussion concentrates on the harvest of salmon outside the context of commercial fishing, particularly the identification of important harvest areas and harvest methods.

Table 7-4 shows the relative importance of the different salmon species as measured by household participation and consumption. King, sockeye, and pink salmon are generally harvested during commercial fishing while coho and chum

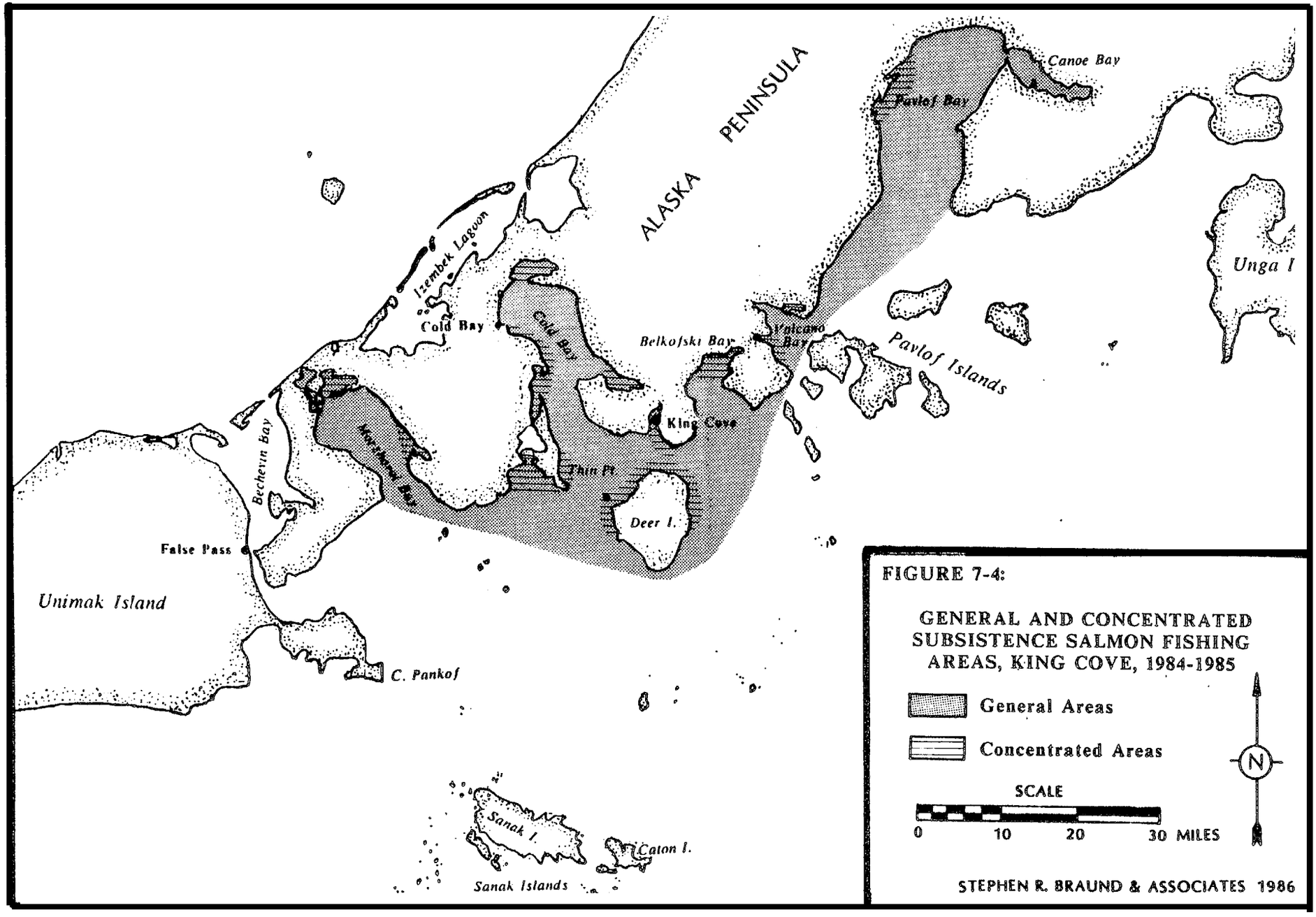
salmon are more often harvested after the commercial fishing season. Kings and sockeye are usually taken in the Cape Pankof-False Pass area while pinks are harvested closer to the community. Subsistence salmon fishing primarily occurs in the later part of August and early September after the commercial season ends. During the fall King Cove residents have the free time necessary to harvest, process and . prepare for storage the salmon eaten throughout the winter.

The majority of subsistence salmon fishing (outside the context of commercial salmon fishing) takes place in a small, relatively localized area within a 15 mile radius of King Cove (Figure 7-4). Within this area, Thin Point Cove, Deer Island, Cold Bay and the creeks flowing into Lenard Harbor are particularly important locations. Other subsistence salmon fishing areas include Morzhovoi Bay and Pavlof Bay. According to field data, the Thin Point area is the most frequently used salmon fishing area and is especially productive for coho salmon. Local residents also catch salmon (mostly chums and pinks) with rod and reel in the waters adjacent to town.

In modern King Cove most subsistence salmon fishing occurs on day trips or brief overnight outings. Harvest techniques vary, but the most common methods are to use a small portion of a commercial seine net or an old section of gill net. Once the desired quantity of salmon has been harvested, the residents return to King Cove where the majority of processing' occurs. Typical storage methods include: drying, smoking, salting in barrels, and more recently, freezing. Freezer space, while considered ample by most residents, is usually not sufficient to freeze all salmon harvested. Most residents freeze a few king and sockeye salmon and store the remainder of their catch by either smoking, salting or canning. Coho comprise the largest portion of the subsistence salmon harvest, followed by pinks and sockeye.

Other Marine Fish

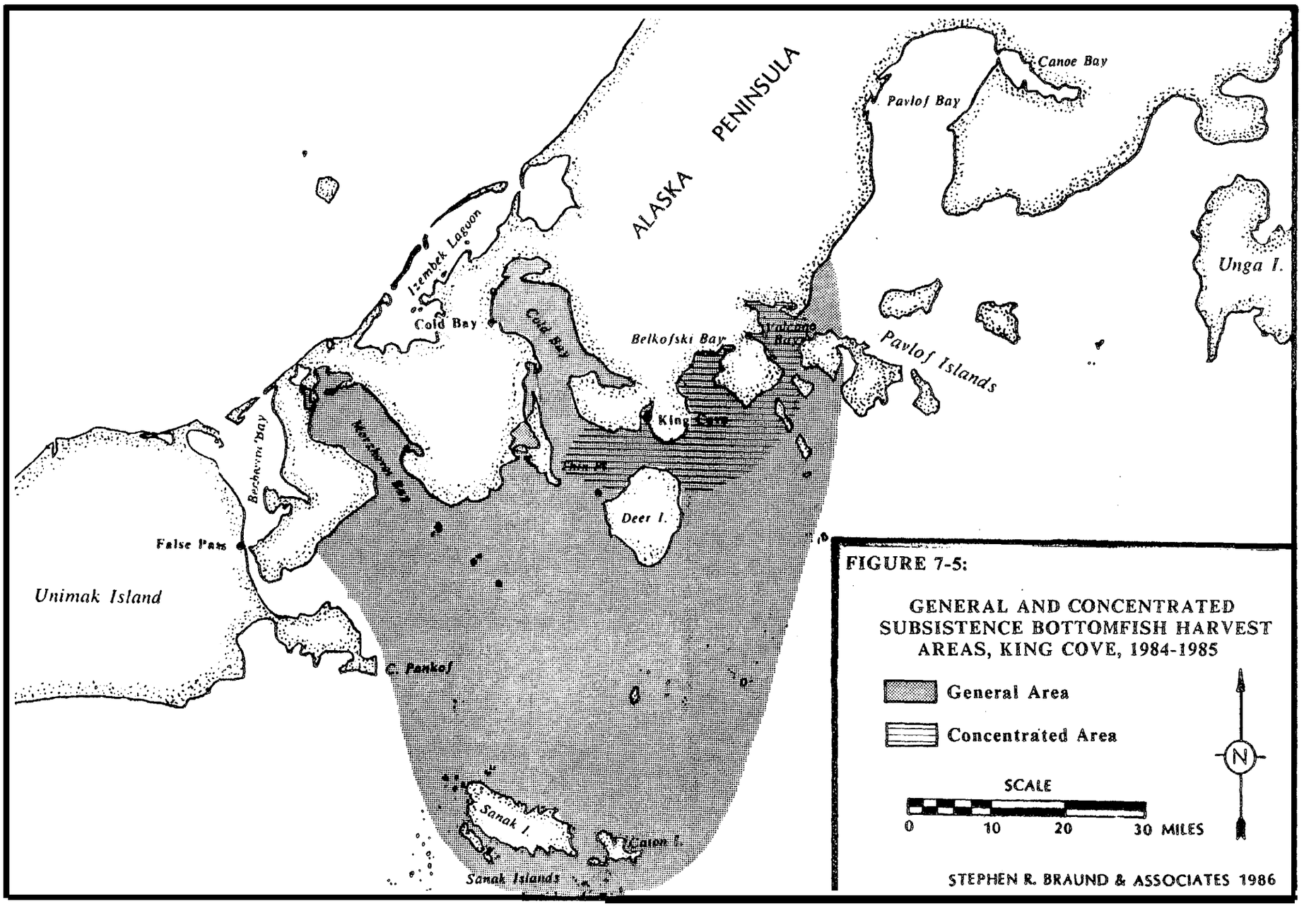
Other marine fish harvested by King Cove residents include halibut and cod, bottomfish that are found in abundance in the waters adjacent to King Cove. As is the case with most marine subsistence resources, halibut and cod are harvested both during and separately from commercial fishing activities.


ALASKA PENINSULA
Canoe Bay
Pavlof Bay
Unga I
Izembek Lagoon
Cold Bay
Cold Bay
Belkofski Bay
Volcano Bay
Pavlof Islands
King Cove
Thin Pt.
Deer I.
Beckevin Bay
False Pass
Unimak Island
C. Pankof
Sanak I.
Caton I.
Sanak Islands
FIGURE 7-4:
GENERAL AND CONCENTRATED SUBSISTENCE SALMON FISHING AREAS, KING COVE, 1984-1985
General Areas
Concentrated Areas
N
SCALE
0 10 20 30 MILES
STEPHEN R. BRAUND & ASSOCIATES 1986

Because King Cove fishermen participate in a winter Tanner crab fishery as well as several of the brief halibut openings, local residents have ample opportunity to harvest both halibut and cod incidental to their commercial catch. During Tanner crab season, halibut and cod are often trapped in the crab pots. While the incidental catch of halibut and cod is not considerable (perhaps a dozen fish in an entire string of gear), the length of the season and the number of local boats participating results in significant numbers of fish being returned to the community over the length of the Tanner season. Some fish trapped in the pots are used for bait, especially if they are caught at the beginning of a boat trip to the fishing grounds. During commercial halibut openings, both cod and halibut are returned to the community for home use. Halibut fishermen readily share the cod fish harvested incidental to the halibut. In addition, some of the smaller (10 to 20 pound) halibut caught are saved for home use. The location of halibut and cod harvests that occur during the commercial Tanner and halibut seasons coincides directly with these commercial fishing locations (see Figures 6-8 and 6-10).

Halibut and cod fishing also occur on a regular basis outside the context of commercial fishing. While halibut and cod are available in the King Cove region throughout the year, the subsistence harvesting of these resources is concentrated in the fall and early winter. During this period, there are currently no commercial fishing activities; as a consequence, local residents have both the time and equipment necessary to harvest bottomfish and a desire for these fresh resources that cannot be met through a harvest incidental to a commercial fishery. During the winter and spring months of January through May, the supply of fresh bottomfish caught incidental to the commercial Tanner and halibut seasons appears to be sufficient to satisfy the majority of the community's desire for these resources, While commercial halibut fishing continues through a June opening, preparations for the first salmon opening discourage participation by King Cove residents who are already looking forward to the home use of fresh salmon.

The general harvest area used for subsistence bottomfishing is presented in Figure 7-5. This area is comparable with the commercial Tanner and halibut fishing regions (Figures 6-8 and 6-10). The small size of the concentrated harvest range in the immediate vicinity of the community demonstrates the


ALASKA PENINSULA
Canoe Bay
Pavlof Bay
Unga I.
Izembek Lagoon
Cold Bay
Belkofski Bay
Pavlof Islands
King Cove
Deer I.
False Pass
Unimak Island
C. Pankof
Sanak I.
Caton I.
Sanak Islands
FIGURE 7-5:
GENERAL AND CONCENTRATED SUBSISTENCE BOTTOMFISH HARVEST AREAS, KING COVE, 1984-1985
General Area
Concentrated Area
N
SCALE
0 10 20 30 MILES
STEPHEN R. BRAUND & ASSOCIATES 1986

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relative abundance of these resources and the ease of access provided King Cove residents. Annual household consumption of halibut and cod varies between zero and 16 fish; the average household consumption of these bottomf ish is about 123 pounds.

As stated above, methods of halibut and cod fishing include the incidental catch in the crab pots but most importantly the use of long lines or "skates." These skates of variable length are spooled on the back of the boat and, as they are let out, baited hooks are clipped on every 10 to 15 feet. Finally, King Cove residents are opportunistic and well aware of the location of resources and their abundance. For example, when hunting waterfowl or caribou, local residents may set long lines for halibut as a secondary activity.

Crab

King crab inhabit the continental shelf off either side of the Alaska Peninsula to depths of 650 meters (Lewbel 1983), with the largest concentrations occurring in the Bering Sea. King crab mature after four or five years and breed every year thereafter in shallow waters. The diet of king crab includes shrimp, bivalves, and gastropod.

Tanner crab are concentrated on the Pacific side of the Alaska Peninsula, although they are also widely distributed in the southeastern Bering Sea. They occupy virtually all depths along the continental shelf south of the peninsula (State of Alaska and U.S. Department of the interior 1984).. Tanner crab breed in the winter at depths of 500 to 700 meters (Lewbel 1983).

King Cove residents harvest three crab species for subsistence use: red king crab (Paralithoides camtschatica), Tanner crab (Chionoecetes bairdi), and dungeness crab (Cancer magister). Average harvest quantities for each of these species is presented in Table 7-4. Since the late 1940's when commercial harvests began, crab has been a desirable and important food source for residents of King Cove and other communities in the region. As with salmon, King Cove residents intermix commercial and subsistence crab harvest activities.

King crab is the locally preferred crab species and comprises the majority of King Cove residents' subsistence crab harvest.. King crab, while available the entire year, is now harvested only during the fall and early winter months due to new ADF&G subsistence harvest regulations and time commitments of the local salmon fishermen. King crab harvests that occur during the fall and early winter are conducted independent of commercial crab fishing. Direct subsistence harvest of king crab is conducted with normal commercial king crab pots that have the name, address, and phone number of the owner on the buoy. The use of these pots is a form of communal subsistence activity, with anyone allowed to pick the pots as long as they rebait them. For example, a boat traveling to or from a caribou hunting location might stop and check a crab pot. On return to King Cove the skipper, having taken a few crab for himself and his crew, would announce that there were king crab available on his boat and that anyone who desired a few was welcome to come down and get some. In this manner, every household that desires this resource is able to acquire it. Once harvested, crab are either eaten right away, frozen, or jarred for later use.

As stated previously, halibut, cod, and king crab are incidental species harvested during the commercial opening for Tanner crab. A significant portion of the king crab consumed in King Cove is harvested during this commercial season despite the narrower opening in the crab pot entrance required for Tanner crab fishing. Local consumption of king crab was likely higher prior to the closure of the local commercial red king crab fishery in 1982, but it remains a valued subsistence resource nonetheless.

Tanner crab, though abundant and the focus of a major commercial fishing effort, is not a targeted subsistence species. King Cove residents described it as "too much work" arid as "too sweet." In addition, because king crab are readily available at the same time as the Tanner crab (i.e., during the commercial season), residents focus on the preferred king crab. Some Tanner crab are taken home from the commercial catch.

Dungeness crab is also an occasionally used local resource. While it is considered of high quality and taste by most King Cove residents, no effort is directed exclusively toward the subsistence harvest of this resource.

Dungeness move into the brackish waters at the mouths of streams during the summer months and local salmon fishermen beach seining in these areas commonly catch a few of these crab. In addition, nonlocal dungeness fishermen stopping in King Cove share some of this resource with local residents.

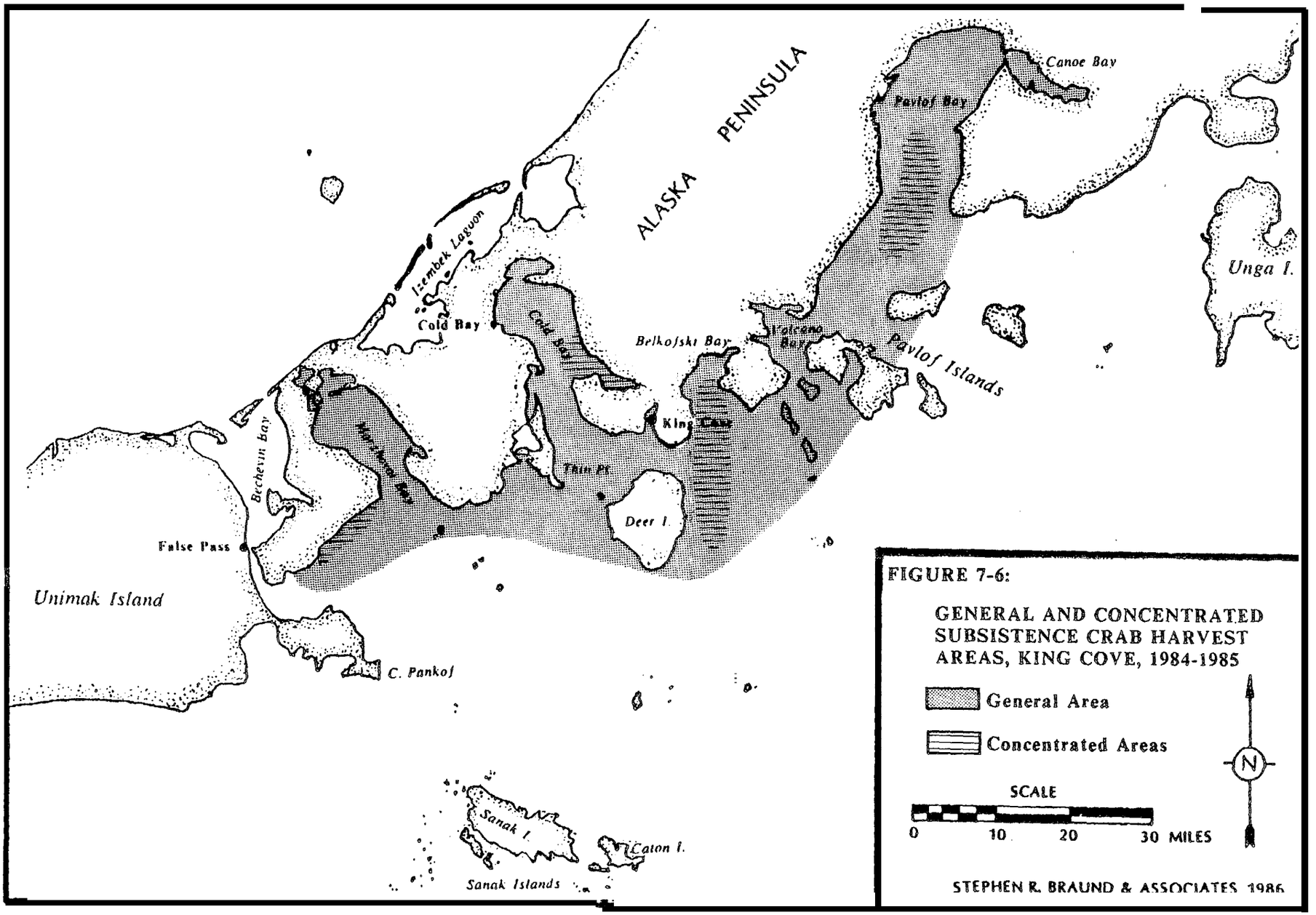
Subsistence crab harvest areas are delineated on Figure 7-6. As a significant portion of subsistence crab harvest occurs during the commercial Tanner fishery, it is not surprising that subsistence harvest areas for crab are inclusive of all commercial harvest areas for Tanner crab. During the 1985 Tanner crab season, the greatest portion of incidental king crab" harvests occurred on boats fishing the Lenard Harbor/Cold Bay area. Pavlof Bay is the most important subsistence crab fishing area outside King Cove residents' commercial Tanner fishing area.

King Cove residents' open season for . subsistence use of shellfish was regulated by a permit system for the first time in 1984. Neither catch limits nor closed seasons were established for dungeness or Tanner crab in the King Cove region. The legal harvest of king crab, however, is now limited to the period from June 1 through January 31. The daily catch limit of six crab per day and in possession, established in the 1970s, was changed to read six male crab per day and in possession.

Marine Mammals

King Cove's proximity to the major ocean passes dividing the North Pacific from the Bering Sea provides local residents with access to a wide variety of marine mammals. The area King Cove residents use for subsistence harvest activities is inhabited all or part of the year by 24 marine mammal species (Resource Analysts et al. 1984a) including over a dozen species of whales and porpoises, as well as sea lion, fur seal, hair seal, walrus, and sea otter. While a greater number of marine mammals were traditionally used by the Aleuts, King Cove residents' current use of marine mammals is focused on two specie% hair seal and sea lions.

The harbor seal ranges in the Pacific Ocean from southern California to the Bering Sea and southward to China. It is the only phocid (hair) seal that


ALASKA PENINSULA
Canoe Bay
Pavlof Bay
Unga I.
Izembek Lagoon
Cold Bay
Cold Bay
Belkofski Bay
Volcano Bay
Pavlof Islands
King Cove
Thin Pt.
Deer I.
Beckevin Bay
False Pass
Unimak Island
C. Pankof
Sanak I.
Caton I.
Sanak Islands
FIGURE 7-6:
GENERAL AND CONCENTRATED SUBSISTENCE CRAB HARVEST AREAS, KING COVE, 1984-1985
General Area
Concentrated Areas
N
SCALE
0 10 20 30 MILES
STEPHEN R. BRAUND & ASSOCIATES 1986

inhabits southern Alaska and the Aleutian Islands. Also known as the common seal, harbor seals inhabit areas that are free of pack ice during the winter, which includes the waters off the Alaska Peninsula and the Aleutian Islands, and give birth to their pups on land. Harbor seals eat a variety of fish and crustaceans.

Northern (Steller's) sea lions range from California to the Gulf of Alaska, the Bering Sea, and Japan. Concentrations are found in remote rocky island regions that offer protected haulout sites. Approximately 100,000 to 130,000 northern sea lion inhabit the Bering Sea and the Aleutian Islands (McAlister 1981). They use near-shore areas that are rich in fish, but also forage at sea along the continental shelf. Northern sea lions do not migrate on a definite pattern, but do exhibit seasonal movements. Their populations were severely reduced prior to the 1900s due to over harvesting, but have since increased.

For the most part, King Cove residents' use of marine mammals can be considered opportunistic. While there are a number of local residents who harvest seal ev-ery year and consider seal and sea lion as favorite foods, no residents indicated that they made hunting trips specifically for seal or sea lion. The commercial fishing vessels are used for the harvest of these species which usually occurs within the context of other marine oriented activities.

Both the hair seal and sea lion currently sought by King Cove residents are available throughout the year and throughout the King Cove subsistence use area. As with many other subsistence activities, harvesting of these resources often occurs incidentally to commercial fishing activities. If a seal or sea lion is caught in a fishing net and drowns before it is freed, it is brought home for use or given to someone who expresses a desire for it. Direct harvest of seals usually takes place in fall and winter, when the seal is more likely to float after it has been shot. Typically, harvests occur during fall caribou and waterfowl hunting trips and occasionally in the early spring when residents go out after wild cattle or caribou to restock their supply of fresh meat.

Field discussions suggest that the majority of direct subsistence harvests of seal is carried out by former residents of Belkofski. The average household harvest of seal, for the entire community, is approximately one seal Per

household per year (Table 7-4). Sea lions are harvested less frequently than seals, though obtained in a similar manner. Sea lion harvests average less than one sea lion per household per year.

Sea mammal harvests occur throughout the subsistence harvest range of King Cove residents. Residents indicated that East Anchor during the June fishery and "right out in front" of King Cove during the rest of the year were the most common harvest locations. Several former Belkofski residents noted that the shores of the Illiasik islands in front of Belkofski were also excellent harvest locations.

While no harvest effort is directed toward the larger marine mammals, local residents do take advantage of beached whales when the opportunity arises. According to King Cove residents, almost complete use was made of a whale that washed up on the west side of the cove several years ago.

Coastal

The coastal harvest area used by King Cove residents is best described as that area between high and low tide water as well as the immediately adjacent land area. This area includes the tidal marshes, estuaries and the portion of local streams influenced by the tide. While caribou are sometimes harvested in this area, the primary resource groups harvested are waterfowl, mollusks, and trout. It should be noted that harvest patterns for both the coastal and terrestrial areas differ from those patterns observed in the marine environment in that virtually all hunting and gathering is done outside the context of commercial fishing.

Waterfowl

Millions of waterfowl migrating along the North American Pacific flyway and several Asiatic routes move through Unimak Pass and t-he Alaska Peninsula coastal plain twice a year. Due to the lack of suitable habitat on the Pacific side of the Alaska Peninsula, waterfowl are concentrated in the numerous lagoons, shallow estuaries, and marshes on the Bering Sea side. In addition to large migratory populations, the rich estuarine and wetland environments

support large populations of nesting waterfowl. Izembek Lagoon is the staging area for numerous waterfowl species including brants and over 75,000 lesser Canada geese (30-35% of Alaska's population) each fall (State of Alaska and the U.S. Department of the Interior 1984). White-fronted geese breed in large numbers in several of the rivers which flow into Bristol Bay, and use the tidal areas along the Alaska Peninsula during their migrations. The north side of the Alaska Peninsula is also used by almost all of the world's population of emperor geese (approximately 100,000 birds) during their migration (U.S. Fish and Wildlife Service [USFWS] 1985). Mallards, northern pintails, green-winged teal, gadwalls, scaup, scoters, mergansers, widgeon, eiders, and common and Barrows's goldeneye ducks nest on the Alaska Peninsula in addition to migrating through the area in large numbers.

Almost all respondents interviewed concerning subsistence harvest activities hunted waterfowl. Species known to be harvested include: Canada geese, white-fronted geese, emperor geese, brants, pintails, mallards, green winged teal, buffleheads, and Barrow's and common goldeneyes. King Cove residents noted that harvest success for the different species varied from year to year but that overall success for all waterfowl species was fairly constant. Consumption was estimated at 40 geese and ducks per household per year.

Waterfowl hunting is concentrated during fall migration (September and October). The majority of waterfowl hunting occurs in the large lagoons and bays of the Alaska Peninsula that provide King Cove residents access to the coastal estuaries on the north side (Figure 7-7). The shores and lagoons of Bechevin, Morzhovoi and Cold bays were commonly noted as good waterfowl harvest areas during the fall migration. The three lagoons adjacent to the northern and western shores of Morzhovoi Bay represent one of the most important waterfowl hunting areas for King Cove residents. This concentrated use area is a result of the ideal waterfowl habitat provided by the lagoons. Izembek Lagoon is an area used when visiting friends and relatives in Cold Bay.

Residents usually travel to the harvest area in fishing boats and then use small skiffs to hunt along the shores and lagoons. King Cove residents drag these skiffs over the barrier beaches into the lagoons that are considered the best waterfowl hunting areas. Typical waterfowl hunting parties include three

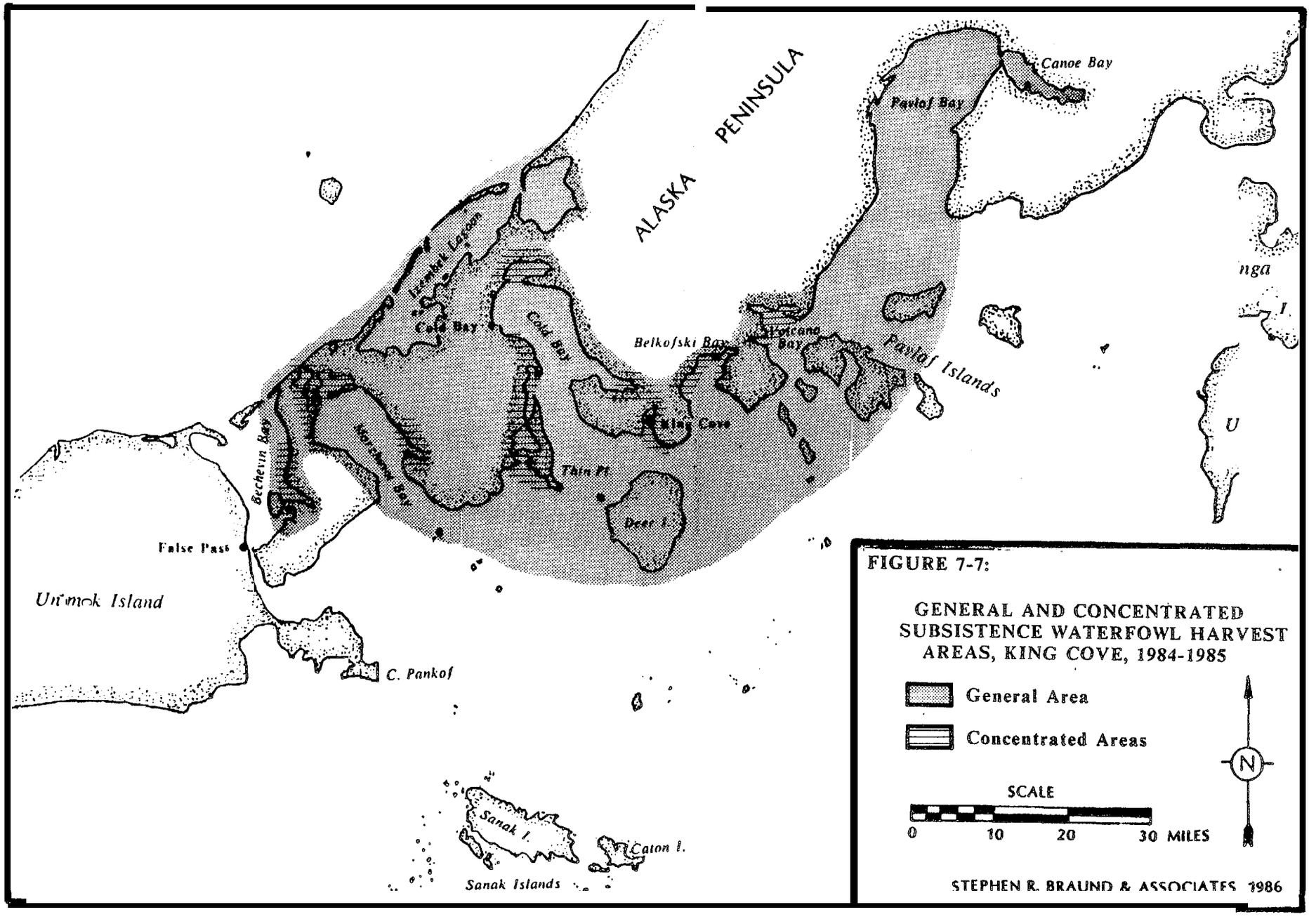

ALASKA PENINSULA
Canoe Bay
Pavlof Bay
Izembek Lagoon
Cold Bay
Cold Bay
Belkofski Bay
Volcano Bay
Pavlof Islands
King Cove
Thin Pt.
Deer I.
Bechevin Bay
False Pass
Unimak Island
C. Pankof
Sanak I.
Caton I.
Sanak Islands
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FIGURE 7-7:
GENERAL AND CONCENTRATED SUBSISTENCE WATERFOWL HARVEST AREAS, KING COVE, 1984-1985
General Area
Concentrated Areas
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SCALE
0 10 20 30 MILES
STEPHEN R. BRAUND & ASSOCIATES 1986

or four adult males, either friends of the same age or a kinship defined group (e.g., a father and his sons and/or nephews).

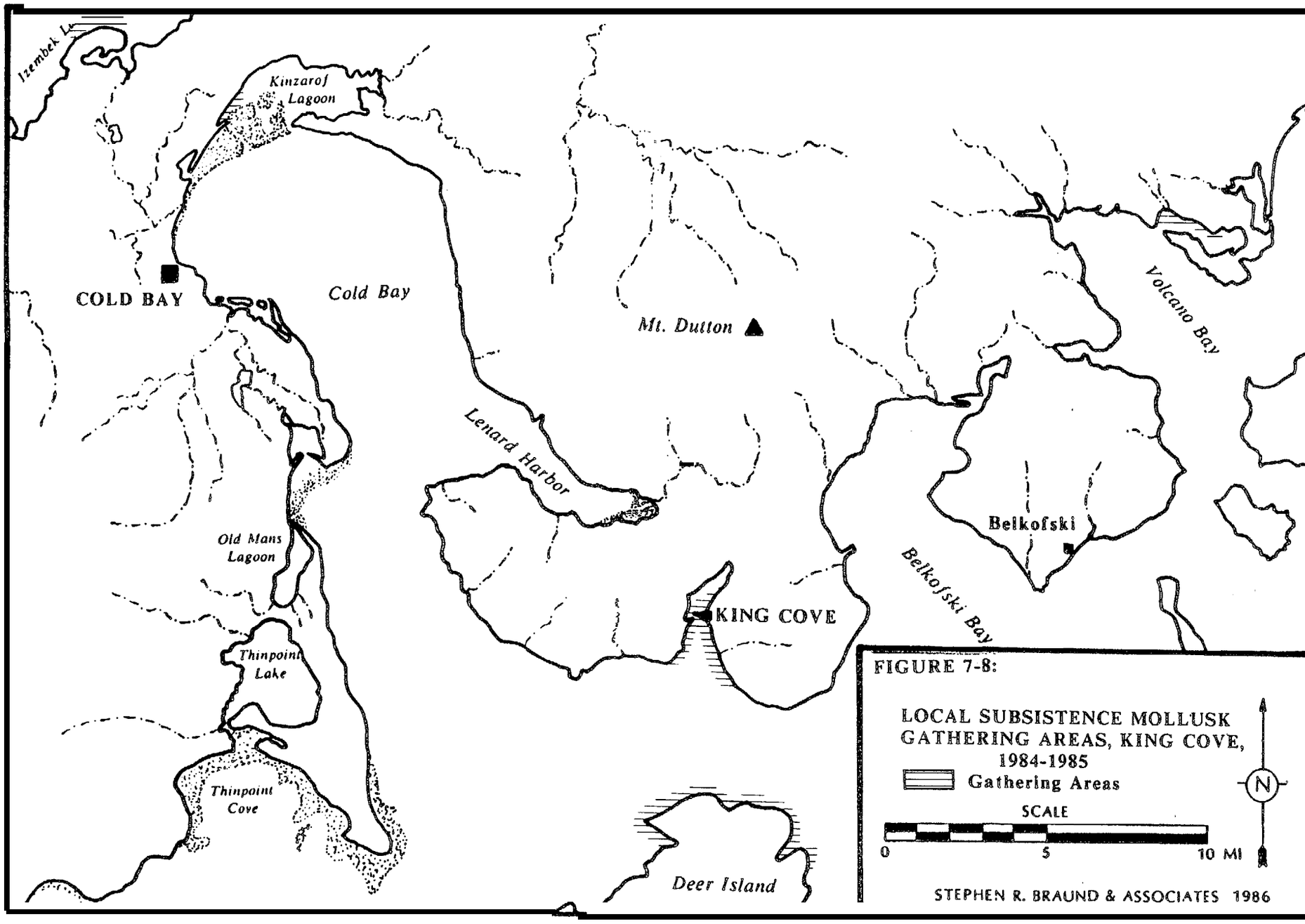
Once the fall migration is over, waterfowl hunting becomes more localized. While some waterfowl hunting does occur along the road between the community and the airport, most bird hunting within the immediate vicinity of King Cove is for ptarmigan (Figure 7-7). In addition to the areas accessible by three-wheelers, residents noted Belkofski Bay and the lagoons of Volcano Bay to be excellent waterfowl hunting locations. Hunting of some resident species of waterfowl continues throughout the winter. Brants and mallards are the primary species harvested after the fall migration.

Mollusks

King Cove residents gather several mollusks in close proximity to the community. Clams, bidarkis, and octopus are all harvested in areas within eyesight of King Cove. Freshly gathered clams and bidarkis are generally steamed and clams are also commonly used in chowders. Because of the effort involved in harvesting and the small harvest quantities, clams and bidarkis are considered a delicacy that are rarely distributed between households, but are shared at dinner with extended family members and friends. Octopus is generally boiled and sliced prior to consumption.

In all seasons but summer (September through May), clams are harvested in King Cove Lagoon directly adjacent to the community (Figure 7-8). Residents use shovels and rakes to harvest the clams and were observed on numerous occasions during the fieldwork when low tides allowed for good clamming. A five gallon bucket of clams, "good for two family meals," could be harvested by an individual in several hours of clamming; this activity is often a family outing. While almost all households interviewed harvested clams, use varied between a low of one or two buckets per winter to a five gallon bucket two to three times per month. Clam consumption was estimated at 25 gallons (five buckets) per household per year.

Gathering bidarkis is similarly a family subsistence activity carried out during the winter at low tide. The harvest range includes the shoals near Rams


Izembek Lk
Kinzarof Lagoon
COLD BAY
Cold Bay
Mt. Dutton
Volcano Bay
Lenard Harbor
Belkofski
Old Mans Lagoon
Belkofski Bay
KING COVE
Thinpoint Lake
Thinpoint Cove
Deer Island
FIGURE 7-8:
LOCAL SUBSISTENCE MOLLUSK GATHERING AREAS, KING COVE, 1984-1985
Gathering Areas
SCALE
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STEPHEN R. BRAUND & ASSOCIATES 1986

Creek, the western shore of King Cove proper, and along the coast of Deer Island. Bidarkis are consumed at an average of two five gallon buckets per household per year.

Clamming and bidarki gathering areas noted during fieldwork are presented in Figure 7-8. King Cove lagoon and the rock beaches and tidal pools in the vicinity of town are the most heavily used harvest areas for these species. This concentrated use area is a function of proximity and ease of access to King Cove.

Octopus can be taken from tidal pools exposed at low tide. Residents use a section of rubber hose and a small capful of chlorine to force the animals out of their protection under the rocks. Use of octopus varies considerably in the community but was estimated at one octopus per household per year.

In addition to the harvest areas here described, octopus and snails are caught offshore during crab season. Octopus occasionally are found in the crab pots while snails attach themselves to the pot frames. Offshore snail and octopus use areas correspond directly to subsistence crab harvest areas (Figure 7-6). The majority of mollusks harvested by King Cove residents are not caught incidentally, but are gathered in close proximity to the community.

Trout

Two species of char are found in the King Cove area: Arctic char and Dolly Varden. These closely related species inhabit marine and freshwater environments. Dolly Varden prefer to spawn in swift streams (common on the south side of the Peninsula), while Arctic char favor slower streams (common on the north side of the Peninsula), As a consequence the majority of "trout" harvested locally are the smaller Dolly Varden. Both species spawn between July and December. Because of their heavy dependence on salmon eggs for food, char populations may be related to salmon spawning populations.

Trout fishing is a popular activity among King Cove residents. Dip nets, rod and reel, and throw nets are all methods used to harvest trout. Most of the trout are relatively small, as one resident stated, "good fry-pan size." This

activity is conducted by adult and children alike of both sexes. In contrast to many other subsistence activities, trout fishing with a rod and a reel is often carried out alone. Discussions with King Cove residents suggest that approximately 63 percent of the households participate in trout fishing, with the average annual consumption of trout per fisherman varying between 15 and 80 fish depending on harvest methods, fish size, and location.

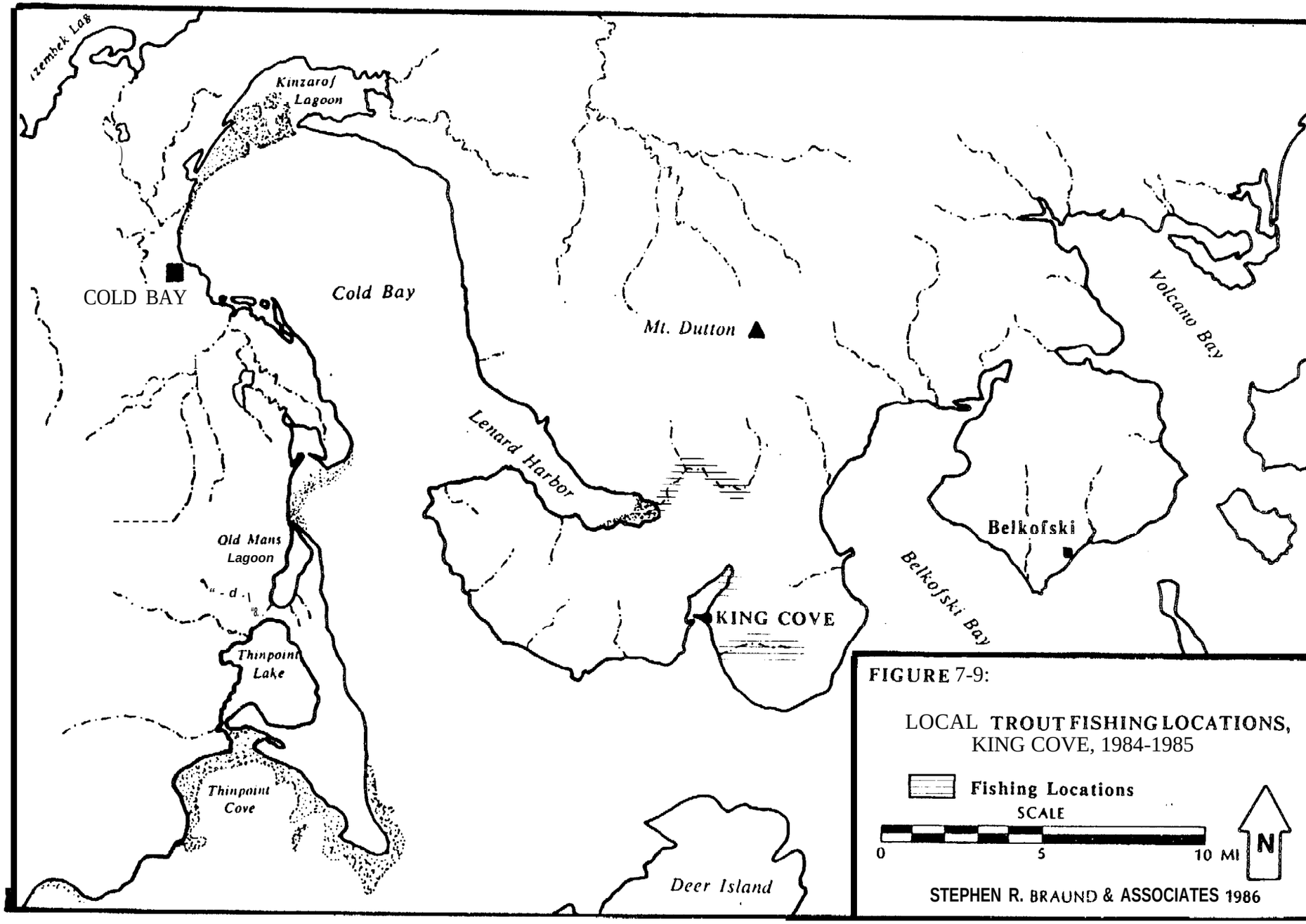
Trout are generally harvested within close proximity to King Cove during September and early fall (Figure 7-9). The most important streams used are Rams Creek and Delta Creek. Mallard Lake, at the northeast corner of King Cove Lagoon is also an important harvest area. All of these areas are accessible by truck, offering recreational and subsistence trout fishing. Most trout fishing occurs during the summer and early fall, though according to local residents the trout are available throughout the year.

Terrestrial

King Cove residents' use of terrestrial resources is limited to three species of wildlife and approximately six plant species. Wildlife harvested include caribou, cattle, and ptarmigan. The plant resources harvested include berries (blueberry, salmonberry, mossberry, and cranberry) arid green plants (beach celery and petrouski). As stated in reference to coastal harvest areas, the overwhelming majority of hunting and gathering done in the terrestrial environment occurs independent of commercial fishing activities.

Caribou

King Cove hunters harvest caribou from the southern peninsula subherd of the Alaska Peninsula herd. The southern peninsula subherd ranges from Port Moller to False Pass and numbers approximately 10,000 animals (USFWS 1985). The uplands between the Black Hills and the Pavlof Sisters are important calving grounds for the subherd, while the adjacent Bering Sea lowlands and the Cold Bay area provide key winter habitat. The population of the southern peninsula subherd has been increasing since the 1940s, and currently approaches the estimated carrying capacity of the area (USFWS 1985).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Kinzarof Lagoon
COLD BAY
Cold Bay
Mt. Dutton
Volcano Bay
Lenard Harbor
Belkofski
Belkofski Bay
Old Mans Lagoon
KING COVE
Thinpoint Lake
Thinpoint Cove
Deer Island
FIGURE 7-9:
LOCAL TROUT FISHING LOCATIONS, KING COVE, 1984-1985
Fishing Locations
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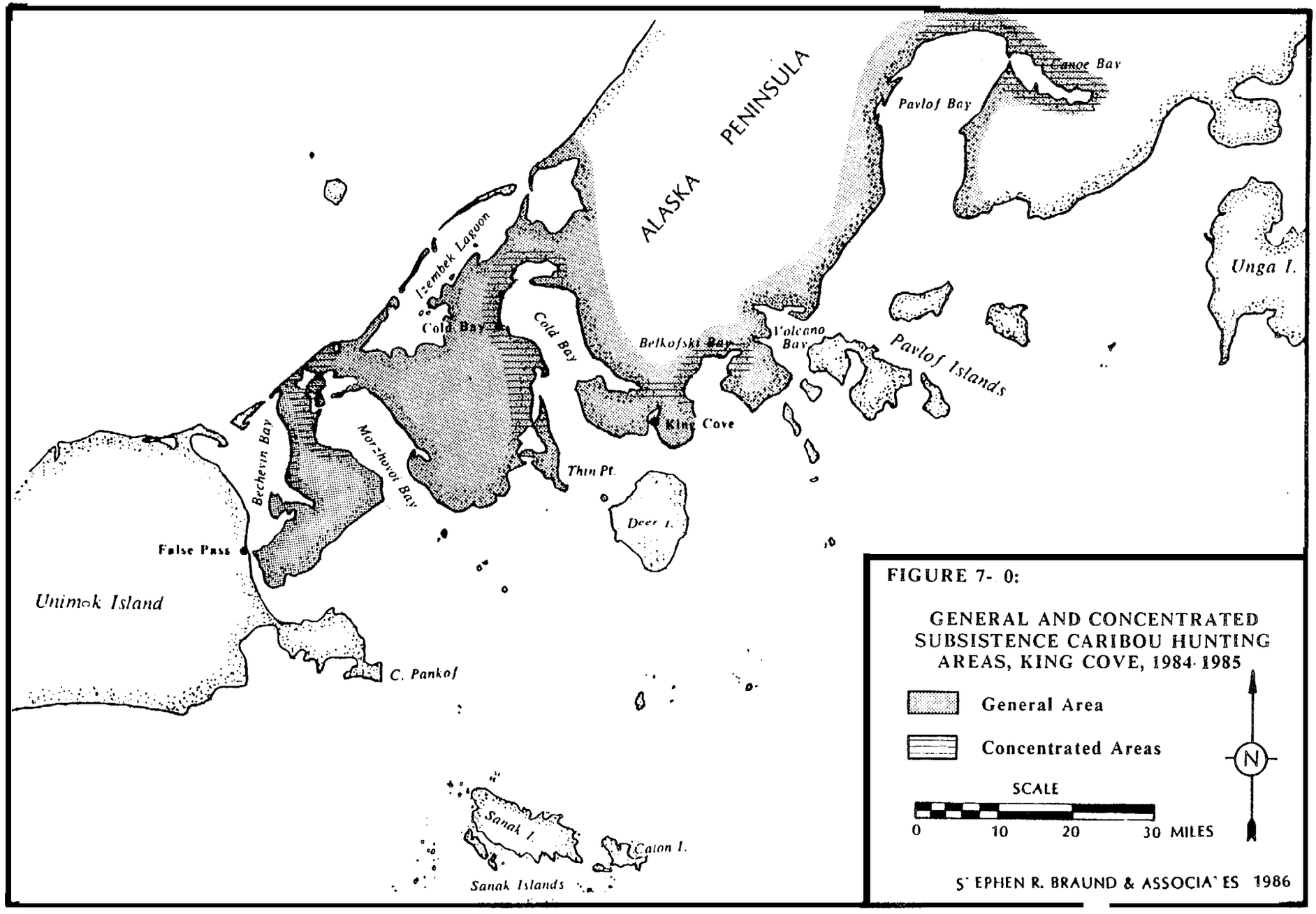
STEPHEN R. BRAUND & ASSOCIATES 1986

The subsistence caribou hunting season on the southern Alaska Peninsula opens in early August and lasts until the end of March. However, due to conflicts with commercial fishing, King Cove residents often do not begin caribou hunting until the last few days of August or early September. During this period, local residents may combine caribou hunting with waterfowl hunting as both resources can often be found in the same general area. After this initial hunting period, caribou hunting is more evenly distributed throughout the season as the year-round presence of caribou allows hunters to go out and get individual caribou as the need arises. Because of this availability, individual households rarely harvest more than one caribou at a time.

Commercial fishing boats are used to travel to and from areas of known caribou habitat with smaller skiffs being used to access actual hunting area (Figure 7-10). King Cove residents' reliance on marine transportation affects hunting patterns and harvest locations by concentrating efforts along shorelines where large amounts of territory can be covered and caribou can be killed near the boats. Trips lasting one to three days comprise the majority of outings, which generally occur within 50 miles of King Cove. The most popular hunting locations include Cold Bay, Pavlof Bay, and Morzhovoi Bay.

Caribou are typically hunted by a group of male friends or relatives. Especially during the early fall, caribou hunting is a social activity enjoyed by King Cove fishermen who have just completed the commercial salmon season. The average outing size is four hunters. Caribou are usually butchered at the kill site and transported back to the community by boat.

In terms of total pounds harvested for local consumption, caribou is second only to salmon. Four caribou per household is the average yearly harvest for King Cove residents, which matches the regulation harvest limits. The meat is generally consumed in steaks and roasts or ground into burger. Seventy-nine percent of the King Cove residents interviewed mentioned caribou as one of their three favorite foods (see Species Preference).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Izembek Lagoon
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Volcano Bay
Pavlof Islands
King Cove
Thin Pt.
Deer I.
Bechevin Bay
Morzhovoi Bay
False Pass
Unimak Island
C. Pankof
Sanak I.
Caton I.
Sanak Islands
FIGURE 7- 0:
GENERAL AND CONCENTRATED SUBSISTENCE CARIBOU HUNTING AREAS, KING COVE, 1984-1985
General Area
Concentrated Areas
N
SCALE
0 10 20 30 MILES
STEPHEN R. BRAUND & ASSOCIATES 1986

Cattle

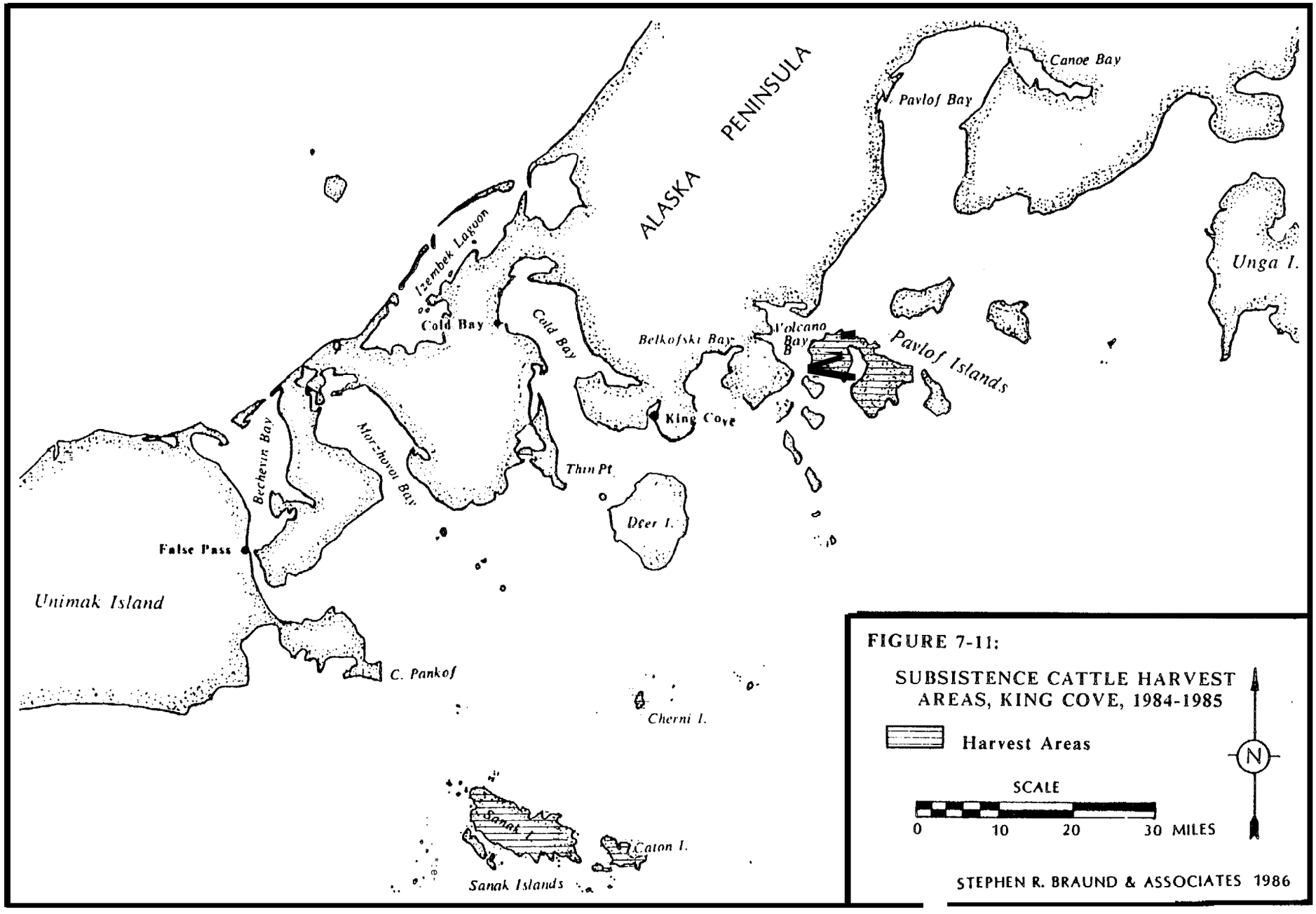
Wild cattle inhabit several of the islands off the Alaska Peninsula as well a number of islands in the Aleutian chain, as a result of failed ranch operations of the late 19th century and early 20th century. King Cove residents harvest cattle that inhabit the Sanak Island Group, Cherni Island, and Dolgoi Island (Figure 7-11). Cattle hunting requires two or three days and usually takes place during the winter, when King Cove residents have more free time.

Not all King Cove residents harvest wild" cattle. The animals are avoided by some residents because of the tough and stringy nature of the. beef. Those residents who do harvest cattle focus their effort on the younger, more tender animals. When all King Cove households are considered, consumption averages to be about one half cow per family per year. Residents who enjoy this resource typically take one cow a year, harvesting and sharing the animal in cooperation with another household.

Despite the abandonment of the ranches, the cattle continue to survive on the relatively temperate, vegetation covered, offshore islands. However, recent federal attempts to preserve some of the islands' natural flora and fauna have led to the removal of cattle from several islands. Cattle were removed from Caton Island in the Sanak Island group by federal officials in the. fall of 1985. King Cove residents were not supportive of this federal action and considered it an unnecessary waste of a useful food source.

Berries and Plants

Berries are an abundant local resource. easily accessible to all members of the community. Blueberries, cranberries, moss berries, salmon berries, and wineberries are gathered mostly by women and children. The hills around town as well as the hills along the road to the airport are common harvest areas. The berries are eaten fresh, frozen, used for pies, and made into jellies and jams. The berry picking season lasts from July until late September with salmonberries being the first species harvested and cranberries the last. Most pickers are able to gather their needs in a few afternoons. Beach celery, or puschky stalks, are taken as new shoots during the summer. In addition, petrousky is used locally as a spice in soups and salads.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Volcano Bay
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King Cove
Bechevin Bay
Morzhovoi Bay
Thin Pt
Deer I.
False Pass
Unimak Island
C. Pankof
Cherni I.
Sanak I.
Caton I.
Sanak Islands
FIGURE 7-11:
SUBSISTENCE CATTLE HARVEST AREAS, KING COVE, 1984-1985
Harvest Areas
N
SCALE
0 10 20 30 MILES
STEPHEN R. BRAUND & ASSOCIATES 1986

Seasonal Round

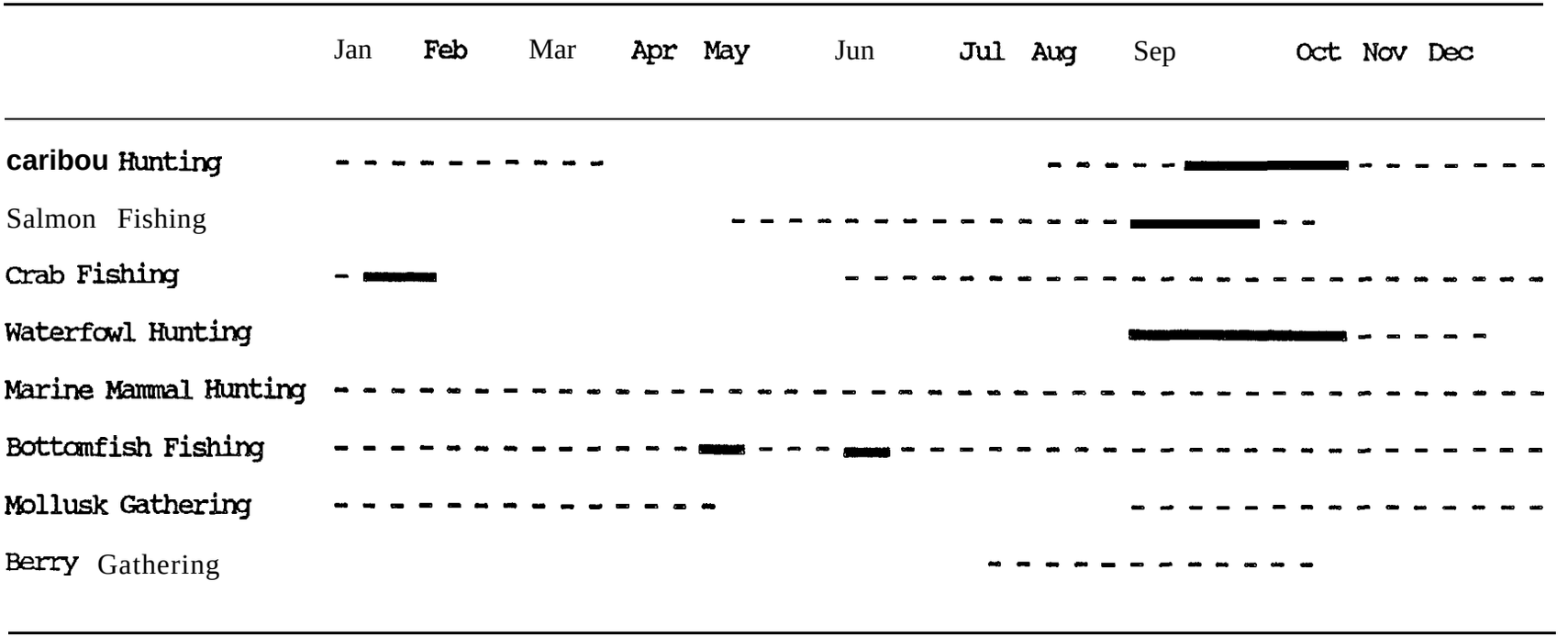
This section considers the timing of harvest activities for each of the major resource groups used by King Cove residents. It is important to reiterate the flexible nature of local residents' harvest patterns. Figure 7-12 summarizes King Cove residents' seasonal round of subsistence harvest activities. With a local environment rich in marine, coastal, and terrestrial resources and with access limited on a daily basis rather than a seasonal basis, resources are harvested when they are desired.

As stated previously, because of the year-round availability of most subsistence resources, the seasonal round of subsistence activities is dependent on regulatory restrictions and the availability of free time. These factors combine to make the fall months of September, October, and November the most important period for subsistence activities occurring outside the context of commercial fishing. Once the commercial salmon season ends, local residents turn their efforts toward subsistence use of salmon, waterfowl, and caribou. The only other time periods when subsistence activities can be considered concentrated are the commercial Tanner and halibut openings. During these commercial openings, incidental harvests for home use of crab and bottomfish are significant. For the remainder of the year, subsistence harvest activities are evenly dispersed based on suitable weather conditions and regulatory restrictions.

LOCAL CONSUMPTION OF RENEWABLE RESOURCES

As discussed throughout this study, the economy of King Cove revolves around the the harvest of renewable resources for both commercial sale and home use. In this sense, the community is extremely dependent on the harvest of renewable resources for its economic stability. This section considers only the local dependence on renewable resources for home use. Specifically, the importance of the various resource groups is considered in terms of both total quantity harvested and local residents' resource preferences.

FIGURE 7-12: SEASONAL ROUND OF SUBSISTENCE HARVEST ACTIVITIES BY KING COVE RESIDENTS, 1984-1985



Sources: Stephen R. Braund & Associates (1985) ; U.S. Fish and Wildlife Service (1985) ; Alaska Department of Fish and Game (1985a, b,c, d) ; Resource Analysts et al. (1984a) .

Harvest Quantities

King Cove residents harvest an estimated 1,666 pounds of locally available resources per household annually (Table 7-4). Figure 7-13 presents the average household harvest, in pounds, for the major subsistence resource groups used by King Cove residents. Salmon provides 36 percent of King Cove households' diet derived from locally available renewable resources. That salmon is the most important resource to King Cove residents is not surprising considering both the incidental harvest while commercial fishing and the effort focused on this resource immediately after the commercial season. Caribou provides the second largest portion of the renewable resource harvest (31.2 percent). The general abundance of caribou in recent years allows local residents considerable harvest opportunities. Salmon and caribou combined comprise approximately two-thirds of all the local resources that King Cove residents consume. Consumption of the remaining third of local fish, meat, and fowl is divided among: other marine fish, waterfowl and other birds, cattle, marine mammals, mollusks, crab, and trout.

As described earlier, subsistence harvest activities can be divided into three distinct physical provinces: marine, coastal and terrestrial. King Cove residents' active participation in the various commercial fisheries (salmon, Tanner crab, halibut, herring, and black cod) provide numerous opportunities to harvest a variety of marine resources incidental to commercial activities. Considering the extensive amount of time spent in commercial harvest activities and local residents' general familiarity with the marine environment, it was assumed that this environment would provide the substantial majority of all resources consumed for local use. However, both the terrestrial and coastal areas provide significant quantities of local resources for home use. Figure 7-14 presents King Cove residents' reliance on these three ecosystems in terms of total pounds of renewable resources harvested. It is noteworthy that coastal and terrestrial harvest activities, which occur almost exclusively outside the context of commercial fishing, combine to provide an equivalent amount of subsistence products as the marine environment.

FIGURE 7-13: TOTAL HOUSEHOLD SUBSISTENCE HARVEST ESTIMATES BY RESOURCE CATEGORY, KING COVE, 1984-1985

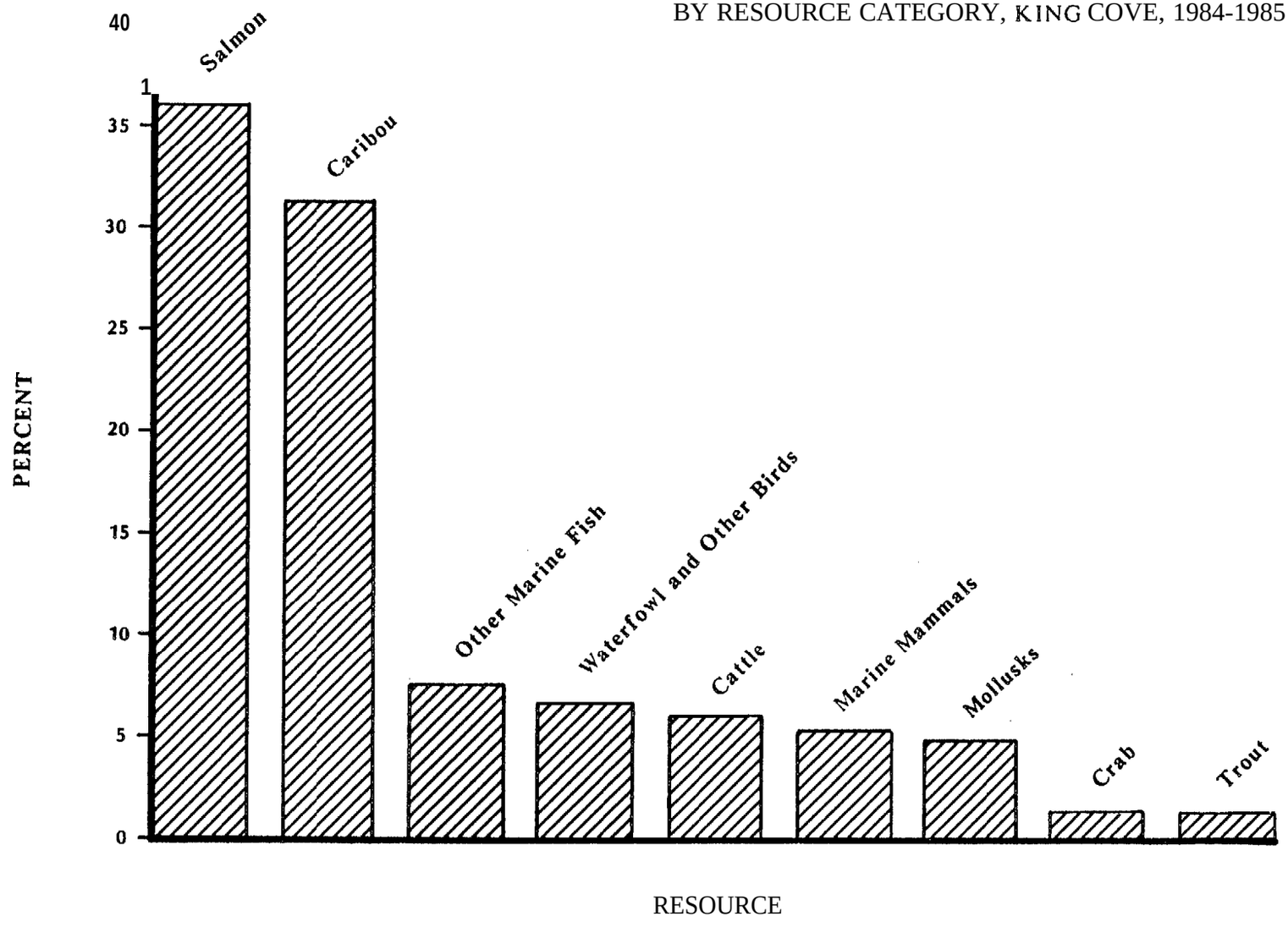


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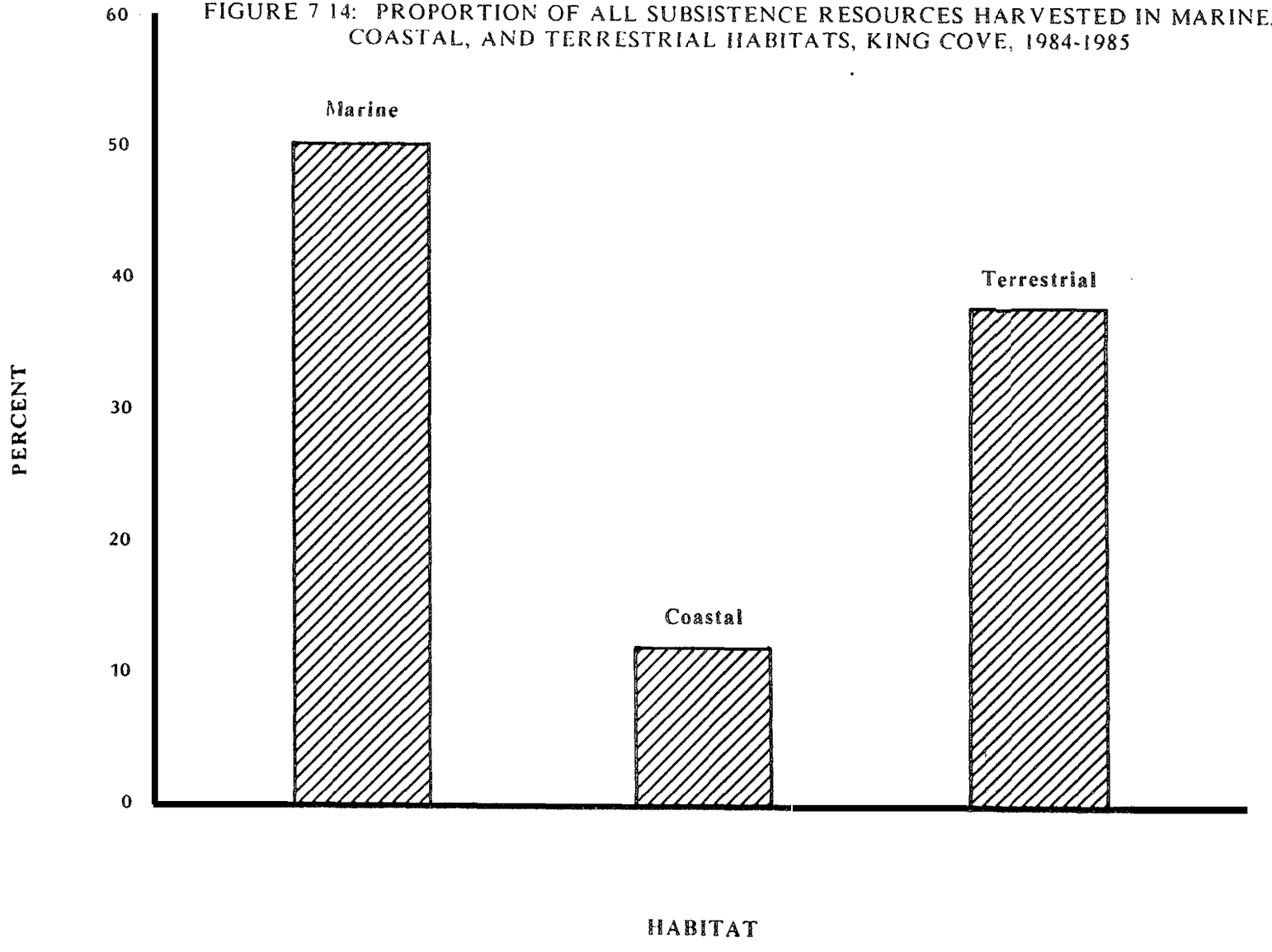
FIGURE 7 14: PROPORTION OF ALL SUBSISTENCE RESOURCES HARVESTED IN MARINE, COASTAL, AND TERRESTRIAL HABITATS, KING COVE, 1984-1985



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Species Preference

King Cove residents expressed clear preferences for certain species and species groups among the numerous local resources harvested annually. Figure 7-15 presents the resource preferences of 17 King Cove households. Caribou, waterfowl, and salmon respectively were these three resources most commonly mentioned as preferred foods. Considering the preferences, it is not surprising that caribou and salmon provide two-thirds of all local resources consumed. Waterfowl, while only providing about six percent of all subsistence food, is the focus of considerable subsistence effort. The mean household average for waterfowl of 100 pounds (Table 7-4) is considerable when the individual weight of each bird is considered. Field observations and data suggest that the three most preferred subsistence species also require the greatest amount of local residents' time and effort.

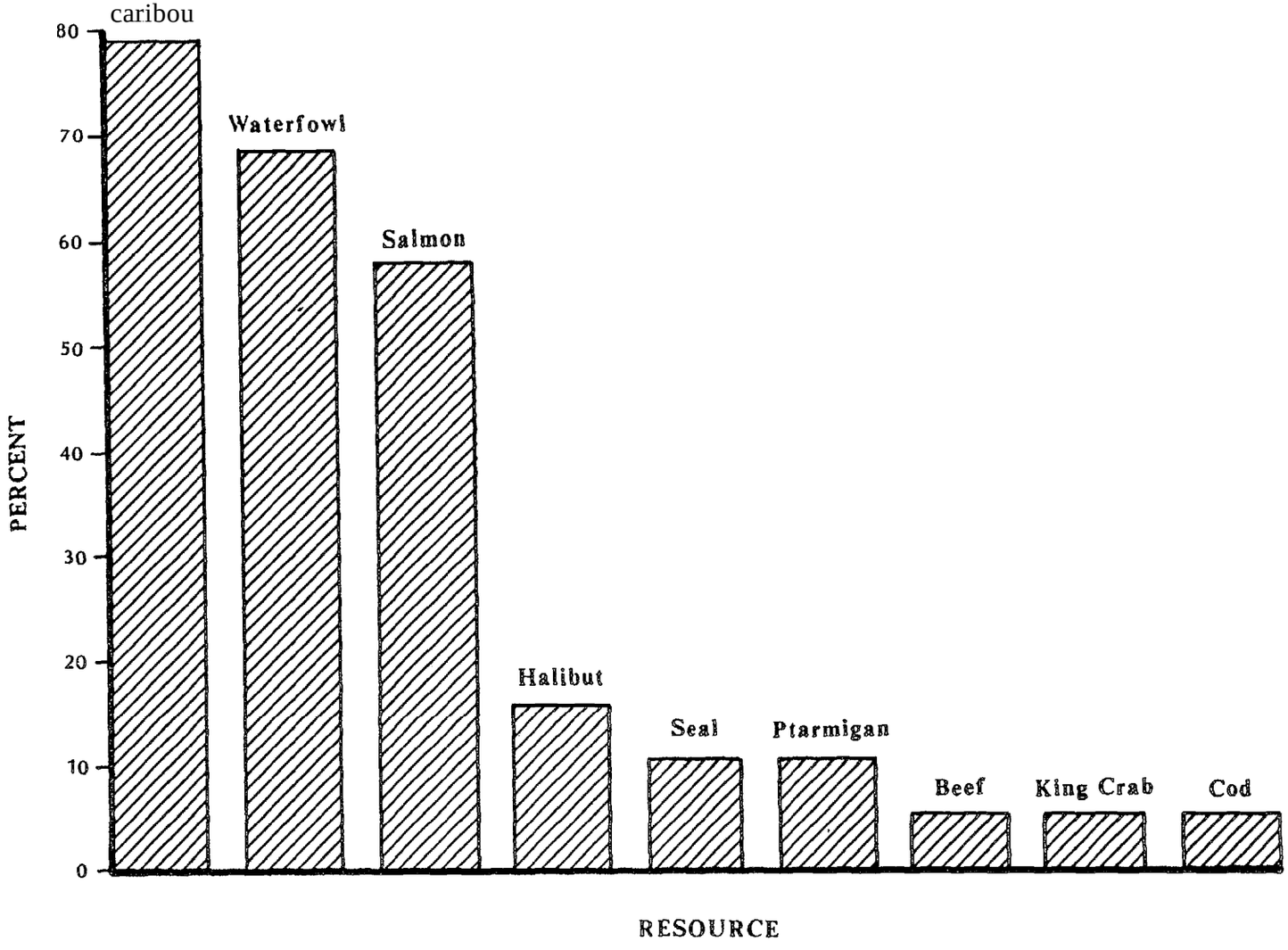
ECONOMIC AND DIETARY IMPORTANCE OF LOCAL FOODS

As discussed previously in this chapter (Local Dependence on Renewable Resources), field discussions indicated that 60 percent of the meat, fish, and other protein consumed in King Cove is derived locally and the average household harvests an estimated 1,666 pounds of subsistence foods per year (Table 7-4). However, the importance of subsistence foods to the overall economy of King Cove has not been considered. In this section we assign an economic value to the subsistence harvest, clarify the relative importance of subsistence foods versus store bought foods, and briefly consider how the estimated pounds of subsistence resources harvested per household relate to average pounds harvested per person. This information is necessary in order to address the importance of subsistence food production to the King Cove economy in the harvest disruption effects analysis (Chapter XI).

Valuation of Subsistence Harvests

In order to determine the relative importance of subsistence harvests in comparison with other sectors of King Cove's economy, several methods of assigning an economic value to subsistence foods were considered. In the past, researchers have attempted to value subsistence harvests using a variety of

FIGURE 7-15: PREFERRED SUBSISTENCE RESOURCES, KING COVE, 1984-1985[1]



1 Data represent the number of respondents mentioning each resource as one of their three favorite foods (sample size: 19).

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methods, including alternative market price, replacement costs, local exchange values, and the production costs of the subsistence foods (see Usher 1976 and Nowak 1977). Each of these methods produces a value for the subsistence harvest that falls within a range of plausible values. Although no single methodology, produces a value that is necessarily more "correct" than the value determined by any other method, depending on the data available and the intended application, some methodological approaches are more appropriate than others. In this discussion we consider these different methods of evaluating the subsistence harvest in light of the particulars of subsistence harvesting in King Cove and the intended application in the harvest disruption effects analysis (Chapter XI).

In King Cove, the alternative market price is equivalent to the ex-vessel value of the commercially harvested resources (such as salmon, halibut, or crab). This, in essence, is an opportunity cost as it measures the forgone opportunity of selling the resource to a commercial buyer (i. e., ex-vessel value). Although King Cove residents use a number of commercially exploited species for subsistence purposes, the ex-vessel value was considered an inappropriate valuation methodology for this study for four reasons. First, not all subsistence foods have an established commercial price, Second, for species that are harvested commercially, the timing of the majority of subsistence harvests is such that no market price exists at the time of the harvest. For example, a large proportion of the subsistence salmon harvest occurs after the end of the commercial season when local fishermen have more time to process the harvest. King crab and halibut are frequently caught as an incidental species during Tanner crab fishing. At the time of harvest, there are no buyers and no market price for these species. Third, ex-vessel value represents a lower bound of reasonable values for subsistence production because this price does not account for any value added to a subsistence resource during processing. A given subsistence resource may be processed into a number of end products, each with a different value. For example, salmon may be eaten fresh, frozen, salted, canned, or smoked in a variety of ways. Each end product requires a different amount of labor and may have different cultural or taste preference values. Fourth and finally, subsistence activities are by definition non-commercial and the sale of food harvested under the auspices of a subsistence activity is illegal.

Local exchange values, or the monetary prices at which local hunters and fishermen exchange subsistence goods among themselves, is also an unsatisfactory method of determining the value of King Cove subsistence harvest foods for several reasons. First, not all species are" necessarily exchanged, and smoked salmon was the only resource observed by the study team that had a local exchange (i.e., monetary) value. Second, residents of King Cove often prefer to trade one commodity for another; exchanges of this sort are difficult to quantify because the value of a given resource is determined by the perception of the exchange partners. For example, a person who trades surplus caribou for a resource that he lacks may assign a relatively low value. to his caribou and a higher value to the resource he received; the reverse may be true of his exchange partner. Finally, study team observation in other Alaskan communities (Frank Orth and Associates and Stephen R. Braund and Associates 1983) suggests that the price paid for subsistence resources among Natives is far less than the cost of harvesting the animal. In many cases, the purchase price is more often a friendly gesture, designed to help defray the costs incurred harvesting the resource, rather than representative of the substitution value or production costs.

Production costs, including the amortized costs of the equipment used to harvest wildlife, is another method used to determine the economic value of subsistence foods. Unfortunately, King Cove residents' heavy participation in both commercial and subsistence resource harvests limits the usefulness of this method. As discussed in detail above (Subsistence Economics), much of the same harvest equipment is used for commercial and subsistence harvest activities. The accurate allocation of costs between these two sectors of the economy requires determining the proportion of harvest equipment value and operating expenses to be assigned to subsistence production activities. This task is especially difficult in the case of King Cove where the commercial vessels used range in value from $5,000 (for a set net skiff) to $600,000 (for a limit seiner). Accurate allocation of costs is further complicated by the incidental harvest of subsistence foods while primarily engaged in a commercial activity. In addition, to be accurate, production costs should also include the value of the labor required to harvest and process the subsistence harvest. The difficulty of determining the amount of labor required to process a given resource to a number of different end products has been alluded to above. Even

if an accurate measure of time involved in processing could be determined, the cost of that labor is nearly impossible to assess since the opportunity cost of time spent harvesting and processing can range from zero to $20 per hour or more.

In light of the difficulties discussed above, the cost of replacing subsistence resources with reasonable store-bought equivalents has become a generally accepted method of assigning a dollar value to subsistence harvested foods in modern, mixed economies. This method was used by Usher (1976), Wolfe (1981), Fienup-Riordan (1983) and Frank Orth and Associates and Stephen R. Braund and Associates (1983) in other mixed economies in rural Alaska. These products, which are imported into the area, have an established market value that includes production, transportation, and marketing costs. In addition, foods available in the store represent the most logical alternative to locally harvested foods in the case of a harvest disruption. As Usher (1976:1 12) states,

> "Substitute cost is a welfare equivalent measure since it provides the answer to the question, 'If a man did not, or could not, obtain country food, how much would it cost him to feed his family by buying the equivalent food at the store?'"

Although substitute value is an appropriate valuation methodology for this study, several qualifications should be kept in mind. First, substitution value is not a direct measure of the values inherent in subsistence foods. For example, if prices of food items in the local store dropped, the value assigned to subsistence foods would also drop. Second, by using replacement values, we must assume that local foods and store bought foods are perfect substitutes even though this assumption was clearly refuted in discussions with local residents. For the purposes of the substitution valuation analysis, the study team assumes that local foods and store bought foods are competitive products. Third, using an average price per pound for meats available in the local King Cove stores as a substitution value excludes that proportion of store bought meats ordered from outside the community. While the study team collected information on non-local meat purchases, we were unable to determine an average price per pound for these purchases. Fourth and finally, as in the case of the previous valuation methods discussed, substitution values do not address the nutritional value of these local foods.

King Cove residents purchase meats from both local stores as well as order son-w food from Seattle. Although the study team did not establish the price paid for meats purchased outside the community, we did do a complete inventory of meats and prices at the two stores in, King Cove (Table 7-5) The prices of all reasonably equivalent domestic meats were combined from both stores and an average price of $3.55 per pound of meat was determined to be the replacement cost. It is important to note that the replacement value only considers the monetary cost of substituting subsistence foods with store-bought foods. Other factors that would increase the value of local foods are difficult to quantify and therefore are not represented in the substitution value. These factors include:

- The social value of subsistence activities that take place within the context of the extended family or friendship networks. Community networks of solidarity and integration are reinforced by cooperative subsistence pursuits and would be jeopardized if subsistence activities were disrupted.
- The villagers' preference for consumption of local fish and wildlife.
- The emotional value attached to continued access to subsistence resources, use of traditional hunting and fishing areas, and the subsistence way of life.

As any of these intangible factors would increase the value of King Cove subsistence products, the substitution value represents a minimum dollar equivalent for subsistence foods.

Table 7-6 presents the value of King Cove residents' subsistence harvests as determined by replacement value. The value of King Cove residents' subsistence harvests is estimated at $5,914 per household and $762,945 for the community as a whole. The secondary importance of subsistence activities to the King Cove economy is demonstrated by comparison to the economic contribution of the commercial fishing sector (Table 6-1). The estimated replacement value of subsistence harvest products represents approximately 10 percent of the ex-vessel value of the commercial fishing sector.

TABLE 7-5: AVERAGE PRICE PER POUND FOR MEATS AVAILABLE IN KING COVE STORES, 1983-1984

Meat Item	Average Price
Whole turkey	$1.65
Canned tuna	3.42
Spare	3.32
Canned bacon	3.49
Bacon	2.74
Corned beef brisket	3.14
Hamburger patties	2.51
Ground beef	2.69
Stew beef	3.80
Top sirloin	5.44
Flank steak	5.91
Beef bottom round roast	3.80
Sirloin tip roast	3.57
T-bone steak	6.26
Prime rib roast	4.12
Rib steak	5.93
Ground pork	2.89
Pork patties	2.36
Pork chops	3.86
Pork spare ribs	2.56
Canned ham	4.08
Liver	1.02
Lunch meats	3.53
Hot dogs	2.99
Average Price Per Pound	$3.55

Source: Stephen R. Braund & Associates (1985).

TABLE 7-6: ESTIMATED POUNDS OF SUBSISTENCE RESOURCES HARVESTED PER YEAR AND THEIR REPLACEMENT VALUE, KING COVE 1985

Number of Households	Estimated Pounds of subsistence Resources Harvested per Household[1]	Estimated Pounds of Resources Harvested in King cove	Estimated Replacement Value per Pound[2]	Estimated Replacement Costs per Household	Estimated Replacement costs for King Cove
129	1,666 lbs.	214,914 lbs.	$3.55	$5,914	$762,945

1. See Table 7-4.
2. See Table 7-5.

Source: Stephen R. Braund and Associates (1985).

Total Diet

The study team estimated that 25 percent of King Cove residents' total diet was provided by subsistence foods. While an inventory of all foods consumed by King Cove households was not conducted, local interviews with the managers and owners of both local stores, in concert with field discussions with community residents provided insight into the importance of subsistence foods and spending patterns in King Cove. The comparison between replacement value of subsistence foods and value of purchased foods presented below proved valuable in checking the validity of our field estimates concerning the importance of subsistence food in the overall diet of local residents.

The estimated average value of groceries and meats purchased by King Cove households is presented in Table 7-7. Groceries ordered from outside the community averaged $3,241 per household a year. Field discussions suggest that most orders are from outlets in Seattle, occur once a year, and meats comprise an average of 75 percent ($2,431) of each household's order. According to store owners and store managers, the average King Cove household purchases $7,852 worth of groceries and supplies at the two stores located in the community including an average of $478 (six percent) of meat per household. Both local stores sell a wide variety of household goods in addition to groceries and meats. Therefore, these estimates likely include some non-food items, although King Cove residents indicated that most of their clothing and household items were ordered through the mail.

The relative importance of these different food sources can be determined when the values of purchased foods and groceries (both from local stores and external sources) are compared to the replacement value of subsistence foods. According to these data, subsistence foods account for 34 percent of the value of all food and groceries combined. Thus, these estimates are of similar magnitude to field estimates of the proportion of King Cove's residents total diet provided by subsistence foods (25 percent). Locally harvested resources account for 67 percent of the value of all meats used by King Cove residents (Table 7-7). (Considering the value of meats-only is likely a more appropriate method of determining the proportional value of subsistence foods because of the inclusion of non-food items in the data from the local stores.)

TABLE 7-7: AVERAGE VALUE OF MEAT, GROCERIES AND SUPPLIES PURCHASED BY HOUSEHOLD, KING COVE 1984-1985

	Value of All Foods		Value of All Meats[2]	
	$	%	$	%
Estimated Groceries Ordered Outside Community/Household[1]	3,241	19	2,431 (3)	27.6
Estimated Groceries and Supplies Purchased Locally/Household	7,852 (4)	46.2	478 (4)	5.4
Value of Subsistence Harvest[5]	5,914	34.8	5,914	67
TOTAL	17,007	100.	8,823	100

1. Based on a sample of 10 King Cove households.
2. Meats include: red meat, fish, and fowl.
3. The 10 sample households estimated that meat comprised an average of 75 percent of their outside grocery purchases.
4. Values based on detailed information from store owners and managers and include sales of a wide variety of non-food supplies.
5. See Table 7-6.

Source: Stephen R. Braund & Associates (1985).

This analysis confirms estimates provided by community residents of the quantity of all meats represented by subsistence foods (estimated at 60 percent).

Per capita meat harvest forms a final method of checking the validity of the harvest estimates (Table 7-8). According to field data, King Cove residents harvest an average of 412 pounds of subsistence foods per year or 1.13 pounds person per day. The average yearly subsistence foods consumption per person likely would be less than 412 pounds if the quantity of food shared outside the community is considered. This per capita harvest estimate is comparable with estimates for other Alaskan communities with mixed economies. For example, estimated per capita harvests in six rural Kodiak Island communities (Akhiok, Karluk, Larsen Bay, Old Harbor, Ouzinkie, and Port Lions} average 473 pounds per person per year (1.3 pounds per person per day) (Kodiak Area Native Association 1983) while estimated per capita harvests in six lower Yukon River communities (St. Mary's, Pitkas Point, Mountain Village, Emmonak, Alukanuk, Kotlik, and Sheldon Point)" average 544 pounds per person per year (1.5 pounds per person per day) (Frank Orth and Associates and Stephen R.. Braund and Associates 1983).

In summary, local residents estimated that approximately 60 percent of all meat, fish, and fowl in their diet was from locally harvested resources and that these local resources provided approximately 25 percent of their total diet. These estimates were confirmed by analyzing the proportional value of subsistence foods (based on replacement value) to total value of all foods (34 percent) and to total meat value (67 percent). Comparable per capita harvest levels in King Cove and both Kodiak Island and lower Yukon River communities formed a final method of validating subsistence harvest estimates.

CULTURAL LINKAGES IN SUBSISTENCE HARVEST ACTIVITIES

This section briefly describes current and traditional storage methods for subsistence foods, the division of labor related to" subsistence food preparation, the kinship and social relations functioning in subsistence harvest activities, and the sharing of subsistence foods.

TABLE 7-8: ESTIMATED AVERAGE POUNDS OF SUBSISTENCE RESOURCES HARVESTED PER PERSON IN KING COVE, 1985

Average Pounds of Subsistence Resources Harvested per Household	Median Number Persons per Household	Average Pounds Harvested per Person per Year	Average Pounds Harvested per Person per Day
1,666 lbs.	4.04	412 lbs.	1.13 lbs.

Source: Stephen R. Braund and Associates (1985).

Preparation and Storage Methods

The most common method of storage for subsistence resources in King Cove today is freezing. The major exception to this practice is salmon which is still preserved in a variety of traditional manners, including drying, smoking, salting in barrels, and canning. Some local residents take advantage of close ties with the cannery to vacuum pack salmon which they then freeze. As mentioned earlier, local residents stated their preference toward obtaining resources in small quantities throughout the year as opposed to harvesting substantial quantities at any one time. Because salmon is one of the few important subsistence resources that is not available throughout the year, local residents have continued using traditional storage methods for this species.

The Division of Labor Related to Subsistence Food Preparation

The different roles assumed by King Cove men and women are discussed in Chapter IX (Socialization to Roles). It is necessary to state here, however, that the division of labor between men and women excludes women from most of the primary handling of subsistence resources. This is unlike many other areas of rural Alaska, where women do much of the primary butchering as well as the secondary preparation of subsistence resources. In King Cove, many of these activities are assumed by the hunters themselves who often conduct this work in the field or occasionally on their fishing boats while returning from a hunt. Two exceptions noted by residents are the plucking and preparation of waterfowl and other birds which remains the responsibility of the women in many households, and women's participation in the harvest and preservation of subsistence salmon.

Kinship & Social Relations in Subsistence Harvest Activities

As is discussed in Chapter IX, the study team found it difficult to discern patterns of group activities that follow kinship lines in contrast to those that follow friendship lines. As related to subsistence harvest activities, this obstacle is due in part to the high degree of interrelatedness among the population of King Cove as well as the relative affluence of the community at the present time.

Subsistence harvest production groups in King Cove can be divided into three categories: nuclear family, multi-generational male kinship groups, and male friends of equal age. Some subsistence activities, primarily berry gathering and mollusk gathering, are commonly conducted by the entire nuclear family. Typically, a family might pack a lunch and go out for berries or bidarkis as a social activity that includes the entire family. However, the majority of subsistence harvest activities in King Cove are conducted by males. These production groups are either delineated along kinship or friendship lines. An example of a subsistence production group defined on kinship lines usually includes a father and several sons and/or cousins. On the other hand, members of a production group defined along friendship lines are usually all of equal age. According to field data, there does not appear to be any age restriction on production groups defined by friendship. For example, it is just as likely that a group of friends between 40 and 50 years old would go hunting together as it is for a group of 20 to 30 year-olds. The field data suggest that both of the all male production groups described here occurred in King Cove with equal frequency.

Finally, at the time of this study, participation in subsistence activities was open to all King Cove residents regardless of economic status. Field observations indicated that participation was not limited by ownership of a commercial fishing vessel (the most important and expensive piece of harvest equipment). Indeed, the relative affluence of King Cove residents and the availability of numerous commercial fishing boats currently gives any local residents who wish to participate in subsistence activities the opportunity to do SO.

Sharing

King Cove residents commonly share their subsistence harvest products with relatives, friends, and other community residents. The field data suggest that sharing patterns depend on the species, whether the recipient lives in or out of the community, the harvest methods used, and the quantity harvested. Some sharing patterns in King Cove did not follow any discernible pattern (such as sharing along kinship or friendship lines). The following discussion describes the various sharing patterns observed in King Cove on three levels:

sharing among hunting party members, intra-community sharing, and inter-community sharing.

In most cases, members of any given hunting party equally share all resources harvested during the outing. For example, whether a hunting party of four harvested three caribou or five caribou, the meat would be evenly distributed among all members. According to field data, this even distribution would also occur if all the caribou were shot by only one or two members of the party. One important exception to this rule appears to be waterfowl hunting where each hunter usually retains the birds he personally harvested. As one resident stated, "When you are hunting birds you keep what you catch." As discussed above, hunting parties were composed of friends (usually of equal age) as often as relatives; therefore, the initial division of harvested resources did not necessarily follow kinship lines more frequently than friendship lines.

Within the community, the subsequent distribution of subsistence foods most often followed kinship lines with friendship lines being of secondary importance. The most common instance of intra-community distribution of subsistence foods was sharing foods with parents or grandparents who no longer hunted. On several occasions, field personnel observed non-hunting households with freezers full of a wide variety of subsistence foods supplied by sons and grandsons.

Ceremonial sharing, individual preferences, and subsistence harvests incidental to commercial activities resulted in high levels of sharing within the community along friendship lines. Subsistence foods were widely distributed at community gatherings (such as weddings and the firemen's ball). Residents contributed specialty foods and traditional dishes (e.g., piroshkies, perok - salmon pie, and kutchamasa - half dried fish) to these community gatherings. Individual preference also resulted in distribution of subsistence resources harvested incidental to a commercial activity. For example, seals that were caught in commercial fishing seines are commonly returned to the community and given to "whomever eats a lot of that food." In addition, during both the commercial Tanner crab and halibut seasons, the sharing of surplus and incidental resources was observed by the study team. While sharing was likely conducted along specific lines by the captains of these vessels, anyone who

appeared on the docks could obtain a few fish or crab. The study team observed that fishing vessel captains never refused a request for fish or crab whether the recipient was a relative or not.

A final form of intra-community sharing was observed during fieldwork. King Cove residents returning from a subsistence outing who had obtained more of a particular resource than desired, would announce on the VHF radio that extra quantities were available on-board and that anybody who wanted some could meet the boat at the dock. This type of sharing most commonly occurred with halibut and crab because the harvester has little control over the amount harvested. Thus when surpluses occur, traditional lines of distribution become less important, resulting in a "first come, first serve" method of sharing.

The sharing of foods outside the community focused on species unavailable in the destination community. The most common resource shared was king crab, followed by salmon and caribou. Generally, King Cove residents sent these foods to friends and relatives in Anchorage, with Seattle also mentioned as an important destination. Field data suggest that inter-community sharing was dominated by kinship ties rather than friendships.

SUMMARY

King Cove residents harvest a variety of marine and terrestrial resources for subsistence by using existing commercial practices and by applying their knowledge of the region's rich habitat. Incidental harvests of marine species during the commercial salmon and crab seasons supplement subsistence harvest activities that are concentrated during the fall but also occur throughout the year. Direct subsistence harvest contributes the bulk of local resources that are preferred for home use, including caribou, salmon, and waterfowl. Discussions with local residents suggest that 60 percent of protein intake and 25 percent overall food consumption result from subsistence harvests.

The interrelated nature of the King Cove subsistence harvest and the commercial fishing industry defines much of the local food intake, but should not overshadow the importance of subsistence as a separate activity. As mentioned previously, subsistence activities in the coastal and terrestrial ecosystems,

which for the most part occur outside the context of the commercial fisheries, provide 50 percent of all local resources consumed. Though residents take advantage of the availability of commercial equipment for these pursuits, they nonetheless engage in them as a separate activity. In addition to supplying fresh meat, these subsistence activities provide a break from the commercial exploitation of the local resources and offer social and recreational benefits. The continuation. of subsistence harvests retains the cultural component that once dominated traditional life in the region.

Reliance on subsistence foods has clearly decreased in comparison to the pm-contact Aleut. Although undocumented, the affluence of the past 10 years has likely resulted in a lower level of reliance on subsistence harvest products. During this period, however, harvest skills or knowledge of the local environment have not decreased. This is due to the active participation in commercial activities and the continued use of non-commercial coastal and terrestrial species.

Finally, as demonstrated by the unparalleled success of the commercial fisheries and the ready abundance of numerous non-commercial species, the local environment is rich in renewable resources. Local residents do not make maximum non-commercial use of these resources. Current levels of participation in subsistence harvest activities are sufficient to hone the skills of King Cove residents. Should a decline in the commercial success of recent years occur, it is believed that the importance of subsistence activities would increase.

VIII. POLITICAL ORGANIZATION

This chapter briefly describes historical governing systems among Aleuts from before contact with the Russians to the founding of King Cove. Additionally, and more specifically, the history and current status of King Cove political systems are discussed, including descriptions of the local and regional political entities, their roles in the community, relationships among them, and informal political dynamics, such as leadership. Political issues and the values expressed through these issues are examined. The primary orientation of the analysis of King Cove political dynamics is the extent to which those political dynamics have been influenced and motivated by the harvest of natural resources. In addition to the enactment of rules for community behavior, the political domain generally subsumes the balance of power in a community, which is often derived from the control of resources. This focus on resources is appropriate in any general discussion of political dynamics and especially so in a harvest disruption analysis.

HISTORICAL OVERVIEW

Traditional Aleut society consisted of villages in which the main political authority rested with a chief. While Veniaminov stated that the chieftainship was hereditary (except when no one in direct descent was available), Lantis (1970) cited Krenitzin and Levashev who said that Aleut chieftainship was "generally conferred on him who is most remarkable for his personal qualities; or who possesses a great influence by the number of his friends. Hence it frequently happens, that the person who has the largest family is chosen" (Lantis 1970:250). Lantis further noted that Veniaminov concurred in part by saying, "He who has large family ties through marriage is so powerful that no one will dare to offend him" (Lantis 1970:250).

Veniaminov further elaborated upon the Aleut political system:

> The form of government of the Aleuts may be called patriarchal. Every village consisted always of relatives and formed only one family, where the oldest of the tribe was named Toyone...and had power over all, but his power was very much that of a father over a large family;

> that is, he was obliged to look after the common welfare, and to protect his territory ....That chief was the leader in war....With regard to the affairs of the community his power extended far enough to enable him to send out anybody with sons or relatives to execute any errand that might benefit the community, but on his own business he could not dispatch anybody. No special honor or outward respect was shown to the chief. The Aleuts had punishments, and even capital punishment, but the latter could not be inflicted by the chief without the consent of all the nobles. The chief could not begin wars with neighbors without the consent of other chiefs living on the same island, and without the consent of' the oldest among them (Veniaminov cited in Petroff 1884:152).

The power of the chief, in his concern for the common welfare of the community, often focused on protecting village subsistence harvest areas.

When the Russians arrived in the Aleutian Islands, they quickly noted that the powers of the chief included control over the local resources they wished to exploit. Consequently, one way the Russians asserted their rule was to diminish the power of the chiefs until "the Aleuts began to look upon the chiefs as their equals in every other respect" (Veniaminov in Petroff 1884:152). Eventually, Veniaminov reported, when the Aleuts depended completely upon the Russians, the Aleuts were allowed to reestablish traditional chiefs who held a limited degree of power within the Russian-American Company administration. However, the Russians effectively controlled the Aleuts and their resources initially through force, and then through conscripted labor in the sea otter and fur seal trade and by converting them to dependence on a cash/barter economy. Veniaminov reported:

> The present rights and duties of the Aleuts are as follows: they enjoy the protection of the law equally with the serfs, but they are exempt from all duties and taxes. As an offset to this, they are obliged to serve the company from the fifteenth to the fiftieth year of their age, receiving pay from the company for their services. All furs which they may obtain must be sold exclusively to the company at certain prices established by the government . . ..It would be perhaps desirable that the Aleuts should receive for their furs prices somewhat commensurate with those charged for goods, and also that their head chiefs should have the right to look at the accounts of the Aleuts kept at the various offices, and that all the chiefs be furnished with written rules and instructions for their guidance (Petroff 1884153).

Jones postulated that the Aleuts must have retained some leverage with the Russians insofar as they possessed the skills upon which the Russians depended: "The company could not have survived without Aleut sea-otter [sic] hunters because Russian workers never learned to successfully pilot the baidarka, hunt sea otters, or process the furs" (Jones 1976:19). Smith (1980) noted that in the early 1800s, the renewed Russian-American Company charter provided for better treatment of the Aleuts as well as for training and employing them. The Russians thus adopted a new, more humane approach to working with the indigenous populations in Alaska.

Under United States' jurisdiction, Bancrof t (1886) reported that a state of lawlessness emerged. The territory was occupied by approximately 500 soldiers in 1869, most of whom were corrupt and abusive to both the Natives and the remaining Russians. Bancroft wrote, "it must be admitted that there were more troubles with the natives in the ten years during which American troops were stationed in Alaska than in any decade of the Russian occupation" (1886:609). Natives resented not only their treatment by soldiers, but also the sale of their country between Russia and the United States. Bancroft quoted Charles Bryant's 1869 Report on Alaska,

> 'When the territory was transferred to the United States... the natives had no knowledge of the people with whom they were to deal; and having been prejudiced by the parties then residing among them, some of the more warlike chiefs were in favor of driving out the 'Boston men,' as they termed us' (Bancroft 1886:609).

Bancroft continued,

> The discontent arose, not from any antagonism to the Americans, but from the fact that the territory had been sold without their consent, and that they had received none of the proceeds of the sale. The Russians, they argued, had been allowed to occupy the territory partly for mutual benefit, but their forefathers had dwelt in Alaska long before any white man had set foot in America. Why had not the $7,200,000 been paid to them instead of to the Russians? (1886:609).

Finally, American institutions and their agents (e.g., teachers, government agents, and missionaries) were less tolerant of Aleut customs than were the Russians, who permitted the continuation of some Native ways, For example, Russian schools encouraged the Aleut language and arts, whereas the American schools opposed these traditions and the Aleut lifestyle in general insofar as it did not conform to the Americans' standards of acceptability. However,

Natives were able to sell their fur pelts to the Americans at higher prices than they ever received from the Russians, which mitigated some of their reservations about the United States' presence (Jones 1976). Bancroft quoted an elderly Unalaskan who compared United States' governance favorably to that of' the Russians:

> The Aleuts are better off now than they were under the Russians. The first Russians who came here killed our men and took away our women and all our possessions; and afterward, when the Russian-American Company came, they made all the Aleuts like slaves, and sent them to hunt far away, where many were drowned and many killed by savage natives, and others stopped in strange places and never came back. The old company gave us fish for nothing, but we could have got plenty of it for ourselves if we had been allowed to stay at home and provide for our families. Often they would not sell us flour or tea, even if we had skins to pay for it. Now we must pay for everything, but we can buy what we like (Bancrof t 1886:603).

After Bancroft (1886), little documentation exists concerning the political aspects of United States' rule of the Aleutians (other than Jones [1980] which deals primarily with the Pribilof Islands). As the sea otter trade declined, American activity in the Aleutians region centered primarily around private development of the cod and salmon fisheries and the fox pelt trade. King Cove grew out of this commercial activity.

As discussed in Chapter IV (History), King Cove was initially the site of a cannery established in 1911. The town developed around the cannery, becoming incorporated as a second class city in 1949 and as a first class city in 1974. The town's growth has been a direct result of the commercial fisheries; consequently, access to and protection of these resources have been the basis for much political activity throughout the town's history.

POLITICAL INSTITUTIONS

The political institutions whose activities take place in King Cove or otherwise affect local residents include both regional and local organizations. Local and then regional institutions are discussed below in terms of their development and current role in King Cove and their relation to the harvest of natural resources.

Local Institutions

Local political institutions discussed in this section include the City of King Cove (including the school board, health board, and planning and zoning board), the King Cove Corporation, and the Belkofski Corporation. Insofar as it is a political entity wielding some control over resource harvests, the cannery is also considered a local political entity. The cannery has been discussed generally under Commercial Fishing and Processing, and is discussed in this chapter with regard to its relationship with the city.

City of King Cove

King Cove was governed by an informal chief system from its founding in 1911 until the opening of a BIA school in 1929. As noted in Chapter IV, BIA schoolteachers at that time performed many functions in the community other than teaching; in King Cove, these functions interfered with the informal village chief's responsibilities. Jones (1976) explained that the community decision to incorporate stemmed from local residents' desire to be independent of the BIA and its school. A village elder stated in 1984, "Our parents incorporated because they felt they could benefit people better [as a city] than as a village. We could take advantage of grant monies, bonds, and revenues, and try to get ahead." The initial petition to incorporate was denied based primarily on cannery opposition to potential city taxation. Residents persisted in their effort and, in 1949, permission to incorporate was granted pending King Cove voter approval. The vote was unanimous (Jones 1976). With regard to incorporation, a current city council member remarked, "Our city fathers were so far ahead of their time, it's amazing." Jones wrote,

> In New Harbor [i.e., King Cove], then, adoption of a modern form of local government was an indigenous move supported by the entire community. Aleuts made an unequivocal commitment to the change, which they viewed as necessary for protecting and enhancing Aleut self-determination. Their trust in the new form of government generated strong interest in organizing to promote Aleut political goals (197648).

In 1974, King Cove became a first class city. By becoming a first class city outside of an organized borough, the city assumes responsibility for the school system (which remains the responsibility of the Regional Education Attendance Area [REAA] in a second class city). In addition, a first class city gains the

power to initiate property and sales taxes. A first class city can also change to a city manager form of government by a vote of the council rather than having to gain general voter approval, as is the case in a second class city.

Since incorporation, King Cove residents have elected a mayor and a city council, as well as a school board to oversee school district activities The council consists of seven members (including the mayor) ant! the school board consists of five members. The term of office for city council and school board seats is three years, with approximately one third of the seats up for election each year.

Until 1978, the city council received assistance from a local government specialist at ADCRA to obtain and administer funds from various government sources. In 1978, the city council availed itself of' a grant program that enabled small towns to hire city managers. The primary goal in hiring a city manager "was to develop additional funding for the city. One resident explained that because of low revenues, the city was unable to pay its employees sufficient salaries; consequently, the city experienced high levels of employee turnover. The individual from ADCRA who had worked with King Cove became the first city manager for King Cove and Sand Point, working half-time for each city. The same arrangement continued in 1985: one city manager for both cities, based in Anchorage. The position was filled by two different individuals during the first seven years, and a third person has held the position since June 1984. This management history is relatively stable compared to the tenure of city managers in other rural Alaskan communities, and this continuity reportedly has been a strength in King Cove's development as a city.

In 1980, the city manager obtained a grant from the ADCRA Division of Bottomfishing that was used to hire a planner to be shared by both cities. This arrangement lasted until 1983 when the planner resigned. At that point the city had a choice of hiring another planner or upgrading the mayor and city clerk's responsibilities; King Cove opted for the latter choice. As a consequence, the city clerk received a raise and more responsibility and the position of mayor became salaried and acquired more managerial responsibilities. Thus, the elected officials, particularly the mayor, work closely with the half-time city manager and the city clerk in conducting city business.

Subsidiary to the city council are a planning commission and a health board, formed in 1981 and 1983 respectively. Members of these commissions are appointed by the mayor and approved by the city council. The health board, discussed in detail under Social Health, consists of six individuals representing various segments of the community (i.e., the King Cove Corporation, Peter Pan Seafoods, Inc., the clinic, the city, the school, and the community at large). The planning commission consists of five members from the community at large. Inactive over the winter of 1984-85, the planning commission resumed meetings in March of 1985.

The planning commission is an outgrowth of the cit y's 1984 planning grant. The commission's first task was to work with the planner in developing a comprehensive plan. The plan reviews changes in King Cove over the prior decade and outlines future needs in such areas as land use, zoning, utilities, education, and transportation, among others. The two goals expressed in the comprehensive plan (ADCRA 1981 a:5), "Continued support for the fishing and fish processing economy and other commercial businesses... [and] Develop an attractive, conducive living environment to improve the health, safety and general welfare of the community," reflect a local desire to develop services that enhance both the economy and the lifestyle of the community. Generally, however, the balance of the plan deals with particular community needs such as more bulk fuel storage capacity or additional school facilities. The final section of the plan discusses its implementation through the development of additional plans or programs, such as a capital improvements program, a taxation program to raise money for the capital improvements needed, an economic development plan, a zoning ordinance, a coastal management plan, subdivision regulations, and municipal ordinances. In particular, the development of a coastal management plan was anticipated in the comprehensive plan as an important step toward protecting the King Cove coastline from adverse impacts of development. If the coastal management plan was found to be consistence with the comprehensive plan, the latter plan recommended that the city should pass an ordinance to adopt and enforce the coastal management plan. (The status of this procedure is discussed under Aleutians East Coastal Resource Service Area later in this chapter.)

In 1985, city responsibilities include providing basic services such as sewer and water, electricity, road and boardwalk development arid maintenance, harbor facilities, the school system, public safety, fire protection, and emergency medical services, as well as partial provision of non-emergency medical services. Additionally, the city oversees zoning issues, undertakes capita] projects, and exercises its ability to impose a sales tax. In short, the city provides most basic services that affect the everyday lives of its residents.

In 1984-85, the main sources of revenue to the city were sales taxes (including taxes on fish brought over the dock), state and federal revenue sharing, and municipal assistance. In addition, some revenues were obtained from liquor license, plan-grant, grant transfer, harbor fees (boat and equipment storage), interest, and miscellaneous other revenues. The city has proven itself effective in working with federal and state agencies to obtain funds for various capital improvement projects and other programs. While the city manager actively explores state funding sources for capital projects, the community does not depend solely on these sources due to the uncertainty of legislative funding. City officials attempt to develop non-grant revenues whenever possible to avoid becoming "grant-heavy", in the words of one member of the council, since grants require matching funds.

City officials also aspire for independence in their other endeavors, where possible, as they did when the city was initially incorporated. This policy is visible particularly in matters related to the cannery. (Specific city-cannery issues are discussed later in this section.) A measure of the city's success at cultivating economic independence is the fact that it is 65 percent self-supported in its fiscal year 1986 operating budget.

The city is the primary entity responsible for undertaking capital projects in and around King Cove. The earliest capital projects implemented in King Cove were state funded in the late 1960s and included community power, water (reservoir and ducting) and sewage systems, and an airstrip and access road. A federally funded small boat harbor, access road, and bridge were constructed in 1973-74. King Cove built a new school in 1973 that included a high school, enabling students to remain in King Cove instead of going to Anchorage, Mt. Edgecumbe, or elsewhere for their high school studies. A telephone system was installed in 1976.

In the late 1970s, the governor and legislative leadership expressed strong interest in developing Alaska's offshore ground fisheries during their 1978-82 terms. Sand Point and King Cove were considered likely centers of future bottomfisheries development. Consequently, considerable funds were channeled to these two towns to develop their harbors and other infrastructure. During the 1978-82 period, King Cove received a new boat harbor, harbormaster's house, and a warehouse at the harbor for fishermen's gear. In addition, a road to Cold Bay was proposed at this time as a possible incentive for fisheries-related development. The road to the Rams Creek subdivision area (commonly referred to as "the Rams"), the 23 new homes at Rams Creek, boardwalks in town, satellite television, and airport improvements also occurred during this period. Primary funding sources for recent projects include: Department of Housing and Urban Development (HUD), Indian Health Service, ADCRA, and direct funding by the state legislature under various programs and departments.

Since 1983, the city has constructed a new health clinic and a new public safety building (including police offices, a jail cell, and a garage for the fire truck and emergency medical van). During the field portion of this study, the city raised the reservoir eight feet to increase the water supply capacity and instituted construction of an addition to the school; additionally, the city contracted for a boardwalk to the Rams subdivision, and downtown water and sewer improvements. Thirty houses are presently under construction in Deer Island subdivision along with accompanying on- and off-site water, sewer, and road construction. Funds have also been allocated by the Public Health Service to connect houses that have never had "sewer or water services. Additionally, the engineering for the dock expansion project was funded for this fiscal year, but land ownership problems have delayed this project. Table 8-1 provides a chronological review of the major capital projects in King Cove from 1973 through the 1986 fiscal years. The principal sources are shown as are the funding amounts for each project. Table 5-3 shows 1984 City of King Cove funding sources and amounts.

Despite the considerable number of community improvement projects, King Cove has a relatively low city indebtedness. According to city officials, King Cove has two low interest Federal Housing Authority (FHA) loans for water and sewer projects in the late 1960s and early 1970s, and one APA loan. The amounts and

TABLE 8-1: City of King Cove, Major Projects 1973-1986

YEAR	PROJECT	PRINCIPAL SOURCE OF FUNDING [1]	FUNDING	YEARLY TOTAL [2]
1973	Small Boat Basin	U.S. Army Corp. of Engineers	$2,276,603	
	High School	AK Dept. of Education	1,000,000	
1978	Harbormaster's House	AK Rural Development Admin.	20,000	
	Electrical Distribution System	U.S. HUD	107,500	
1980	23 Houses, Rams Creek Subdivision	U.S. HUD	2,150,100	
1981	Generator	AK Dept. of Commerce & Economic Dev.	200,000	
	Road Erosion Control	AK Dept. of Trans./Pub. Facilities	150,000	
	Dock Study	AK Dept. of Trans./Pub. Facilities	150,000	
	Health Clinic	AK Municipal Grants	120,000	
	Fuel Line to Bulk Storage	AK Rural Development Admin.	33,700	$653,700
1982	King Cove Road	AK Municipal Grants	400,000	
	Fire Truck	AK Rural Development Admin.	50,000	
	Sewer & Water, Rams Creek	U.S. PHS	628,000	1,078,000
1983	Road Extension	AK Grants to Municipalities	400,000	
	Medical Clinic	AK Rural Development Admin.	55,000	455,000
1984	Water & Sewer Design	AK Grants to Municipalities	200,000	
	Dam Improvement	U.S. PHS	139,000	339,000
1985	Dock & Haulout Engineering	AK Dept. of Trans./Pub. Facilities	300,000	
	High School Construction	AK Dept. of Education	3,200,000	
	Bulk Fuel Storage Feasibility	ADCRA	25,000	
	Water & Sewer Project	U.S. HUD	75,000	
	30 Houses, Deer Is. Subdivision	U.S. HUD	4,000,000	
	Sewer Renovation	U.S. PHS	414,000	
	Xray Machine	City of King Cove	32,000	8,046,000
1986	Airport Apron Expansion	AK Dept. of Trans./Pub. Facilities	483,400	
	Land Acquisition, Dock Project	AK Grants to Municipalities	160,000	
	Sewer & Water Installation	U.S. PHS	150,000	
	Bulk Fuel Storage	ADCRA	85,000	
	Warehouee Second Deck	City of King Cove	150,000	
	Rams Creek Culvert	AHA; BIA; City of King Cove	27,000	
	Mini-park/Coastal Trail	AK Div. of Parks/City	60,000	
	Municipal Shop	City of King Cove	25,000	
	Electrical Lines to Rarne Creek	AHA; City of King Cove	92,000	
	Trailer Court	PHS; City of King Cove	25,000	
	500 KW Generator	APA; City of King Cove	120,000	
	Boat Harbor Expansion Study	U.S. Army Corp. of Engineers	30,000	
	Rams Comp. Study for Water/Sewer	City of King Cove	42,000	
	Fire Resource Boat	ADCRA; City of King Cove	61,000	
	Miscellaneous Projects Under $25,000	Various	57,000	1,549,400

1. See Key to Acronyms, p. xiv, for full names of funding sources.
2. Project data incomplete prior to 1981.

Source: Alaska Legislative Finance Division (n.d.), Election District Reports 1981-1985. ADCRA (1985), personal communication. Housing and Urban Development (1985), personal communication. Public Health Service (1985), personal communication. City of King Cove (1986), personal communication.

years of retirement are $195,000 (2007), $139,000 (2021), and $179,000 (2000) respectively. Yearly payments are $23,000 for the FHA loans and $18,000 for the APA loan or approximately $41,000 annually toward the retirement of debts.

Although the city's obligation on these debts is partially offset by utility user fees, utility expenses have exceeded utility revenues since 1981. The full cost of maintaining and providing utility services is not passed on to consumers; rather, the city subsidizes at least five percent of electricity costs. In addition, King Cove electricity production is subsidized by the APA, which provides approximately $50.00 per month for each household ($.06 for the first 750 KWH of household use each month) under the Power Cost Equalization program. King Cove households pay approximately $.20 per KWH (kilowatt-hour) for electricity and $12 per month for water and sewer services.

One of the city's priorities for future capital improvements is a secondary sewage treatment plant to replace the present outdated and minimally functional system. The Environmental Protection Agency (EPA) has informed the city that it must upgrade the present system. Another pending project is a hydroelectric power plant that has been in the research and design stages for approximately five years. According to city staff, this project was the APA's fifth priority (behind four studies), and was considered one of the most feasible hydroelectric projects under consideration by the APA. Other capital projects the city hopes to obtain in the future include further dock expansion, installation of a bulk fuel tank, completion of a boardwalk to the Rams, and constructing a loft for additional storage in the harbor warehouse. A grant application for a long-desired community hall was not funded in 1985.

As the main governing body in King Cove and the primary provider of basic services, the city is the forum for dealing with many local issues. Perhaps the most controversial issue for the city in recent years is the dispute over the sales and use tax. In 1981, the city passed an ordinance establishing a one percent tax that applied to almost all sales within the city, including the sale of fish for processing. In most sales transactions, the buyer was taxed and the seller collected the tax for the city. In the case of fish, the cannery (buyer) paid the tax directly to the city, based on the value of fisheries products purchased from fishermen and tenders.

In 1984, the city increased this sales tax to two percent. The cannery protested the tax and initially refused to pay it on the grounds that it was unfair; they argued that doubling the tax would force them to lower the price they pay fishermen for fish, putting them at a competitive disadvantage with floating tenders and canneries in other towns that were not subject to sales taxes. The cannery maintained that increased competition from cash buyers had already reduced their share of the salmon resource, and the decreased landings resulting from their noncompetitive prices would further diminish the tax base to the city. Cannery officials also argued that they would have to consider relocating because this tax would hurt them so severely. Additionally, the cannery responded by reducing or withdrawing privileges to townspeople that they had offered in the past, such as credit at the store and stockroom, free check cashing, discounts to fishermen on gear, and financing gear purchases for fishermen. Rather than writing crewshare checks, the cannery began writing only one check to the permit holder at the end of the season. The cannery also raised store and stockroom prices by approximately seven percent,. while gasoline and heating fuel prices remained the same even when the price PPSF paid for these fuels dropped.

The tax increase controversy strained the relationship between the city and townspeople, on one hand, and the cannery on the other hand. This deterioration has been an important phase in the evolution of the long-standing relationship between the cannery and the town. Since statehood when fish traps were outlawed, it has been to the cannery's advantage to cultivate the local fishing fleet and local labor force with close ties to, and a degree of dependence upon, the cannery. In political terms, this dependence would ensure that the city - whose residents and council have consisted mainly of fishermen would not act in any way to hurt the cannery and thus hurt themselves. Discounted gear prices, loans for gear, liberal check cashing policies, advantageous fuel prices, and credit at the store were a few of the benefits the cannery offered local residents as good faith steps toward fostering a positive relationship between the town and the cannery. Several mutually beneficial formal arrangements also grew out of the good relationship between the city and the cannery. For example, their power systems were intertied so that they could serve as backup sources for each other in the case of a power failure in one system.

The city has continued to seek independence throughout its history. Recently, the move for independence has focused mainly on severing dependencies upon the cannery, by becoming more modern and businesslike in its operations, and shedding any aspects of a traditional "cannery town" where the town is heavily controlled by the local cannery. Instituting the sales and use tax in 1981 was a major step in this direction. In raising the tax four years later, the city took a calculated risk; they hoped to increase revenues and their independence from a historically paternalistic relationship with the cannery, but they did so at the risk of jeopardizing the good will that has existed between the city and the cannery.

Apparently the city and townspeople believed that the risk was worthwhile and were willing to take on the costs and responsibilities resulting from reducing ties with the cannery. For example, for many years the cannery and city collaborated in providing health care in King Cove; they jointly hired a nurse and the cannery provided a building to house the nurse and the clinic. Recently, however, the city constructed a clinic to provide health care without the cannery's assistance in part because they sought more independence from the cannery. Similarly, obtaining bulk fuel storage tanks stemmed from the city's desire to depend less on the cannery for fuel. Success in the fisheries in recent years has enabled the city and townspeople to be less dependent on the cannery for these secondary benefits. Increased fish tax revenues to the city have strengthened the city's ability to provide services without the assistance of the cannery, and increased individual incomes have enabled residents to rely less upon the cannery. For example, the townspeople no longer depend upon the cannery for jobs as much as in the past because successful fishing seasons provide adequate family incomes in most cases. Most families have also become more financially independent in that they are able to order groceries from Seattle for an entire year rather than depending on the cannery for credit at the store throughout the winter. Nevertheless, townspeople were unhappy with the cannery over store, stockroom, and fuel prices.

In essence, the issue is one of interdependence related to the harvest of resources. As was documented in Chapter VI (Commercial Fishing & Processing), the cannery needs the local fleet to supply them with fish, while the locals need the cannery to buy their fish and to provide a tax base for the city.

Each entity has some leveraging power with the other; for example, the cannery sets the price paid for "fish, and local fishermen can sell part of their catch to other processors. The recent controversy over taxation and the cannery's increase in store prices has created some distance in" the relationship between the city and the cannery. Although the two entities still depend upon one another quite heavily in terms of their fundamental roles in the local fisheries, the taxation controversy contributed to altering the quality of the long-standing relationship between the city and the cannery.

Another issue the city has been addressing recently is the decision to change the clinic's billing system. In the past, the city has provided a physician's assistant or nurse and paid half the salary of a community health aide, the remainder of her salary being paid by the Aleutian/Pribilof Islands Association (A/PIA). The Indian Health Service has supplied the clinic with approximately $4,000 worth of medications and provides free health care to Natives in their Anchorage facility. In addition, the city has purchased more medications and upgraded the clinic with advanced life support and xray equipment. Health care at the clinic was essentially free, although non-Natives were asked to pay a nominal fee for services rendered. However, as the clinic was not receiving revenues equal to the cost of operations, the city was subsidizing health care in King Cove at a cost upwards of $135,000.

Given declining state revenues and Indian Health Service budget cuts, the city manager proposed instituting a third party billing system to strike a more equitable balance between the cost of operating the clinic and the revenues it generated. The physician's assistant at that time devised a fee schedule that would gradually be implemented over a four year period. The city manager moved forward on this proposal, and the city council approved the change. Part of the justification for the move was that people who used the clinic were generally insured in some manner and the cost to local residents should remain about the same. Natives had the Indian Health Service, cannery workers had workmen's compensation and other insurance coverage, city workers had a state insurance program, and the King Cove Corporation and school employees had their own insurance policies.

The change to third party billing has met considerable resistance from community residents, and city council members have found themselves in a position of defending and explaining the change to fellow residents. While it has -been a controversial issue, the core of the issue appears to be a matter of adjusting to a change that represents a step toward formalizing a system in King Cove that had previously operated on an informal basis. Not too many years ago, residents relied upon a midwife for most of their health care. Health care became more professional with the establishment of a clinic, staffed by a nurse and later by a physician's assistant, yet remained available free at all times. Institution of a billing system compromised the informal, familiar sharing quality of a small town in exchange for the economically more feasible method of operating the. clinic as a business.

Several other issues have arisen as a result of the city's efforts to deal with problems in King Cove. For example, many people expressed concern about the number of dogs in town that were not cared for or restrained. Consequently, the city instituted dog licensing requirements that included a fee of $75 for licensing male dogs and $100 for female dogs. City policemen are charged with the responsibility to catch and exterminate any unlicensed dog wandering unrestrained in town. The high licensing cost and strict punitive measures were intended to discourage people from having dogs, especially female dogs, so that the population would not continue to increase. However, several residents protested this policy as unfair to dog owners whose dogs were spayed or neutered. The council is currently reviewing the option decided to make exceptions for spayed and neutered dogs.

Other public safety issues the council has faced include theft at the harbor (mainly of fuel) and traffic problems such as speeding, the need for street lights and stop signs, three-wheeler safety and misuse. In addition, they have dealt with housing problems such as the need for a trailer court (since many trailers in town were on city property), condemning vacant and dilapidated houses, and working with the Aleutian Housing Authority (AHA) on infrastructural aspects of the new housing projects. The city also collaborated with the Aleutians East Coastal Resource Service Area (AECRSA) by electing King Cove representatives to the AECRSA board and supporting AECRSA endeavors. The council annually issues liquor licenses to the local bars and a

state game license to the Women's Club for bingo. The city also sponsors a cleanup day every spring, giving prizes to "children for their efforts. These are just a few of the matters the city dealt with in its role as the major political/governmental body in King Cove.

The school board is responsible for setting school policy and acting on budget matters. These functions are performed in conjunction with the school superintendent, who is responsible for implementing them. The school board approves (or withholds approval) for expenditures the administration wishes to make. During the field study, the school expansion occupied much of the school board's time with procedural matters such as approving architectural plans and putting the job out to bid. The current school facility, constructed in 1973 to replace the original BIA structure, was expanded in 1979 to accommodate high school students. Due to continued population growth, the present school is again being expanded with a $3.2 million, 17,000 square foot facility containing five classrooms, a gym, and a locker room. The high school will move into this new building, adjacent to the existing structure. The new building was scheduled for completion in early 1986.

Also during the field study, the school gym had been closed to community use on weekends and evenings because of an incident of theft two months earlier. The school board had acted to close the gym to make the community realize the open hours were a privilege they were responsible for respecting, and to possibly elicit information identifying the offender, deal with him or her, then reopen the gym. However, the problem remained unresolved after two months of closure. The school board decided the public had been denied access long enough and voted to reopen the gym for public use.

School board members noted that when something occurred at school that parents were not happy about, the board members heard directly from the parents; "our phones don't stop ringing," according to one board member. King Cove residents' perceptions of the school system differed greatly. Many described the educational opportunities currently available as far superior to that available in past decades, and were impressed by the progress. Others noted good communication between teachers and parents and the contribution the school made to all citizens in the community; this group believed that the school fit

in well with the local lifestyle and performed its service effectively within that context. However, some residents expressed disappointment with the school, citing apathy among students, teachers, and parents; some residents' dissatisfaction stemmed from what they perceived to be the school's inability to instill discipline and an understanding of the importance of learning. School board members noted that parents were very attentive to their children's education and that residents in general valued formal education quite highly. The dropout rate is almost non-existent, with only one occurrence in the last five years. Lack. of alternative activities was cited as the reason for this low figure, according to teachers and school administrators.

The quality of the teachers was an issue of concern to both parents and school board members; bad experiences in the past had increased awareness among parents and board members of teacher qualifications. A difficult situation in trying to fire some teachers caused one board member to comment, "There is plenty of unemployment among teachers, so there must be some good ones out there. We should be more careful when we hire them." In general, however, the relationship between teachers, the school, and the community has been good, with a comparatively low teacher turnover rate. The" average duration of teachers' employment with the King Cove school has been five years.

In conclusion, since its conversion to a city manager form of government, the city managers' influence has been to help King Cove become more businesslike and efficient in its operations. Residents serving on the city council and school board occupy important positions as buffers between progressive, novel approaches to city management, and the traditional ways familiar to residents. As one city employee noted, virtually nothing in King Cove was not in a state of transition in 1985: the school, roads, utilities, housing, public safety, and health care were all undergoing change. Although at times their decisions were initially unpopular (e.g., instituting the clinic billing system), the council and board members function as important intermediaries between change and tradition, making informed decisions for the community and presenting those decisions to their fellow residents. Of course, they first and foremost represent the interests of community residents in making those decisions.

The two most apparent goals in King Cove city government appear to be protection and enhancement of the community's position in the commercial fisheries and. cultivation of a high degree of independence. The city has been effective in moving toward these goals; it has maintained and strengthened its position with regard to the natural resources by developing capital projects to enhance commercial fishing, developing a tax base that capitalizes upon the harvest of local resources, and using that tax base as well as other forms of revenue t-o become a largely self-supporting community.

King Cove Corporation.

Though not a public organization, the King Cove Corporation (KCC) is an important political entity within the community. The corporation was formed in 1972 to manage King Cove residents' share of ANCSA land and money. Thus, the corporation is the major landowner in the community. The majority of the town's adult population is enrolled as corporation shareholders. Approximately two thirds of the corporation's 352 members resided in King Cove in 1985. The shareholders elect - a nine member board of directors to three year terms of office, with different seats on the board coming up for re-elections. Each year, the board members elect officers from among themselves who include a president (the only salaried officer), vice president, secretary, arid treasurer.

The corporation currently has not developed goals and policies regarding corporation land use and investments, according to one board member. However, the same individual stated that general sentiment among board members was to maintain " control over the corporation's holdings by not letting outsiders buy up or lease corporation lands. According to this board member, if an outside interest inquired about purchasing or developing corporation land, the board would evaluate the project and make a decision in the best interest of the shareholders.

As of February 1985, the corporation owned approximately 109,000 acres in and around King Cove and Cold Bay. On several occasions, the corporation has transferred land to other organizations for developing the land in the community's interest. For example, the first transfer the corporation made was

to the Army" Corps of Engineers for constructing the harbor. Other acreage has been transferred to the AHA for construction of the new King Cove housing at the Rams Creek and Deer Island subdivisions. The corporation has also transferred land to individual shareholders. Preferring to keep cash in investments rather than paying dividends to shareholders, the corporation board decided in 1981 to give one acre of land to every shareholder as a dividend. These lots are located within city limits at Rams Creek and Mallard Lake.

Section 14(c)(3) of ANCSA mandates that village corporations convey up to 1,280 acres of their lands to the local city government for future community growth and development. The City of King Cove and the King Cove Corporation struggled over this issue during the 1970s. Finally in 1980, the two entities signed an agreement conveying 12 acres from the KCC to the city. As this amount of acreage would not accommodate all future growth, the agreement stated that the corporation would deed more land to the city in the future on an as-needed basis for community development (E.R. Combs, Inc. 1982). One resident noted in 1985" that when this settlement occurred, all city council members were shareholders in the corporation. He believed that the council members allowed such a small settlement because they were acting in their interests as shareholders rather than as city council members, thinking it more likely that the city council (as opposed to the corporation) could someday become dominated by non-Native interests. This action taken by the 1980 city council is indicative of local residents' desire to maintain control of community lands and development.

As a profit organization, the King Cove Corporation has embarked upon a number of business ventures. Most recently (1983), the corporation constructed a large building in the center of town that houses the corporation offices, twelve hotel rooms with kitchenettes, a snack bar/video arcade, a large bar, and the building manager's apartment. The city leases office space from the corporation in the building. The building venture tends to be most lucrative in the summer months when the hotel rooms are occupied by construction crews and the bar is crowded with fishermen, laborers, cannery workers and other non-resident clientele, in addition to the local townspeople.

The corporation also invested in an apartment building in a joint venture with the cannery. The corporation financed initial construction of the building, while the cannery is responsible for insurance and lease payments. The cannery signed a 20 year lease on the building and was using it for employee housing.

Mt. Dutton Cable Corporation, a cable television franchise, is another venture of the King Cove Corporation in the form of a subsidiary company. The Mt. Dutton Cable Corporation is run by a board of directors. Although the subscription rate for cable turned out to be much higher than originally anticipated ($55 per month for eleven channels), the cost has not proven prohibitive; as of January of 1985, 105 households subscribed out of the 125 that were originally connected to the cable when it was first installed. Cable television has been a tremendously popular addition to the recreational lifestyle in King Cove.

The King Cove Corporation is considering other business ventures as well. For example, the board expressed interest in obtaining an oil franchise; however in 1985, the cannery had the Chevron franchise and Chevron was the only company that brought a tanker to King Cove. A board member stated that the corporation may eventually engage in enterprises outside of King Cove; at the time of the fieldwork, however, the board was concentrating its efforts locally while maintaining a conservative approach to its investments to avoid overextending itself.

While one board member remarked that the corporation has not had any complaints from shareholders about corporation activities, some shareholders expressed dismay about the corporation constructing a bar. These residents believed the corporation should not necessarily be in the bar business because they were not convinced that this second bar was healthy for the community. These shareholders believed that the corporation could have undertaken other social/recreational needs in the community, such as a community center, that would have been less profitable, perhaps, but more beneficial to the community (i.e., shareholders).

One resident expressed concern that shareholders were not well enough informed about board activities and decisions. He noted that some questionable actions

had been taken that had needlessly cost the corporation considerable amounts of money. His opinion was that better board accountability to shareholders was necessary through reports and newsletters to the shareholders, and that this would enhance shareholder interest and involvement in the corporation.

A few residents mentioned 1991, the year when shareholders become free to sell their shares, as an issue for which the King Cove Corporation needed to prepare. These individuals were worried that if the cannery, oil companies, or other industrial interests were to try to buy shares from shareholders, the corporation would be unable to match those offers and would become dominated by non-Native interests. As noted in E.R. Combs, Inc. (1982), giving land rather than cash dividends to the shareholders had already risked (on a small scale) opening the community to outsiders through shareholders selling their lots. As of 1985, most shareholder lots that have been sold were sold to AHA for the new subdivision or to King Cove residents. However, during the fieldwork, a few were offered for sale to the general public.

Though not entirely free of growing pains, the King Cove Corporation is a viable organization. Shareholders and board members alike have learned to comprehend the responsibilities of being a corporation, and in the last year have undergone leadership changes. Being a major landholder in a community subject to fishing and petroleum industry interests, the corporation appeared intent upon maintaining local control of the corporation and its lands. To date, it has been largely successful in this respect.

Belkofski Corporation

When ANCSA was passed in 1971, Belkof ski's population was probably close to the 1970 U.S. census count of 59. Although the Belkofski Corporation formed after passage of ANCSA, many Belkofski residents opted to enroll in the King Cove Corporation. Consequently, only about 33 shareholders enrolled in the Belkofski Corporation. According to one resident, approximately one third of those original shareholders have since died.

The present board of directors consists of four members. The president of the board was acting president, he said, because "no one else wanted to do it."

The corporation appeared to be essentially inactive, One board member said that the board usually tries to hold an annual meeting but few people were around to get involved. The corporation had purchased a share in a shareholder's fishing boat, according to one board member, but the study team was unable to learn of other investments. One King Cove resident who was not a Belkofski Corporation shareholder said he thought the Belkofski Corporation had spent all their money.

Board members contacted agreed that the future of the corporation was uncertain. The Belkofski Corporation considered merging with the King Cove Corporation at one time, and with the Pribilof Islands and Nelson Lagoon village corporations at another time. E.R. Combs, Inc. noted that the King Cove-Be lkofski corporation merger fell through because the Belkofskiites believed the King Cove Corporation wanted to "expropriate their land selections which they feel are more valuable than King Cove's land due to holdings at the head of Pavlof Bay, a possible transportation corridor for an oil pipeline" (1982:188).

Regional Organizations

The following discussion reviews regional organizations that operate in or influence King Cove in some manner and analyzes the role of each organization in the community, its perceived importance and effectiveness, and its role with regard to the harvest of natural resources.

Aleutian/Pribilof Islands Association

Formed in 1976, A/PIA is the Native non-profit regional corporation representing Aleut residents of eleven villages from Nelson Lagoon to Atka, including Akutan, Belkofski, Cold Bay, False Pass, King Cove, Nikolski, St. George, St. Paul, Sand Point, and Unalaska. A/PIA was preceded by the Aleut League, formed in 1966, and the Aleutian Planning Commission, formed a few years later. These predecessor organizations were non-profit coalitions among villages in the region formed to obtain funding for various community improvement projects, particularly for the smaller communities. Roads, fuel storage tanks, and community halls were some of the projects these early groups

organized for member communities. Each community contributed money to the organizations and sent representatives to the meetings. In 1976, the Aleut League and Aleutian Planning Commission merged to form the Native non-profit corporation chartered under ANCSA to represent Aleuts of the region: A/PIA.

A/PIA's board of directors consists of one representative from each of the 11 villages in the service area, and board members serve three year terms. The board supervises the executive director and provides policy guidance for the organization. A/PIA consists of four departments: health, community services, education, and administrative services. In addition, the AHA, a semi-independent organization chartered as the Indian Housing Authority serving low-income Native housing needs in the same 11 villages, is an offshoot of A/PIA. AHA's board of 'five commissioners is appointed by the A/PIA board to serve three year terms.

A/PIA's stated purpose is "to promote the overall economic, social, and cultural development of the Aleut people within the Aleutian and Pribilof Islands," (A/PIA n.d.). The three main departments' stated goals are as follows: Health - "to promote the individual's optimum level of physical, mental, social, and spiritual functioning"; Community Services - "to provide assistance to the 11 communities in their efforts to become economically, socially, and politically self-determinant;" and Education - "to promote supplemental training and education to young students and to eligible adults in the Aleutian/Pribilof region," (A/PIA n.d.).

A/PIA's services are provided through 22 programs administered through ten contracts with six federal and state agencies. The range of programs includes health, education, social/psychological, senior citizen, employment and vocational training, and public safety services. A/PIA's headquarters are in Anchorage. Staff from Anchorage travel to the villages to provide technical assistance, consultation, and supervision to field staff residing in the communities. A/PIA employs approximately 50 people in Anchorage and the 11 villages (A/PIA n.d.).

Within King Cove, A/PIA's main programs were funding the Village Public Safety Officer (VPSO) and the Community Health Aide (CHA). A/PIA encouraged formation

of the King Cove health board and has worked with the board in staging health fairs. King Cove was occasionally visited by a Community Health Representative (CHR) from Anchorage acting in an information and referral capacity, and by counselors from Sand Point. A/PIA has also provided public safety training to King Cove volunteers in emergency medical procedures, fire protection, search and rescue methods, and conducted weatherization improvements on old housing stock. In addition, AHA constructed 23 houses in 1979 and was constructing another 30 houses in 1985.

Because of King Cove's status as a first class city, it has had less need for A/PIA's services than other communities. Consequently, the level of direct involvement by A/PIA in King Cove is low. As one resident stated,

> We are aware of A/PIA but King Cove has always been so independent. From our point of view, most of A/PIA is from Sand Point and I suppose there is a rivalry. A/PIA does a lot of good, but if they give you something, they are in control. For example, if they gave us a community center, they would be in control. Every other town has gotten one through A/PIA except for us, but I guess people here would rather not have one until we can have our own.

Another resident said that A/PIA's biggest impact on King Cove has been the new houses provided by AHA; "Other than that, they really haven't done anything. This level of involvement is fine, though. The Pribilofs are more dependent on government agencies, and so are Atka and Nikolski. They need A/PIA more than we do." The two A/PIA funded positions in King Cove, the VPSO and CHA, were somewhat duplicative of the city-hired policemen and the physician's assistant; the VPSO could not carry a gun and was therefore less effective as a law enforcer than the two city policemen, and most residents preferred to see the physician's assistant rather than the CHA for health care needs.

In short, A/PIA fills a relatively minor role in King Cove compared to its role in other villages and compared to the level of services provided by the city. A/PIA's minor role is to some degree a function of King Cove's successful position in the fisheries: the local economy is strong, residents are able to provide for themselves, and the city government has proven very effective in providing needed services with revenues generated in part from the fisheries. Residents expressed some disappointment in A/PIA in that it focussed its

efforts in other communities; however, they also realized that perhaps this was appropriate in view of King Cove's independent spirit and the greater need elsewhere for A/PIA's services.

Aleut Corporation

The Aleut Corporation is one of thirteen regional profit corporations established by ANCSA in 1971. The corporations were designed to manage the settlements conveyed through ANCSA to Alaska Natives. All members of the village corporations in a region are automatically shareholders in the regional corporation. The Aleut Corporation's function is to utilize its assets to make a profit for its shareholders.

Based in Anchorage, the Aleut Corporation has subsurface rights to the region's village corporation lands. Village corporations (and other entities) must negotiate with the Aleut Corporation for the use of gravel dredged from a harbor, for example, as the City of King Cove did recently. In essence, the Aleut Corporation operates strictly as a profit business. Unless it undertakes a joint venture with a village corporation, it has little relationship or official affiliation with the village corporations.

The Aleut Corporation received a 1.45 million acre land entitlement under ANCSA and about one million acres of those lands have been conveyed to the corporation. The Aleut Corporation's investments include a helicopter support base in the Pribilofs, real estate investments and companies in Anchorage and the Matanuska valley, a ship repair operation in Dutch Harbor, and an office complex in Anchorage. A recent shareholder newsletter stated that the Aleut Corporation has been in a profit position for six consecutive years and has just recovered all losses incurred between 1972 and 1979. The newsletter stated this was the third consecutive year the corporation had exceeded $1 million in income and the board expected this finding to be confirmed by the annual report's auditors. As a consequence of this financial success, the board of directors announced a dividend of $1.15 per share to be issued in September 1985. This amount represented a five percent increase over the 1984 dividend, and a ten percent increase from 1983 (Aleut Corporation 1985).

Although under no obligation to concern itself with Native issues or shareholder services, the Aleut Corporation offered a scholarship program for shareholders, awarding 27 scholarships . amounting to over $37,000 for the 1985-86" school year. In addition, the president of the corporation noted that 75 percent of the employees in the helicopter support base project were local hire (i.e., shareholders). He f urther noted that 56 percent of the corporation-staff were shareholders and referred to the corporation's involvement in issues related to 1991. These comments were prefaced by saying that the corporation had been criticized for being too profit oriented without concern for the well-being of shareholders (Aleut Corporation 1985).

In general, the Aleut Corporation has virtually no presence in King Cove. Most residents are shareholders in the corporation, receive dividends, and can vote for board members. No King Cove residents have served on the nine member board of directors, although one resident noted that someone from King Cove had run for the board a few times and ultimately become discouraged.

Aleutians East Coastal Resource Service Area

The federal Coastal Zone Management Act of 1972 and the Alaska Coastal Management Act of 1977 both provided for the development of coastal resources balanced with protection of those resources. The Alaska Coastal Management Act authorized and encouraged formation of local level organizations to develop coastal management programs for their districts. Districts include organized cities, boroughs, and municipalities, as well as areas within unorganized boroughs; the latter are called coastal resource service areas (CRSA) and have boundaries closely following those of REAAs. In 1981, residents of Sand Point, King Cove, False Pass, Cold Bay, and Nelson Lagoon voted to form the AECRSA board. Their purpose was to develop a coastal management program for the AECRSA, which includes the western Alaska Peninsula from Cape Seniavin to Unimak Pass and the various island groups south of this coastline.

Five elements are required in a coastal management program: resource inventory; resource analysis; boundary identification; enforceable policies; and an implementation description. Once a management program is developed, it is subject to public comment, then reviewed by the state Coastal Policy

council. Once approved by the Coastal Policy Council, it is submitted to the U.S. Department of Commerce, Office of Ocean and Coastal Resource Management for approval. After receiving these approvals, the lieutenant governor files the district plan after which it is incorporated into the state program for purposes of local, state, and federal consistency. Theoretically, "at that point the local program is binding all activities on the affected coastlands must be consistent with the standards and guidelines set forth in the CRSA's coastal management program. Thus, local CRSA boards are potentially very powerful entities for controlling development, use, and protection of their coastal zones. However, the power vested in state and local guidelines is currently in question. In 1984, the U.S. Supreme Court ruled that federal offshore oil and gas development did not have to comply with state coastal management programs. Because of that ruling, many states saw the need for a new law to require consistency with their management programs. When Congress was considering reauthorization of the Coastal Zone Management Act in 1985, efforts were made to clarify the consistency provision in the Act. However, the proposed amendment did not pass. Thus, the power to implement state and local management plans on the OCS remains uncertain, especially if the effects on the coastal zone are economic rather than environmental (Exxon Corporation v. Michael L. Fischer et al. 1985).

King Cove residents hold two of the eight seats on the AECRSA board. King Cove representatives to the board are elected in a general election. The AECRSA was staffed by a program director and administrative assistant in Anchorage, a field coordinator in King Cove, and a planner in Sand Point. King Cove had additional influence in coastal management matters in that the mayor of King Cove was appointed by the governor to represent the Kodiak-Aleutians region on the Coastal Policy Council. He was one of nine locally elected officials from around the state appointed to this council.

The AECRSA board met twelve times between January 1983 and July 1985, holding most of their meetings in communities within the region. Public attendance was encouraged through extensive announcements the weeks preceding the meetings.

In July 1985, AECRSA published the "Conceptually Approved Coastal Management Plan" for the district, culminating two and a half years of research and public review. The first phase of the effort entailed surveying residents for priorities and goals for the coastlands development, use, and protection and taking inventory of the resources in the district. The second phase produced a resource atlas, analysis of resource development potential, and a draft plan. The third phase involved rigorous review and revision of the draft plan, resulting in the conceptually approved plan.

The AECRSA Conceptually Approved Coastal Management Plan (1985) contains a number of policies which specify limitations and conditions on activities that could have adverse impacts upon the coastal resources in the region if not controlled. The first policy pertains to fish and wildlife and states that "maintenance and enhancement of fisheries habitats shall be considered a highly important use of local concern" (AECRSA 1985:7-5); of all the policies, maintenance of the commercial fishery habitats was listed as the "priority use" for the area. The second policy focuses on air and water quality and cites specific considerations and procedures for wastewater discharge, refuse disposal, hazardous and toxic wastes, storage of petroleum and petroleum products, and oil and gas operations, among others. Other management plan policies pertain to: geophysical hazards; coastal development; fish and seafood processing; mining and mineral processing; energy facilities (including on- and offshore pipelines); transportation and utilities; subsistence; recreation; coastal access and easements; historic, prehistoric, and archaeologic resources; and special use area policies (including Unimak Pass as a special use area in consideration of the salmon runs and the marine mammal haul-out sites located there).

Throughout the last two and a half years, AECRSA has conducted a number of other activities. For example, a 1984 conference with Shetland Islands representatives provided district residents the opportunity to discuss the Shetland Islands' experience with oil and gas development in the North Sea. In the 1983 survey, AECRSA canvassed residents about their attitudes toward various types of economic development (such as tourism, industrial development, mining and minerals processing, oil and gas, and fish and seafood processing), oil and gas facilities siting in or near the community, government and the need

for a regional government, transportation, health care, and housing services, land ownership, subsistence, and community development. Generally, King Cove respondents favored development of industry, tourism, seafood processing, and hydroelectric power, but opposed mining and oil and gas development. A majority also opposed location of oil and gas facilities in King Cove (71 percent opposed compared to 24 percent in favor), and they also did not desire employment with oil and gas projects (24 percent desired oil and gas employment, 70 percent opposed).

In addition to developing a coastal management plan, AECRSA is currently involved in studying the possibility of establishing a regional government for the district. The Department of Community and Regional Affairs provided AECRSA with funds to have a feasibility study performed. The study is not yet completed.

If a regional government were formed, such as a borough, it could introduce several changes on the regional and local levels. First, both the city and the borough would have taxation powers. In other words, the borough could impose a sales (and/or property) tax that would be in addition to King Cove's city sales and use tax. Revenues generated from the borough tax would be distributed on a per capita basis to the communities within the borough. Some King Cove residents observed that the only way King Cove would benefit from oil development would be if a regional government were formed and imposed a tax on the industry. Another resident, however, was opposed to a borough government, saying,

> We are doing just fine taking care of ourselves as it is. In a borough, the big cities get everything and the little ones get nothing. What would happen to False Pass and Nelson Lagoon?

While some residents commented that businesses were opposed to regional government because they would be taxed, an official at PPSF indicated that he would welcome this change in taxation because all canneries and processing plants within the region would then be equally taxed. This equal footing was preferable to him over the present situation in which PPSF bears a higher tax burden under the King Cove tax ordinance than other processors in locations with lower or no tax. He stated that uneven tax burdens between processors

placed the more heavily taxed processors at a competitive disadvantage in terms of the prices they could pay for fish and total profit margin. Although this sounded appealing to PPSF, regional government likely would not result in taxation equity. Any borough sales tax would be added to the city sales tax. Thus if a future borough had a two percent sales tax, residents of King Cove would pay a total sales tax of four percent, while residents outside of the city would only pay two percent.

Second, regional governments are empowered to implement and enforce their own coastal management plans. After the state incorporates the coastal plans from unorganized coastal districts (such as AECRSA) into the state coastal plan, it also takes responsibility for implementing and enforcing the policies for that district. By organizing a regional government, the Aleutians East district would gain the power of implementing its own plan for local permits after it is incorporated into the Alaska Coastal Management Plan. In fact, for the state and federal approvals (which are of greatest concern to the local district), a CRSA Board and local government have comparable ability to review consistency determinations and make recommendations to the State Division of Governmental Coordination (in most cases) or the state agency responsible for issuing a permit (if only one agency is involved).

Third, a regional government would assume responsibility for education. Local school systems, as in King Cove and Sand Point, would be usurped by the regional school district. A regional school board with representatives from each community would govern the matters of the school system. Several residents greeted this possibility with dismay as they were very proud of their school and school system and preferred being independent. They disliked the idea of their school being controlled by a regional school board, with residents from Nelson Lagoon, Cold Bay, Sand Point, and other communities making decisions about the King Cove school. However, one resident who was unhappy with the present school administration believed that a regional school system would be beneficial for King Cove in that it would provide a more objective school board. He expressed concern for the low level of local interest in the King Cove school board and the ability for a superintendent to control the school board in a small town.

Generally, King Cove residents were highly supportive and complimentary of AECRSA's activities. Two residents explained that the high level of satisfaction with AECRSA'S work stemmed from the extensive local level input that AECRSA sought and incorporated into their work. One man remarked, "These reports are so good because the people really talked to the residents and listened to what they had to say. They [AECRSA board and staff] have done a lot of work."

Peninsula Marketing Association

The Peninsula Marketing Association (PMA) is a fishermen's organization formed in the early 1970s for the purpose of negotiating prices and lobbying on behalf of Area M salmon and crab fishermen. Prior to PMA's existence, the fishermen of this region were loosely associated with a Kodiak fishermen's group, the United Marketing Association (UMA). Area M fishermen would strike in support of Kodiak fishermen's issues as fellow members of the same association. However, according to a current officer of the PMA, Kodiak fishermen would keep fishing during Area M fishermen's strikes. Other PMA members remarked that UMA did nothing for its Area M members. Because of this lack of support, Alaska Peninsula fishermen formed the PMA. PMA's membership is comprised primarily of fishermen based out of Sand Point, King Cove, False Pass, Nelson Lagoon, and Port Moller.

PMA's 1985 membership dues were $150 for every active permit. Thus, someone who held salmon seine and drift permits and a Tanner crab license would pay $450 in annual dues. However, a PMA officer noted that dues fluctuated yearly depending on cash needs and the number of members. He also reported that approximately two-thirds of all Area M salmon boats and two-thirds to three-fourths of all crab boats were represented in the membership. The board of directors is made up of 13 positions, representing each of the communities in Area M. The actual number of representatives from each community holding seats on the board depends upon membership numbers from that community. In April 1985, the board consisted of five members from Sand Point, three from King Cove, two each from Port Moller and Nelson Lagoon, and one from False Pass. Staff to the organization included a president, part-time secretary, and a secretary/treasurer who were based at PMA's Sand Point headquarters.

As mentioned above, PMA's main activities include price negotiations and lobbying for a larger allocation of fish and increased fishing time, concentrating primarily on salmon and crab. They have occasionally concerned themselves with halibut, but dues were collected only from salmon and crab permitholders and these species are expected to remain the primary focus of the organization, according to an officer.

Each spring, PMA board members and cannery officials meet to negotiate prices. Following price agreements with PPSF, the other canneries and processors in the region usually set their prices accordingly, matching or beating PPSF'S price. A board member explained that PMA concentrates its salmon price negotiation efforts on pinks and chums, as "the price of reds tends to set itself due to the presence of cash buyers." Negotiating before the season opens and before anyone else has set prices makes the process very difficult, according to one board member. He said,

> We start fishing very early, and although we are not fishing pinks and chums early, we are busy and can't afford to negotiate. Consequently we have to negotiate before the season and we are often shooting in the dark since no one else has set prices.

While one board officer from Sand Point stated that PMA was generally successful with their price negotiations, other King Cove PMA members remarked that the organization has too little leverage with PPSF since it is almost the only market for local fishermen to sell their fish. One fisherman said, "Since everyone's scared of Peter Pan and they're the only show around, the only leverage PMA has is that Peter Pan wants good fish and we bring much better, fresher fish than Bristol Bay."

In its lobbying role, a PMA board officer noted that PMA was the only group outside local Fish and Game advisory committees that lobby on behalf of Area M fishermen, and he believed they were doing so effectively. PMA sends PMA board representatives to the annual Board of Fisheries meetings, and occasionally provides financial support for members to attend the meetings as well. As discussed under Commercial Fishing and Processing, a primary regulatory issue that concerns King Cove fishermen is attempts by Bristol Bay and Yukon River fishermen to reduce or close the South Unimak intercept fishery in order to curtail sockeye harvests and incidental chum salmon harvests. Recent efforts

to restrict the fishery have included: full season closures, reduced fishing time, changes in gear efficiency, and harvest quotas on the chum salmon caught incidental to the target species {sockeye). Although these efforts have been only partially successful, King Cove fishermen fear continued attempts to close the South Unimak fishery. The Board of Fisheries has allowed the South Unimak fishery to continue, but it has restricted future growth by establishing the allowable South Unimak harvest quota at 6.8 percent of the forecasted Bristol Bay sockeye harvest. At the same time, Area M fishermen have attempted to increase their sockeye salmon allocation during the South Unimak fishery. Because the Bristol Bay harvest has exceeded the forecast in recent years, Area M fishermen have proposed to the Board of Fisheries to increase their harvest quota. PMA has represented Area M fishermen in this endeavor which has been unsuccessful so far.

King Cove fishermen expressed some dissatisfaction with PMA, ranging in degree from minor complaints to a desire for a more locally based organization. One difficulty inherent in the organization is the diversity of fishing strategies and fishermen within the large area represented by PMA. For example, in the 1985 price negotiations, PMA and PPSF were not able to settle on a price before the season began. In July, the fishermen held a brief strike to settle on a price for pink salmon. However, the north side of the Alaska Peninsula did not want to stop fishing for sockeye salmon during the most important part of their season to strike in support of pink salmon prices for south side fishermen. The strike was consequently less effective than if striking PMA fishermen had been able to boycott the cannery completely.

According to one fisherman, some King Cove fishermen wanted to establish a local association for King Cove, keeping their money in a local organization rather than sending it to Sand Point. However, he explained that such an offshoot would not likely occur: "Who would do it? That is the problem. We might end up losing what bargaining power we have with PMA and gain none of our own."

Another rift that has arisen among Area M fishermen is between drift gillnetters and seiners. Approximately three years ago, some fishermen from Port Moller established a drift gillnetters organization as an alternative to

PMA. Drifters believed they were not adequately represented by an organization based in Sand Point, dominated by seiners, and charged with representing the diverse interests of the region. As one fisherman explained,

> In the past, nobody worried about who caught what. No one got any more time than 'anyone else. But lately because of percentages, drifters feel like they are getting edged out by seiners who are catching a much higher proportion of the total catch. So there are some grudges between seiners and drifters.

One PMA official commented that the formation of the drifters' organization was a function of Area M's large size. He said,

> Concerns in Port Moller are a lot different than those in False Pass, for example. We have a hard time negotiating prices because the area is so big. Some guys think you are trading off reds while negotiating pinks, or vice versa. And if a guy thinks that is the case, it is hard to make him believe it isn't so. It is hard to act as a unit when covering such a large area with so many different fisheries.

PMA members expressed concern that this new organization would split PMA and dilute its strength, both in numbers and in financial backing. However, the effectiveness and hence the future of this new organization were still questionable. In 1983, the drifters' organization negotiated a contract with PPSF. They did not get a contract in 1984 but instead conducted some "sideline negotiating" with PPSF and with cash buyers, according to a PMA member. The lack of a contract in 1984 was considered a sign of the new organization's ineffectiveness.

Furthermore, although a few King Cove fishermen had shown interest in the group, there was little support for it from King Cove. One reason cited for low King Cove participation was that more King Cove fishermen are seiners than drift gillnetters. Among the smaller number of King Cove drifters, family ties to seiners was an important reason for low participation. As one drifter said, "Lots of drifters are sons of the people who seine and who supplied them with the permit, so we [drifter's organization] lose half the gillnetters for any argument right away." Reportedly, the majority of the group's members are Port Moller drifters from Washington state.

In summary, PMA occupies an extremely important role in the region. For over 15 years, it has been the only organization exclusively charged with representing the fishermen of Area M to processors and regulatory bodies. Without such an organization, fishermen would probably make less money and have less control over their livelihood. Consequently, King Cove fishermen have vested their hopes for successful negotiations and lobbying efforts in this group as the primary organization available to represent them. Despite disappointment in aspects of PMA's performance, the organization has fulfilled its basic responsibilities of price negotiations with the cannery and performing lobbying functions with the Board of Fisheries. While most King Cove fishermen consider there to be no viable alternative to PMA, a few drift gillnetters have joined the new drift gillnetters organization in an effort to gain better representation of their particular needs. This new group is unlikely to gain a solid foothold in King Cove because of strong family ties between seiners and drift gillnetters.

POLITICAL DYNAMICS

Having discussed the various formal political organizations in or affecting King Cove, this section addresses informal political dynamics operating within King Cove. Topics covered include leadership, factions, and residents' political values.

Leadership

As mentioned earlier in this chapter, Veniaminov described the traditional Aleut chieftainship as being hereditary and patriarchal, his power "very much that of a father over a large family" (Petrof f 1884:1 52). Veniaminov was also quoted as saying, "He who has large family ties through marriage is so powerful that no one will dare to offend him" (Lantis 1970:250). Krenitzen and Levashev described the chieftainship as "generally conferred on him who is most remarkable for his personal qualities; or who possesses a great influence by the number of his friends. Hence it frequently happens, that the person who has the largest family is chosen" (Lantis 1970:250). Although a disparity exists between these sources in terms of means of becoming chief - Veniaminov referring to a hereditary process, while Krenitzen and Levashev described a

more democratic process these historical descriptions are, to a great extent, applicable to leadership in King Cove today.

With reference to the specific position of chief, two residents described the mayor at the time of this study as being similar to a chief for King Cove. Although he is not a fisherman, he is from a large family and has been mayor off and on for 25 years. [1] The historical references to the chiefs being from the largest families, possessing broad influence because of their number of friends and relatives, accurately describe this individual. His influence is further strengthened by his wife's position in the community, as were the traditional chiefs' scopes of influence. She is from the largest family in King Cove and is commonly acknowledged as a prominent woman in the community. Many people commented that no one would speak out against him even if they did not agree with his positions on some issues. Thus, while King Cove has successfully established a modern system of government, vestiges of a traditional chieftainship were evident in the current mayor's position.

King Cove elected leadership positions in 1984-85 were occupied by members of a" relatively small number (seven) of extended families. (For the purposes of this discussion, "family" refers to residents with the same surname.) Of those families, five were particularly dominant. Politically active families in King Cove had a few characteristics in common, some of which were reminiscent of leadership dynamics described by the early chroniclers of Aleut culture. First, the families dominant in King Cove politics were descendants of the earliest families who settled the town, families formed by marriages between European fishermen and Aleut women. Thus, they had European surnames. With rare exceptions, the more recently arriving Belkofski families did not fill leadership positions in King Cove. Second, two of the five most dominant political families were the largest families in King Cove (size being based on the number of individuals in households headed by a particular surname). These two families numbered approximately 63 and 40 members, based on 1984 City of King Cove census data and field data. One resident commented that only about 60 people voted in most elections and all the large families voted for their

1. Subsequent to fieldwork and data analysis, the study team learned that King Cove residents elected a new mayor in November of 1985 by a slim margin.

relatives, thus constituting the majority and maintaining the leadership positions. This pattern corresponds to one described above by Krenitzen and Levashev (Lantis 1970) in which leaders tended to be from the largest families, thereby commanding the broadest base of support. The seven politically dominant families total approximately 208 individuals. In contrast, the remaining 28 families (excluding cannery, teacher, and other non-Native households) total approximately 244 members. Although these figures represent estimations, clearly the seven families (i.e., households headed by these seven surnames) constitute a large proportion of the population. Third, most of the dominant families in current positions were direct descendants of King Cove's city fathers, the men who spearheaded the move for incorporation in the 1940s and who constituted the first city council.

The total number of formal leadership positions on councils and committees in King Cove is 50, filled by 33 individuals. Of these 50 positions, 11 are appointed rather than elected (health board and planning commission) and two of those slots are filled by a cannery representative and the physician's assistant, who were not considered to be "locals." The 39 elected positions were chosen by the population at large (city council, King Cove Fish and Game advisory committee, King Cove seats on the AECRSA board), shareholders (King Cove Corporation and Belkofski Corporation), or PMA members (King Cove seats on PMA board). Of all 50 positions, only five were filled by members of the Belkofski subpopulation, and four of those five positions were the Belkofski Corporation board of directors.

Not counting the Belkofski Corporation board or the two non-locals appointed to the health board, the remaining pool of 44 leaders was, in 1984-85, dominated by five King Cove families. As Table 8-2 shows, those five families filled 14, six, five, five, and four positions respectively. Additionally, two men holding two important positions each were the sole representatives of their families. However, they were both married to members of the family holding 14 positions. Except for the Fish and Game advisory committee and the Belkofski Corporation and not counting the two non-locals on the health board, 32 of the remaining 34 board or council positions were filled by these five families and the two other men mentioned above.

TABLE 8-2: FAMILIES REPRESENTED ON KING COVE BOARDS AND COUNCILS

Board/Council/Committee	Family No. 1	2	3	4	5	6	7	Other	Total
City council	1	1	2	1	1	1	0	0	7
School Board	1	3	0	0	0	1	0	0	5
Planning Commission	2	0	0	2	0	0	0	1	5
Health Board	1	1	0	1	0	0	0	3(1)	6
King Cove Corporation	4	0	1	1	2	0	1	0	9
Belkofski Corporation	0	0	0	0	0	0	0	4(2)	4(2)
Fish & Game Adv. Comm.	2	1	1	0	1	0	1	4	10
PMA Board	2	0	0	0	0	0	0	0	2
AECRSA Board	1	0	1	0	0	0	0	0	2
TOTAL[3]	14	6	5	5	4	2(4)	2(5)	12	50

1. Two of these three are non-locals representing the "cannery and the clinic.

2. All four of these individuals are of the Belkofski subpopulation of King Cove.

3. Several individuals sit on more than on board or council. Thus, these totals do not reflect the number of individuals from a family on boards and councils, but rather the number of seats held by members of that family.

4,5. These two columns refer to two individuals, each the sole representatives of their families in political offices. These two men are married to members of Family 1 and hold important positions in the community.

Source: Stephen R. Braund & Associates (1985).

The King Cove Fish and Game advisory committee was the only entity that displayed a broader diversity of families represented by its members. Four of the five dominant families were represented on this committee, but four additional families were also represented who were not on any other board or council. This committee was the largest of all of the boards and councils with ten positions, a factor that may have minimized the competition for positions, thus allowing participation by families who were not otherwise in leadership positions. All of these men from the typically non-politically involved families, as well as some of those from the dominant families, were highline fishermen. Whereas being a highliner did not appear to be a prerequisite for leadership on the other boards and councils, this characteristic was common to most of these committee members.

It is noteworthy that the political organizations within King Cove were completely dominated by Natives. Participation by whites on local boards and councils was by invitation as appointees representing the cannery and the clinic. While this pattern might be expected as it is consistent with the large demographic majority of Natives in the population, it is nonetheless important in understanding political dynamics in King Cove. Jones (1976) made this point very clear in her comparison of King Cove and Unalaska's political systems. Unalaska was dominated by whites who controlled not only the political arena but also the natural resources through the canneries and commercial fishing. Unalaska Natives completely lacked political clout. In contrast, King Cove Natives managed to gain control of their community as well as establish an important niche in the fisheries, giving them leverage in dealing with other powerful entities and propelling them on to greater independence. The study team observed that, in 1985, local control was still an important goal for King Cove residents. The absence of non-locals/ non-Natives on local boards reflected King Cove's ability and desire to run its own affairs.

Residents explained that qualities sought in local leaders were politeness, respect, involvement in community affairs, honesty, awareness of local problems, and courage to speak one's mind. Being a highliner, or even being a fisherman, were not considered to be essential qualifications except in the case of fisheries related positions, such as the PMA board and the local Fish

and Game advisory committee. One individual explained that several years ago, nobody was interested in running for board or council positions; anyone could get elected just by running. However, a few bad leaders had the effect of arousing concern for the quality of elected leaders. More people began to run for office. He added, "Those few people [i.e., the poor leaders] really did this town a lot of good when you consider that they got some good people interested in running for off ice." However, those who were involved in political office and those who voted were only a small segment of the population. Residents indicated that most people were not interested in the responsibility of running for office although they would not hesitate to complain about the accomplishments of those in office.

In reviewing past board and council member rosters, it appeared that more women filled these positions in the past than do currently. For example, the city council in 1979 consisted of three women and four men, whereas the 1985 city council consisted of seven men and no women. The King Cove Corporation in 1979 had three women board members out of nine total, whereas the 1985 board had only one woman on it. Apparently when interest was low, women took the initiative to run for office. With more people in the community currently interested in running for office, women continue to run but the proportion of women elected appears to have declined.

In short, leadership positions in King Cove were heavily dominated by men from seven long-time King Cove families. Being from one of those seven families, being male, and having such qualities as interest, involvement, politeness, respect in the community, and honesty appeared to be the traits common to most elected or appointed board and council members in King Cove.

Factions

As in any town, political rivalries, complaints about individuals or families in positions of leadership, and interest groups at odds with one another existed in King Cove. For example, the corporation bar apparently had a group of opponents in addition to a group of supporters. Reportedly, the supporters pushed "it through when the people who didn't want it were unprepared or out of town," according to one source. Another man indicated that every time a certain resident ran for elected office, the first man would run against him.

However, the community generally manifested low levels of factionalism. As mentioned in previous sections of this report, the high level of interrelatedness between families and the small size of the town resulted in a generally harmonious community. A resident explained the low level of factionalism in the following manner: "We are all fishermen and we all get along pretty well. We all spend time talking to one another at the harbormasters off ice." Another individual said, "This town is pretty well knit together. Everyone's related somehow and everyone knows each other." Such factors as interrelatedness and being fishermen contributed to a sharing of common goals for the community and resulted in few intracommunity disputes.

SUMMARY

Most of King Cove's political activity was motivated by two priorities, or values, held in common by residents of the community. The most important of these was that the community maintain and, if possible, strengthen its position in the resource harvest. As every board or council in the community was made up of fishermen or fishermen's kin, and everyone realized the vital importance of the fisheries to King Cove's existence, this priority was dominant. Any decision presented to a local board or council was undoubtedly subject to evaluation of its impact upon local participation in the fisheries. Board and council members, as well as the electorate, would certainly act to protect their commercial fishing lifestyle rather than jeopardize it in any way.

The second priority observed by the study team was a concerted movement toward independence and self-sufficiency. Residents utilized both the city government and the King Cove Corporation as avenues to achieve greater degrees of self-sufficiency. A particular focal point of this priority was city's actions to become more independent of the cannery. Too, the King Cove Corporation's status as the largest landholder in the area granted that body considerable power in controlling future development. By keeping tight control over the process of deeding lands over to the city (as required by ANCSA), the Corporation was reportedly attempting to ensure that lands would not be controlled by outsiders, which they considered a possibility through non-Native, non-local control of the city council.

As mentioned in the discussion of ethnicity in the next chapter, King Cove residents would consider cultivation of their traditional. Aleut heritage to be "regressive rather than progressive." This desire to be progressive has been evident in King Cove's political behavior as well, dating back to the early move toward incorporation as a city. Currently, 'the city is making changes in its operational procedures that signify a departure from the more. traditional, informal 'approach to running the city to a more businesslike and formal approach. The King Cove Corporation was also in the process of cultivating a more businesslike approach to its activities as well. Residents have realized that in order to maintain their position as a viable, independent community with a firm position in the commercial fisheries, and to protect their existing lifestyle, they must be able to function in a professional manner and compete on an equal footing with outside interests.

Despite this progressivist trend, the leadership structure manifested linkages to traditional ways. Some of these patterns corresponded to Aleut political systems described by early Russian explorers while others were reflective of the town's early history. It appeared to the study team that King Cove had cultivated a healthy balance between traditional and modern approaches to political issues. Moreover, the community was effectively utilizing this approach to realize their goals of successfully maintaining a place in the natural resource harvest and concurrently cultivating a high level of self-sufficiency.

IX. SOCIAL ORGANIZATION

This section addresses the social organization of King Cove, including residence patterns, kinship patterns (as manifested in the commercial fisheries, marriage, and family roles), ethnic identity and relations, and social health, including recreation, physical health, substance abuse, and crime. The focus of the discussions is the linkages between these various aspects of social organization in King Cove and the subsistence and/or commercial harvest of natural resources.

RESIDENCE PATTERNS

The following discussion of residence patterns offers a descriptive analysis of the spatial organization of King Cove, which is determined mainly by kinship and economic influences. The discussion first examines the household, the main unit for family and economic cooperation. Second, we examine inter- and intra-community residential trends, such as the development of new neighborhoods, their composition, patrilocality in exogamous marriages, and seasonal residence patterns. These two levels of physical organization are described in full and analyzed in terms of three main factors affecting the current residential configuration of King Cove: change over time; the manifestation of kin relationships and values in these residential patterns and trends; and the influence of economic trends, particularly those related to the natural resource harvest.

Although King Cove was not an aboriginal settlement, the precontact Aleut ancestors of modern King Cove residents lived in large, rectangular semi-underground houses called "yurts" or "barabaras" that were made mostly of sod, driftwood, and whalebone with a hatch entrance in the roof. These dwellings were occupied by extended families made up of three to five nuclear families, sometimes as many as ten, amounting to 20 or 30 individuals per dwelling according to Lantis' sources (1970); Laughlin (1980) stated that a village of 200 people could reside in as few as five houses, suggesting an average of 40 persons per house. Each nuclear family within the home had its own area along the perimeter of the building and the central area was shared in common (Lantis 1970; Laughlin 1980). Laughlin (1980) noted that just prior to

the 1800s, smaller houses with a door in the end began to appear; gradually, wood frame houses replaced the barabaras. Veniaminov (in Petroff 1884) reported that N.P. Rezanov, head of the Russian-American Company, insisted the Aleuts build smaller single family dwellings as he considered the traditional Aleut barabaras unhealthy. Rezanov held power in the company until "his death in 1807; his command coincided with the period of transition in housing styles observed by Laughlin (1980) above. As wood was not naturally available for lumber in the Aleutians region, its use in home construction reflects the influence of Russians settling in the area and suggests that they imported lumber for building the mandated type of dwelling. .

Despite Rezanov's efforts, not all barabaras were abandoned by the Aleuts. Porter (1893:82) described the Aleuts as living in barabaras as well as frame houses in 1881.

> The people live mostly in comfortable frame houses built by the traders when competition was active....To the westward many of the Aleuts still live in barabaras, or sod huts. At the present time there are 7 houses of this kind at Unalaska.

Both he and Collins et al. (1945) noted that the modern barabaras had changed considerably from the aboriginal communal houses. According to Collins et al. (1945: 23),

> The modern Aleutian house, or barabara, is very different from the original form. It is a single family dwelling, much smaller than the old communal house, and the entrance is at the side instead of through the roof.

Porter (1893:168) wrote, "The modernized barabara is generally provided with glass windows, often with a cook stove, and rarely with plank flooring." A photograph in Jones (1915) depicts a St. Paul barabara similar to that described by Porter. Its end wall is lapped siding with a wooden door and glass paned window, while the side walls and roof are sod.

Speaking specifically of Belkofski, then the home of many future King Cove residents, Porter (1893) wrote,

> Nearly all the houses of Belkovsky are neat frame cottages, erected for the natives by trading companies when sea otters were plentiful.

> They are generally painted in white or light colors, and are set off in pleasing contrast by the green mountain slope behind them.

He (1893:168) mentioned that a few barabaras "can still be found even at Unalaska, Belkovsky, and Unga, in the midst of modern frame cottages."

In the decades following the United States' 1867 purchase of Alaska, many new settlements emerged in the Aleutians region as codfish stations and cannery towns. Early photographs of these towns in Cobb (1911, 1916) and Jones (1915) depict the simple wood frame saltbox style houses built by fish packing companies and the fishermen.

Consistent with the construction style of these existing fishing villages, King Cove's 1911 settlers built simple wood frame houses around the cannery. Although the cannery was constructed in 1911 and operational in 1912, the first permanent, non-cannery residents did not settle there until 1919. This family consisted of a Swedish man and his Aleut-Russian wife. They built their house, the first non-cannery residence in King Cove, to the west of the cannery (Figure 9-l). In the next few years, several more couples and their families (mostly Northern European men and Aleut women) arrived from other parts of the region and constructed homes in this area west of the cannery, Belkofski residents who traveled to King Cove for summer cannery work parked their wooden skiffs just inside the lagoon and stayed in rustic "shantytown" housing in this area as well (Figure 9-2). In the 1930s, the first homes were constructed east of the cannery, initiating settlement of the presently populated townsite (Figure 9-3).

The land east of the cannery originally occupied by the earliest residents is now cannery land; two original homes situated there still stand although they are no longer occupied. Banyas (woodstove heated steambath houses) adjacent to these old homes are reportedly still used on occasion.

The oldest part of the modern town lies to the east of the cannery (Figure 9-4). As the town grew, settlement continued to the east along the narrow bench of land between the steep mountain slopes and the waterfront, connected by a boardwalk along the waterfront and a road along the foot of the slopes. The linear pattern of settlement along the waterfront reflects the importance

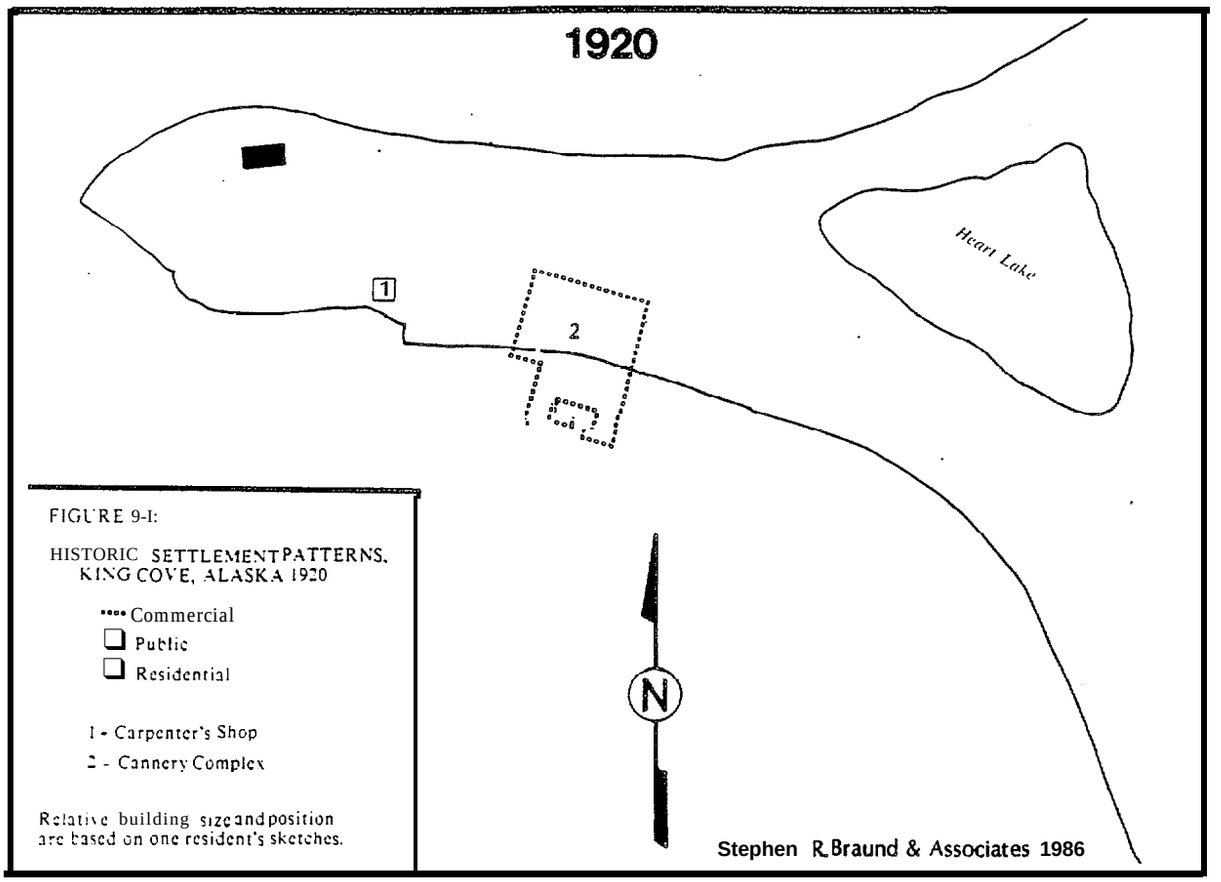


FIGURE 9-1:

HISTORIC SETTLEMENT PATTERNS, KING COVE, ALASKA 1920

- Commercial
- Public
- Residential

1 - Carpenter's Shop
2 - Cannery Complex

Relative building size and position are based on one resident's sketches.

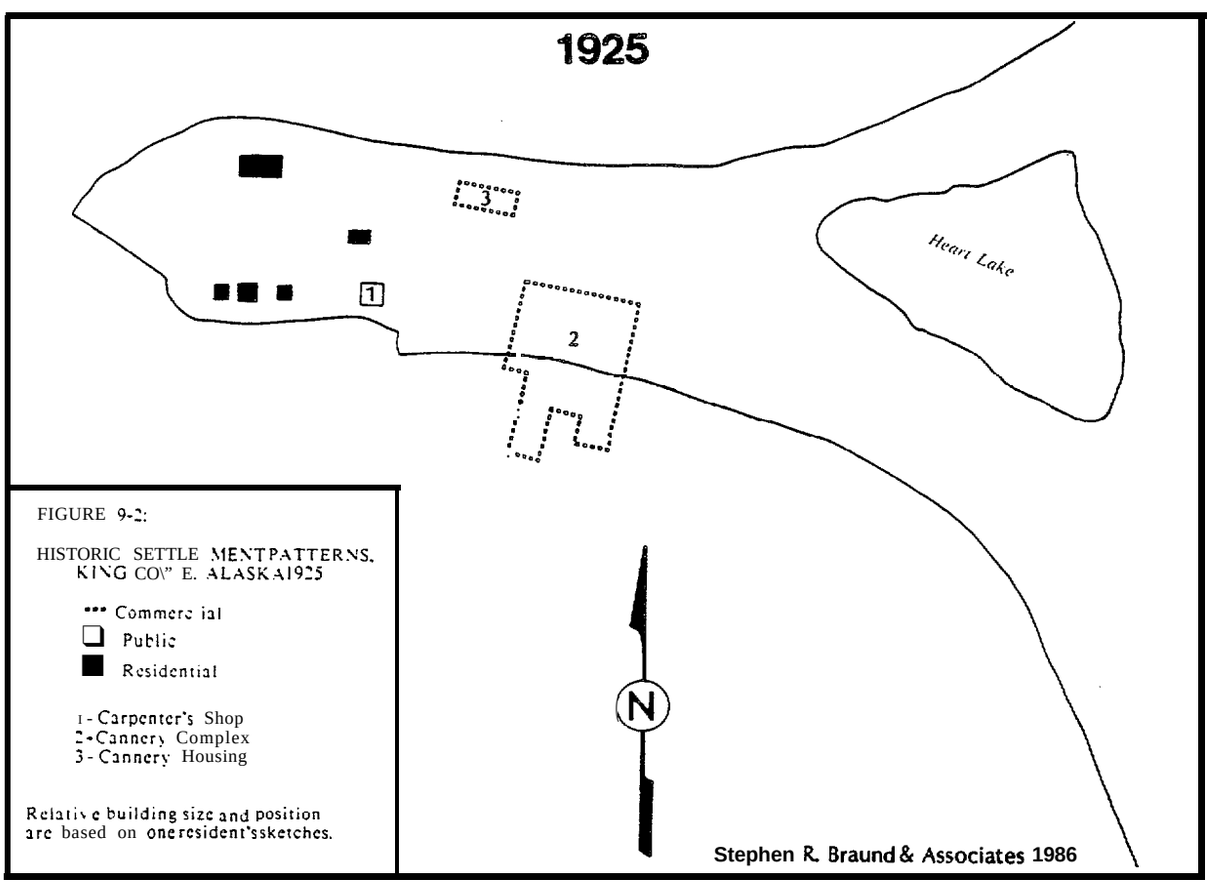


FIGURE 9-2:

HISTORIC SETTLEMENT PATTERNS, KING COVE, ALASKA 1925

- Commercial
- Public
- Residential

1 - Carpenter's Shop
2 - Cannery Complex
3 - Cannery Housing

Relative building size and position are based on one resident's sketches.

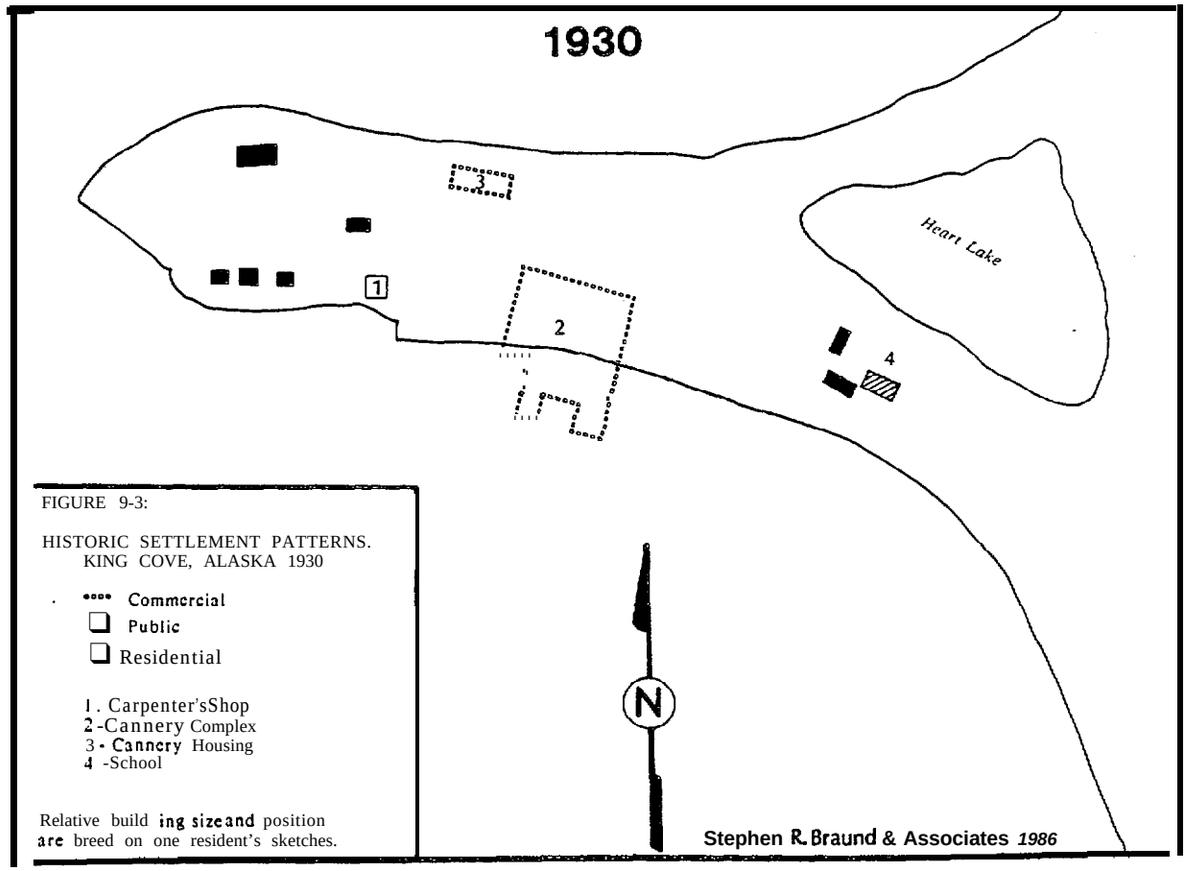


FIGURE 9-3:

HISTORIC SETTLEMENT PATTERNS.
KING COVE, ALASKA 1930

- Commercial
- Public
- Residential

1. Carpenter'sShop
2-Cannery Complex
3 - Cannery Housing
4 -School

Relative building size and position are breed on one resident's sketches.

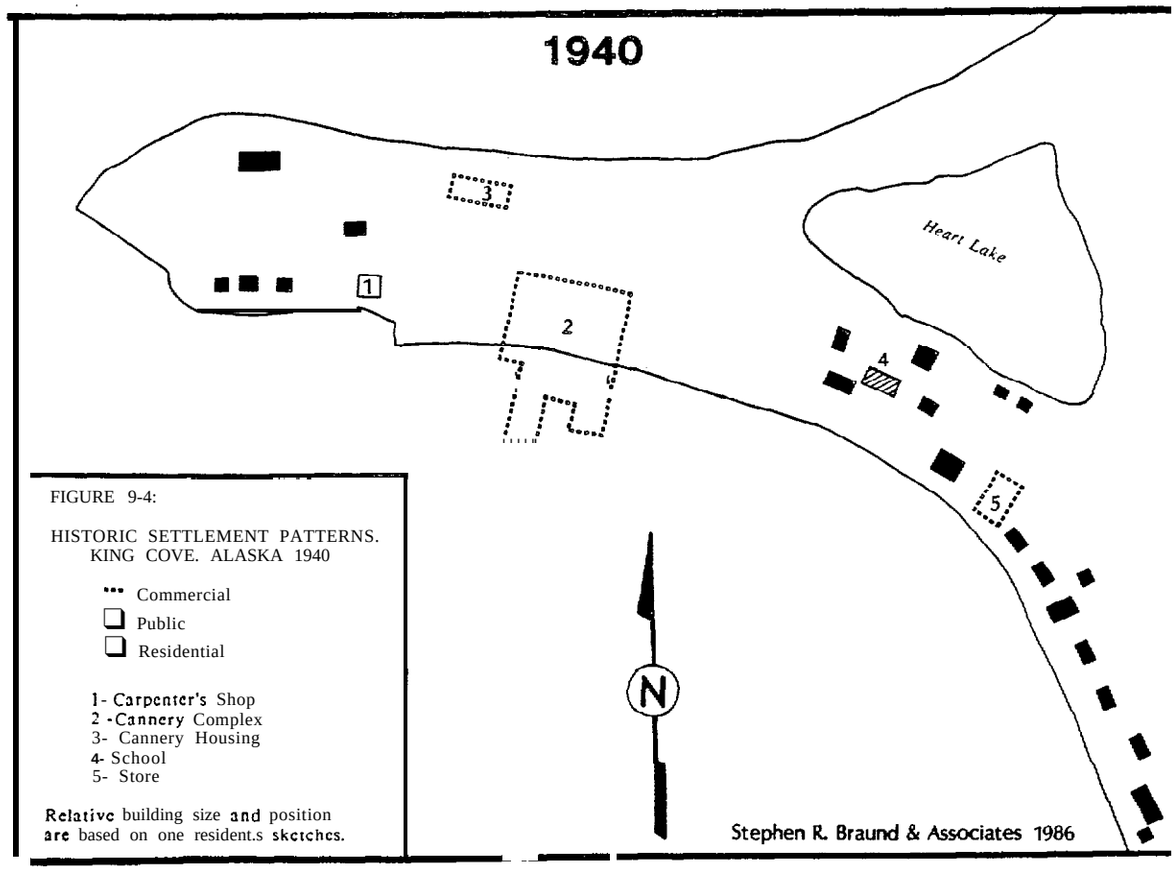


FIGURE 9-4:

HISTORIC SETTLEMENT PATTERNS.
KING COVE. ALASKA 1940

- Commercial
- Public
- Residential

1- Carpenter's Shop
2 -Cannery Complex
3- Cannery Housing
4- School
5- Store

Relative building size and position are based on one resident.s sketches.

to early inhabitants of having a view of the ocean, the cannery, the dock, boat traffic, and the weather. Since the early waterfront settlement, newer homes have filled in behind the older ones; some of the newest homes are situated high on the flanks of the mountains with commanding views of the cove. Additionally, settlement has spread to areas distant from the center of town as a result of population pressures, and such expansion continues (Figure 3-2). Today, families occupy not only the old homes built by their grandparents but also larger, more modern houses, mobile homes, apartments, and prefabricated HUD houses. These changes in housing style and placement are discussed more completely below with reference to the factors that contribute to their current configuration.

Household Composition

As mentioned earlier, ethnohistorical documentation of early King Cove does not exist. Conversations with elders in King Cove, combined with the findings of Jones (1976) and E.R. Combs, Inc. (1982), indicate that traditionally, the predominant residence pattern was the extended family household. Although residence patterns vary today from extended family households to unmarried couples living together, the past several years (i.e., since 1969 [Jones 1976] - and earlier) have seen the predominance of the extended family household replaced by homes comprised primarily of the nuclear family. This trend toward neolocality is both the preference and the norm. Jones (1976:76) observed in 1969,

> In contrast to the traditional pattern of living in communal dwellings, contemporary Aleuts prefer separate houses for the nuclear family. In New Harbor [i.e., King Cove], bridegrooms can usually meet this need by constructing or rehabilitating a house near relatives . . .. Thus. couples generally begin their marriages in their own house.

The study team confirmed that these 1969 observations continued to be the norm in 1985. Whatever the reasons for this trend in 1969, the current proliferation of single family dwellings can be linked directly to two factors that emerged in the late 1970s: the increased availability of land and housing in the Rams Creek area, and increased fishing wealth in the community. The Aleutian Housing Authority in 1979 built 23 new homes at Rams Creek. In May of 1981, the King Cove Corporation transferred one acre lots in the same area to

its shareholders. During the field study, about three men were building their own homes on their one acre lots at the Rams, and two others indicated they would begin constructing their homes there within a year. All but one of these men were in their 20s and married. The highly profitable fishing seasons in the late 1970s provided young crew members, some in their teens, with unusually high incomes, allowing them the financial independence to establish their own households upon marriage. Thus, young families have been able to build or buy their own homes possibly earlier in life than may have been feasible in past years.

Based on 1984 city census data, the average household in King Cove consisted of 4.04 persons per household. Approximately 24 (19 percent) of the 129 households documented in the 1984 City of King Cove census were comprised of extended families (as opposed to nuclear family households). However, nine (38 percent) of these households contained extended families only during the salmon fishing season. Thus, the number of permanent extended family homes amounted to approximately 15, or 12 percent of all households listed in the 1984 City census. Three of the year-round extended family households became even larger in the summer with the addition of transient relatives. Another two permanent extended family households existed just outside the city limits and were not included in the census. Thus, a distinct trend in household composition exists in connection with the commercial harvest, namely that the extended family household is much more common in the summer than throughout the year. Married offspring and their families, as well as other relatives who make their homes elsewhere, return to King Cove to fish with relatives or to work in the cannery. In one household, a sister from Anchorage came to King Cove to care for her brother's children while he fished or worked other jobs. Some of these relatives came from Sand Point, Anchorage, Washington state, and even as far away as the Midwestern United States. (This trend will be discussed again below with regard to transient residence patterns at the community level.)

Where year-round extended family households existed in 1984-85, the usual compositions were: 1) a single mother and her children living with her parents and siblings; 2) married offspring and their children living with one spouse's parents; 3) a single person living with relatives because his or her family is deceased or living elsewhere; and 4) two or three single relatives sharing a home. The first situation existed in four households, to the knowledge of the

study team. Three households were identified in which the second type of arrangement occurred, married offspring and their children living with one spouse's parents; in every case, they resided with the husband's parents. About four families had lone relatives living with them, three of which were families boarding their school-age relatives from Belkofski.

The planned construction of 30 new homes beyond the Rams Creek subdivision in 1985 may further diminish the remaining extended family households. Fifty-four families submitted applications to the Aleutian Housing Authority for the 30 planned houses. (Houses are awarded on the basis of need; if all low income applicants are awarded houses, higher income families may qualify for remaining houses and pay proportionally higher monthly payments.) Of those 54 applicants, eight stated that they and their families were living with other relatives and desired housing of their own. However, since the time of application (1981-1984), most of these families have obtained their own housing; only two continued to live in extended family households.

Households are rarely composed of non-related individuals, with the exception of unmarried couples living together. Whereas in Anchorage, for example, the incidence of unrelated roommates sharing a house or apartment is very common, this living arrangement simply does not occur in King Cove. Single adults typically continue to live in their parents' home until they are married. Cohabitation by unmarried couples has become gradually more common in King Cove although only a very small percentage of the population are in such arrangements; only seven couples were identified as engaging in this residence pattern, or less than three percent of the population. Most of them were in their 20s and 30s.

As mentioned above, young couples who do not have their own home to move into immediately after marriage typically live with either set of parents. However, field researchers observed that residence with the husband's parents occurred more often than with the wife's parents. Residents confirmed that living with the husband's parents is slightly more typical, although they noted the choice of residence is more a function of space availability than of a patrilocal tradition.

The population of elderly residents in King Cove numbered about ten. Only two or three of those identified lived alone. One elderly couple lived by themselves and entertained a steady stream of visiting children and grandchildren. Two households consisted of elderly siblings. With one exception, most of the elders in King Cove appeared to be closely involved in their families' lives and vice versa. Due to the unpredictability of traveling conditions from King Cove, older residents with health problems are likely to move to Anchorage to be near medical care or to enter a residential care facility.

In summary, households in King Cove reflect a strong trend over the past two decades (possibly longer) toward nuclear family households. Reportedly more common in the past, year-round extended family households in 1984-85 represented approximately 12 percent of all households in King Cove. This figure increased by 60 percent in the summer of 1984, indicating a strong pattern of household composition related to the commercial harvest season. The construction of new homes in the Rams Creek subdivision, the King Cove Corporation's distribution of acre lots to shareholders, and a strong local economy are conditions that have enabled the majority of residents to live in the preferred nuclear family household. Thus, household composition in King Cove is determined almost exclusively by kinship. The only homes containing unrelated residents in 1984 were those of unmarried couples, a rare but increasingly common type of household.

Intracommunity Residence Patterns

Examination of the commonalities between neighboring homeowners in King Cove reveals a pattern of settlement that is highly reflective of family ties. The study team identified about 15 clusters of adjacent or closely neighboring households of families related either as siblings or as parents and offspring. These clusters ranged from as few as two adjacent households to as many as five. One concentration of five-households included seven families and was located outside the city limits relatively distant from other neighbors. Another family gradually formed three clusters near one another; two sons and their families lived adjacent to the parents' home, while the other two sons lived a short distance away (in slightly different directions). Each of the latter two sons' offspring settled very near their fathers, forming a second

generation of household clusters within the same large family. Two cases occurred in which two brothers who married two sisters lived adjacent to one another. A third pair of brothers married to sisters resided within the Rams, but several houses apart. Generally, these household clusters tend to be organized around the male relatives of a family: brothers, fathers, and sons.

While many of the residential groupings in the center of town originated with the early settlement of King Cove, several newer homes were juxtaposed in this manner as well, reflecting the persistence of a traditional residence pattern that is a function of strong kinship ties. Proximity of homes facilitates the considerable sharing of resources, child care, and visiting that typify kin relationships throughout the town of King Cove.

More generally, the study team observed concentrations of families within the same part of town, though not as tightly clustered as the groupings described above. As an outgrowth of historical circumstances, the descendants of the original families who settled King Cove tend to be concentrated around the center of town, while the families who came to King Cove later from Belkofski are more heavily concentrated in the Rams Creek subdivision. Conversely, proportionately few members of the original King Cove families live in the Rams, and relatively few of the later-arriving Belkofski families live in the main part of town. Nearly all of the Belkofski families had moved to King Cove before the Rams houses were constructed in 1979. Residents explained that a housing shortage caused many later-arriving families to live with their relatives in town when they first arrived, resulting in some very crowded households. Since one qualified for the new homes based partly on one's need for improved housing, many Belkofski families acquired new homes in the Rams, easing the crowdedness of households in town. Thus evolved the general pattern whereby most members of the original King Cove families are concentrated in town, and a large concentration of Belkofski families live at the Rams subdivision. The strong influence of the family in community-wide residence patterns is illustrated in this pattern as well as in the more discrete family household clusters.

Two additional residential groupings are those of cannery personnel and teachers. Both the cannery and the school make provisions for staff housing. The cannery has apartments and individual homes for its full-time staff and

dormitories for the seasonal workers, all on cannery land adjacent to the processing plant. Although some of the individual homes border on city land, all of the cannery housing is clearly separate from the main part of town. This separation is consistent with other factors that tend to isolate cannery personnel slightly from townspeople, such as race, localness versus non-localness, and political undercurrents. The relationship between cannery staff and townspeople is discussed under Ethnic Relations, below.

Teacher housing is a somewhat complex arrangement between teachers, the school, and the city. The houses are owned by the city; during the school year, the teachers pay rent to reside in them and the school maintains them. During the summer, the teachers move out, the city takes over the houses to use for seasonal labor, and the city maintains the houses. One week before school begins in the fall, the school district resumes responsibility for the houses and the teachers move back into them. After a teacher housing complex burned down, the school worked out an agreement with some teachers whereby the teachers would purchase mobile homes and the city would provide the land to place them on. Most of these mobile homes and teacher housing were located on a tract of land in the center of town. Homes belonging to townspeople (i.e., non-school related) were situated on this same tract of land. While teacher housing was not separate from town the way cannery housing was, it was concentrated within the center of town.

The 1985 construction of 30 new homes at the proposed Deer Island subdivision, beyond the Rams Creek subdivision, will alter the present spatial organization of King Cove residences considerably. However, the Aleutian Housing Authority had not yet determined who of the 54 applicants would receive the new homes. Among the applicants were 14 families living in Belkofski, Cold Bay, False Pass, Port Lyons, Anchorage, other towns in Alaska, and other states. Three were from Belkofski, although only one applicant remained there in 1985. Eight of these 14 families contained at least one member who was originally from King Cove and wanted to return there but needed a place to live. Five of the 14 families had relatives in King Cove and fished out of King Cove in the summers (including the three Belkofski families). The remaining applicant was a seasonal cannery worker who wanted to reside in King Cove. If all of these families were to obtain homes in the new subdivision, this would constitute a significant in-migration of new residents. However, none of them would be

strangers to King Cove and many would be former residents from long-time King Cove families.

Applicants presently living in King Cove include five single mothers and their children. Four of them were living with their parents when they applied for the new housing; however, during the field study, three were living in separate households. As mentioned earlier under Household Composition, eight of the 54 applicants were families in extended households at the time of application. The majority of King Cove applicants cited substandard housing as their reason for desiring a home at Deer Island subdivision. The average age of the head of household applying for a new home was 35. If all 14 applicants from out of town were to obtain new houses, nearly half of the new subdivision would be new residents. However, that all 14 non-King Cove applicants would. receive homes is an unlikely prospect. In general, it appears that the composition of the new subdivision is likely to consist of a mix of young and older families, current King Cove residents as well as former residents moving back to King Cove, and possibly some single mothers in addition to a majority of standard nuclear families. Unlike the Rams Creek Subdivision, it appears unlikely that the new subdivision will constitute a concentration of any one predominant family type.

Intercommunity Residence Patterns

King Cove residents have lived and do live elsewhere for several reasons, nearly all of them related to the commercial fisheries. Over time, a few patterns of King Cove residents moving out of King Cove, either permanently or temporarily, have emerged.

The first such pattern observed by the study team was that in past periods of poor commercial fishing, a number of King Cove residents moved to Cold Bay, Anchorage, or other locales to seek alternative employment. (Although this out migration cannot be quantified, the number of individuals who left was significant enough that residents remembered and referred to it as they would any historical phenomenon.) With few non-fishing jobs to offer, King Cove's economy has not been able to support its population during lean fishing years, forcing residents to relocate. Some residents returned to King Cove when the

fisheries improved; other former residents are still returning after prolonged absences. However, for some people the move was permanent. Most lineages have members living in other towns (mainly Anchorage) whose relocation can be traced to past periods of poor fishing.

This pattern of relocation during poor fishing years is well-established. Retired King Cove fishermen described the same type of transience as being commonplace in the 1930s and 1940s. One man's father moved to Washington state and became a dairy farmer when the cod fisheries declined; the 'man spent his childhood years in Washington and worked on a farm when he was in his late teens. In 1936, when his brothers in King Cove told him they were making as much in one season as he was making in one year, he returned to King Cove to fish with them. This story is just one of several describing the same pattern arising from the impact of fluctuating commercial fisheries on the local economy and on King Cove residents.

Relocation from King Cove has resulted from circumstances other than waning fisheries as well. For example, World War II and the Vietnam war took several King Cove men out of town for a few years each. Also, King Cove did not have a high school prior to 1973; consequently, all high school aged youth left King Cove during the school year, attending schools for Natives in Sitka (Mt. Edgecumbe), Oregon (Chemawa), or public schools in Anchorage, Kodiak, and other Alaska towns.

A second intercommunity residence pattern observed by the study team was seasonal residence in connection with the commercial fisheries. The natural resource harvest has motivated seasonal residence patterns since pre-contact times in Aleut history. According to Laughlin (1980: 53),

> Large villages shrank in the summer and small villages swelled in size. In order to make the best possible use of the various salmon streams and to collect special foods, birds, and roots that are more common in some localities, the people usually made a summer excursion, breaking into smaller family units and reoccupying unused houses or setting up tents in a variety of summer villages. This summer dispersal was not only economically important, it also provided a release from cabin fever . . . .

In addition to the 12 families discussed above (Household Composition) who lived with their King Cove relatives while in town for the 1984 commercial salmon fisheries, another eight to ten families resided in King Cove as independent households just during the commercial fishing seasons. Most of them lived in Anchorage or the Seattle area when not in King Cove. All of these families were related to permanent residents of King Cove, and most of them lived year-round in King Cove during an earlier time in their lives.

Based on residents' accounts of their absences from King Cove, it appears that this pattern of seasonal residence may be an outgrowth of the residence pattern discussed earlier wherein residents left the community indefinitely during the worst fishing years (1960s to mid-1970s). For most of these individuals, their return to King Cove was gradual. After being away for a few years, the fisheries began to improve and these former residents obtained crew positions on King Cove boats with relatives or friends. They returned as crew for a few summers before finally moving back to King Cove permanently, when the fisheries were able to support them year-round. Some of the current seasonal residents left King Cove under these conditions and never returned on a year-round basis.

Recent lucrative fishing years have generated another type of seasonal resident. Although the pattern is the same - to live in King Cove only during commercial fishing seasons - the reason is slightly different from that causing past seasonal residence. Namely, the fisheries have been better able to support them throughout the year; moreover, they earn their entire income in the summer, whereas in prior years, when king crab was a strong fishery, they fished most or all months of the year. While they may not need to relocate for employment, they prefer a change of residence rather than remaining in King Cove during the off-seasons. Thus, whereas seasonal residence was originally a function of the need for off-season employment to supplement one's commercial fishing income, the recent good fishing years have resulted in a small group of seasonal residents who relocate in the off-season out of preference rather than need.

Though not specifically a pattern of residence, a strong trend of autumn outmigration exists among King Cove residents. In September, following closure of the commercial and subsistence salmon seasons, and depending on the success

of commercial fishing, many King Cove families take vacations for two weeks to three months. Combined with the departure of the abovementioned seasonal residents and cannery laborers, the town is much quieter during this time. School personnel reported that the school experienced high absenteeism during September 1984. Parents stated their children needed the break even though it interfered with their formal education because school-aged children who worked as crew had no other opportunity to relax: commercial fishing began as soon as the school year ended, and school began as soon as commercial fishing ended. Most families arranged for their children to take school work with them on their travels.

Residents typically have gone to Anchorage, the Seattle area, or Hawaii for their fall vacations; Disneyland, Reno, and Las Vegas have been other popular destinations. These outings have allowed residents to purchase cars (that they bring back on the ferry), the year's supply of staple foods, and other supplies, to visit a non-local spouse's family or other relatives, and to relax after an intense season of working both for the yearly cash income and for the year's supply of some subsistence foods.

Although not as widespread a phenomenon as the autumn exodus, a similar pattern occurred following the 1985 Tanner crab season, which was more successful than expected. One individual estimated that over one-third of the population had left King Cove for vacations after the Tanner season. He explained that having one's tax returns prepared was a major motivation for traveling to Anchorage at that time. Based on descriptions of several post-Tanner vacations, the study team concluded that these trips were generally less extensive than the autumn vacations both in length of time and distance traveled.

The final residence pattern to be discussed in this section is that of patrilocality in exogamous marriages. Lantis (1970) determined in her research that patrilocality was the norm among Aleuts in the early 1800s. However, the couple assumed the husband's residence only after a brief period of matrilocal residence when the husband hunted for his wife's family, proving to them his ability as a provider. A substitute for the matrilocal period was an endowment of gifts to her relatives. Today the patrilocal trend remains but without the preliminary period of matrilocality or gift giving to the bride's family.

As with the preceding three intracommunity residence patterns, this pattern, too, is closely related to economic conditions. As a rule, when a local woman marries a man from another town, the woman moves to her husband's hometown; conversely, a King Cove man and his non-local wife will reside in King Cove. Consequently, more non-local women than non-local men reside in King Cove as a result of exogamous marriages. In examining known marriages occurring over approximately the last 50 years, the study team identified 30 marriages between King Cove women and non-King Cove men. Only 10 of those couples (33 percent) resided in King Cove. In contrast, 32 King Cove men. were identified as having married non-local women, and 27 of those 32 couples (84 percent) resided in King Cove.

King Cove residents were aware of this pattern; many residents referred to it as a given in discussing outmigration and marriage. One young woman stated she never wanted to move from King Cove, but said she would have to move if she married a man from another town. The reason for this trend is probably related to the necessity of living where the family can earn a living, and the husband is typically the breadwinner. Frequently his livelihood is linked to that of his father, as discussed under Kinship and Commercial Fisheries. The exceptions to this patrilocal tendency were predominantly situations in which the King Cove woman married a fisherman from another town whom she met when he fished out of King Cove; since his livelihood was already based in King Cove, the couple resided there. Of the King Cove men married to non-local women and residing outside of King Cove, the pattern was not necessarily to live in the wife's hometown. Rather, four of the five couples identified resided in Anchorage[1] and the fifth couple resided in the wife's hometown, a fishing village within Area M.

In conclusion, King Cove residents are highly mobile. Patterns of in-migration and outmigration are well-established in King Cove and clearly defined by the commercial fisheries. Past lean commercial fishing years forced residents to move from King Cove temporarily to seek other employment, Currently, some families are seasonal residents, residing in King Cove only during the

1. Of those four couples, two of the wives are from native villages in southcentral Alaska; hometowns of the other two wives are unknown.

commercial fisheries. While in the past they may have left King Cove to supplement their fishing incomes, the fisheries are now lucrative enough for some fishermen to relocate seasonally out of choice rather than need. A major cause for women to leave King Cove is marriage to a non-local man, due to a strong tradition of patrilocality. This patrilocal tradition appears to be related to the source of the family's income, which is typically the husband's work.

KINSHIP

To understand social relations in King Cove, it is necessary to analyze the role of kinship in the social organization of the community. Kinship's foremost position in the structure and functioning of the town is shared only with commercial fishing; one or the other (or both) of these two fundamental components of the community pervade nearly every facet of community life.

In the 16 years since Jones' (1976) King Cove field study, conducted in 1969, the family as an institution in King Cove has undergone continuous change from influences that both diminished (e.g., increased nuclear family residences) and enhanced it (e.g., former residents returning to King Cove with improved fishing in the late 1970s). In 1985, the continuing importance of the extended family was evident in the organization of the local commercial fisheries and subsistence activities, as well as in the constant visiting, phone and radio communication, childcare, and family outings that took place between and within households. Residents hold a common value that places the family in an important and influential position in both individual lives and the communal life of the town. As discussed earlier in Study Area, the large size of several original King Cove families combined with generally low levels of outmigration in the local population has resulted in a high degree of interrelatedness among present-day King Cove residents. This interrelatedness contributes to a strong sense of camaraderie, a very low degree of factionalism, and the continued pre-eminence of the family in King Cove social relations.

The following discussion of kinship elaborates on the historical trends in the family structure and the specific configuration of the family in present-day King Cove. Included in the discussion are descriptive analyses of various aspects of kinship and family life with particular emphasis on those manifesting linkages to the natural resource harvest, such as family roles, marriage patterns, and kinship in the commercial fisheries.

Kin Structure

Based on reports from early Russian explorers, missionaries, and settlers, Jochelson (1968) and Lantis (1970) both concluded that traditional pre-contact Aleut society was organized matrilineally: descent was reckoned through the mother, with the mother's brother occupying a superordinate role to the father. The maternal uncle was considered a more obvious and direct relationship to the woman's children than was the father. Hence, the "uncle" possessed greater authority over his sister's children than did their father. The maternal uncle also had the responsibility for training his nephews to be skilled hunters and seamen.

In contemporary King Cove, kinship is determined patrilineally, meaning that a woman symbolically joins her husband's family at marriage by taking the husband's name. Their offspring also assume the father's surname. Thus, the father's family name is passed on through the sons while a daughter assumes her husband's surname. This system of descent is fundamentally the same as that used throughout most of the United States. Apparently, contact and intermarriage first with the Russians (beginning in the mid-1 700s), and later with United States citizens (from the 1860s to the present) and Europeans (1860s to 1930s), gradually effected a shift in Aleut kinship from a matrilinear to a patrilinear system. The emphasis on the paternal side of the family is largely nominal, however, as both sides of' the family are recognized more or less equally in general practice. Children and grandchildren regularly interact with both sets of parents with no apparent differentiation of their roles; cousins, aunts, and uncles on both sides of the family are regarded equally. Thus, there appears to be no favoritism for one side of the family more than the other in everyday behavior, with the exception of the descent system described above and a tendency toward patrilocality (discussed in Residence Patterns).

Although it is common for uncles and nephews to have a close relationship, particularly in the context of commercial fishing, this relationship did not appear to be institutionalized as in pre-contact Aleut society. Where it was observed in the field study, the relationship was not predominantly avuncular (i.e., a maternal uncle/nephew relationship). In sum, few vestiges of the traditional Aleut matrilinear kin structure appear to persist in contemporary King Cove.

Family Roles

Having established that households in King Cove are the main unit for economic cooperation among closely related kin, we now examine the way the responsibilities of this economic unit are divided among contributing members of the household. In the typical King Cove nuclear family household, parents shoulder the majority of the responsibilities, which are mainly to generate income and/or the resources necessary to take care of a family's basic needs (i.e., food, clothing, and shelter), and to actually meet the basic needs on a daily basis (e.g., care for dependent members of the family, prepare meals, keep the house in order). Despite fads and trends, young people gradually develop patterns of behavior that reflect the activities and values to which they are exposed. In addition to examining the delineation of roles, this section also addresses the process of socializing young members of the family to their adult roles. These topics are considered with reference to past patterns described by previous researchers and to the way current patterns are linked to the harvest of natural resources.

Division of Labor

Male and female roles in King Cove are highly stratified along traditional lines of economic production. Ethnohistorical evidence suggests that this stratification has been a trait of Aleut society since before contact with the Russians. Lantis (1970) cited von Langsdorff, who traveled through the Aleutians region in the first decade of the 1800s and described in 1814 the division of labor among Aleuts. Aleut men were the hunters and crafted the tools they needed for hunting, whereas the women performed all sewing, weaving, food preparation for meals and storage, and child care.

Jones (1976) noted that in 1969, King Cove men were almost exclusively commercial fishermen, thus providing the primary source of family income. Women were primarily responsible for child rearing and housekeeping. At that time, many women also worked seasonally in the cannery, providing a secondary source of income.

In 1985, the delineation between male and female roles observed by Jones (I 976) in her 1969 fieldwork persisted. The study team observed one change, however. Whereas women traditionally prepared most subsistence products for storage, men performed most processing activities in 1985, leaving waterfowl, ptarmigan, and berries to be processed by women. Generally, women's responsibilities revolved around the home and the family, and men's responsibilities were oriented toward commercial fishing and subsistence pursuits. Perhaps as an outgrowth of this division of labor, men and women had somewhat separate domains related to their primary responsibilities. During the non-fishing season, the study team observed that many fishermen spent up to several hours a day at the boat harbor checking on their boats and visiting in the harbormaster's office. They. also attended the coffee breaks at the cannery mess hall both when the cannery was in operation and during the off-season. The cannery machine shop was another place where men regularly visited over coffee.

King Cove women, on the other hand, were never observed at the harbormaster's office; nor did they attend the cannery coffee breaks unless they were working in the cannery at the time. Whereas the men had a few public places they regularly gathered and visited in their daily routines, King Cove women did not have an equivalent public or "semi-public gathering place. They conducted most of their daily activities within the domestic realm, with the exception of errands such as trips to the post office or the store. Some overlap between men's and women's activities and domains was observed, however. Both men and women, individually and as a couple, spent up to several hours a day visiting other households, usually their kin. Additionally, when not visiting at another home or at one of the male gathering places, men were usually at home and, in several families, they shared the responsibility of watching over children or grandchildren. While the men moved freely between the domestic (i.e., "female") and "male" domains, women rarely entered the "male" domains. Similarly, in the realm of recreation, one young woman expressed frustration about men having more freedom of activity. She said,

> It bothers me that men get to go out and do whatever they want but women always stay at home. If a woman goes out [to the bar] without her husband, everybody talks about it. It's a scandal. But men go out without their wives and that's okay.

Socialization to Roles

From an early age, girls are socialized toward the goal of becoming a fisherman's wife and a mother sometime after high school graduation. "Girls are their mothers' helpers," said one resident. They assist their mothers in caring for the other children in the family, cooking, doing housework, preparing subsistence foods that the men bring home, as well as other domestic chores. Jones (1976) noted that in 1969, many women worked in the cannery and left their young daughters to care for younger siblings and perform household chores. Since fewer local women work in the cannery in recent years, a daughter's domestic training rarely involves that degree of responsibility since the mother is available to oversee household responsibilities. Rather, she is a helper to her mother and is preparing herself for the responsibilities of running her own home.

Because few jobs are available to women in King Cove, women's involvement in the local workplace has been limited, occurring primarily in the cannery and the few clerical jobs in town. As one female resident said, "Women here are not very career oriented." The city and the King Cove Corporation offices had a few secretarial/administrative positions; the post office, bars, cannery, and stores also had positions that a woman might fill. A few young women have gone to Anchorage and Fairbanks for secretarial or bookkeeper training, and one school official noted that generally more women than men expressed interest in continuing their education. However, jobs in King Cove were few and turned over infrequently. Consequently, most women were more oriented toward raising a family than pursuing a career.

According to elderly residents' accounts, cannery work was sought by both local men and women in the first part of this century. At least since the 1960s, however, when Jones (1976) described role definition in King Cove, cannery work has been considered primarily women's work among local residents. At that time, many local women sought and obtained jobs in the cannery while their

husbands fished. Jones noted that the contingent of local women constituted a significant" block of workers who considered their diligence at the cannery essential to the cannery's capacity for purchasing their husbands' fish. If the cannery could not process the fish as quickly as the men delivered it, the cannery would stop purchasing fish. Fishermen's wives who worked there understood that their productivity benefited the family income not only in the wife's wages but also in her husband's ability to sell fish to the cannery (Jones 1976).

Since those observations were made (1969), the fisheries have strengthened and family incomes have increased in general. Consequently, in 1985, cannery work was no longer considered desirable to most King Cove women because, they indicated, the long, hard hours were not worth the effort and disruption to their lives, given that most families did not need the additional income. Furthermore, a large portion of many women's wages would go to a babysitter, explained one resident. Most women reflected upon cannery work with distaste and several women reported that they would not work there again unless they absolutely had to out of financial necessity. Cannery officials and King Cove residents said that a local crew of 10 to 12 local residents, mostly women, worked at the cannery consistently. Most of them were single and one cannery official said, "The locals who work here are the ones who need it." During the 1985 Tanner season, several local men and women worked at the cannery. Most of these individuals were known to be from lower income families.

In addition to this group of stable local employees, several high school girls supplemented the local crew during the summer. Possibly they were not needed at home to the extent they were in years past when most mothers worked in the cannery. In the summer of 1985, about 16 local residents worked in the cannery, about half of whom were women. Some young women also crewed for relatives, but female crew members are not common. About two girls crewed for their fathers, and one each crewed for a husband, brother, and uncle in the 1984 salmon fishery.

The division of labor in King Cove clearly places women in the roles of housekeeping, child rearing, and cannery work, the latter being sought primarily by high school girls and single women. In terms of leisure

activities, specifically female pursuits include women's basketball, ceramics (offered by the school's community program), and needlecrafts, especially crocheting. The King Cove Bible Chapel is attended mostly by women; the minister observed that townspeople regard participation in the church to be a female activity. Bake sales are a popular activity in the community, and almost any group involved in fundraising holds a bake sale upon occasion. Baking for these sales is performed by women, and usually the sales are organized and run by women. The Women's Club and the Russian Orthodox Sisterhood, discussed below under Social Health, both involve a number of local women in fundraising activities.

From an early age, boys are socialized toward becoming fishermen and subsistence harvesters. Because the marine orientation underlies both subsistence and commercial activities, many of the skills boys must learn are common to both activities. For instance, the boats (and much of the other harvest equipment young boys must learn to use) is shared between these two activities. A sound knowledge of local weather patterns and practical experience on the water require first hand experience obtained through life long participation in both of these activities.

Subsistence hunting and fishing are year-round activities performed primarily by men in the company of male friends and relatives. Hence, planning an outing, borrowing equipment, and the actual harvest are common topics of conversation to which young boys are continually exposed. When old enough (i.e., age 10 or 11), a boy will accompany his father on subsistence outings, occasionally missing school to do so. The value placed by the community on the social, traditional, and productive aspects of the subsistence harvest encourage a young man to acquire the skills and participate in the harvest.

Like subsistence, commercial fishing dominates many facets of this community in a largely positive manner. Much of the conversation and activity that a young boy observes in older boys and men is related to their instrumental role in this most important and respected activity. Hence, boys quickly learn, with considerable support from their parents and the rest of the community, that becoming a fisherman is a worthy and desirable goal. When they are coordinated

enough, usually around age seven to ten, boys begin accompanying their fathers at sea. They earn crew shares as soon as they are able to contribute as a crew member.

The present generation of teenage boys was introduced to commercial fishing during an unusually lucrative period, and they have benefited from the fisheries with unprecedented incomes. The study team heard many rumors of 13 to 17 year olds earning $30,000 or more per summer in exceptional fishing years. Residents explained that these boys typically did not save but rather spent their incomes, usually on trucks and vacations. Several individuals reported that the last ferry in 1984 delivered 17 brand new pickup trucks to King Cove, all of them for boys 17 years old and younger, at least four of whom did not then have their driver's licenses.

Money holds a place of prominence in these teenagers' values structure. To them, money means power, mobility, and prestige. Residents observed three main effects of this phenomenon of wealthy teenaged boys. First, education held little importance for them since they did not anticipate ever needing to pursue any other kind of work but fishing. One school employee said, "I bet you cannot find one teen-aged boy in this community who would tell you that education is important." An elder in the community. paraphrased a concern expressed by many parents in saying,

> A lot of kids think, "Why should I care about getting an education when I can make this kind of money?" The elders say "DO it - this fishery is not a forever thing". But I see it happen anyway, kids denying the importance of an education.

Second, parents and school officials alike expressed concern that this access to wealth was giving young men a false sense of power and security. Said one teacher, "These kids don't know that money can't buy happiness. They think it can!" Finally, several residents commented that while drug use was not a major problem among this population of young men, a correlation between high incomes and increased drug use existed in the community. Residents first observed this pattern during the late 1970s when individual incomes from both salmon and king crab were quite high. Drug use reportedly had tapered off slightly since the king crab fishery closed, however.

Certainly not all young crew members manifest the values and behavior described above. However, this trend appeared to be significant enough to have motivated considerable concern among the adult population of King Cove. They understood the instability of the commercial fishing economy and recognized potentially serious problems in not saving for the future and not equipping oneself with the means to alternative employment. In the recent decade, most young men have shown more sense of responsibility in adulthood than in their teens, especially upon marriage. Much of the behavior among current teenagers that was disturbing their elders may disappear as these young men shed their adolescence and settle into adulthood.

In short, role definition in King Cove follows distinct lines that are largely consistent with traditional practices: men harvest the essential natural resources, while women take responsibility for childcare and other domestic affairs, Women carry out their activities primarily within the domestic realm, whereas men conduct their activities within both the domestic and the more public commercial fishing realm. Men have various gathering places where they socialize with one another as fishermen: at the harbormaster's office, the cannery mess hall, and the cannery machine shop. Whereas men move easily between the domestic and commercial fishing domains, women do not regularly enter the fishermen's domain, nor do they have institutionalized public gathering places equivalent to the harbormaster's office or the cannery coffee breaks for men. Young children begin taking on the responsibilities of their gender at an early age, girls acting as their mother's helpers at home and boys going to sea with their fathers. Young women have a few choices available to them, such as crewing with their fathers or husbands, working in the cannery, or in other wage employment in town. However, the dominant trend among women is to assume domestic responsibilities. Young men are uniformly oriented toward becoming fishermen and begin their careers in their teens. Currently among many teenage crew members, high incomes have generated an attitude that values commercial fishing and its income over education and planning for the future.

Marriage Patterns

An obvious outgrowth of the strong family emphasis in King Cove is the individually held goal among young people to marry and begin one's own family.

While the occurrence in recent years of divorce and cohabitation suggests a slight weakening of the institution of marriage, these trends are relatively minor. Marriage continues to dominate the lifestyle choices of young couples in King Cove.

According to Lantis (1970), Veniaminov observed that Aleut males in the early 1800s were not allowed to marry "until their beard had appeared because they say that to marry in youth will bring a person to forget his relatives, as he will exchange them for his wife and children" (Lantis 1970:206). Girls did not marry until they were proficient in their household skills. Later in the 1840s, a number of Russian documents referred to current rules of acceptable age of marriage among Aleuts. Generally, they allowed boys to marry around age 15 or 16, and girls could marry at age 13 or 14 (Lantis 1970).

In contemporary King Cove, the late high school years are the time when young couples begin to consider marriage possibilities with one another. Typically, high school couples marry within a few years of high school graduation. Very few high school graduates leave King Cove to pursue additional training; most boys intend to remain in King Cove and fish, and most girls expect to marry and raise a family rather than pursue a career, as discussed above. If one desires to stay in King Cove, as many people do, the obvious and preferred option is to marry, have a family, and fish for a living. The recent prosperous fishing years have prepared many young men financially for taking on the responsibilities of a family and a home, and have virtually eliminated the need for women to work in the cannery.

One problem with this process is that the increasing number of kin relationships within King Cove is reducing the pool of potential mates available to young people. Prior to the 1977 construction of a high school in King Cove, students went to Anchorage, Kodiak, and other cities to complete their secondary education. Students gained access to a large pool of potential mates and many marriages to non-King Cove residents resulted from that setting. The situation changed in 1976 when the Molly Hootch consent decree mandated equal access to education in rural areas of the state. As a consequence of the Molly Hootch decision, the King Cove school expanded its curriculum in 1977 to include grades nine through 12. Now that students stay

in King Cove for high school, their exposure is limited to the few people in town to whom they are not related. Participation in the high school and city basketball teams involves traveling to other towns in the region; one person stated that this activity was a substitute for traveling out of town for high school in the sense that it provided one of the few opportunities available to King Cove youth for broadening their marriage possibilities. Several individuals expressed concern that young people may have to leave King Cove to find mates, as one resident reported was the case in other towns in the region (e.g., Chignik).

Jones (1976) noted that King Cove women looked forward to marrying King Cove men; many local men were already successful fishermen and owned their own boats by the time they were engaged, in contrast to Unalaska men, who were not considered by Unalaska women to be very desirable mates due to unemployment and alcoholism problems. As E.R. Combs, Inc. (1982) noted, indicators of the desirability of local men for marriage were the high degree of endogamy and the fact that the number of non-Native males married to Native females was no higher than the number of Native males married to non-native females; that non-Native females would marry Native males was considered a positive reflection on the eligibility of Native King Cove men.

Analysis of the 1984 city census for the incidence of various types of marriages (e.g., between King Cove Natives and between King Cove Natives and non-Natives) - the method E.R. Combs, Inc. (1982) employed using an earlier census - shows a preponderance of marriages between King Cove Natives (33). In addition, there were 12 marriages between King Cove Native men and non-Native women and approximately five marriages between King Cove Native women and non-Native men. Thus, in comparing these data to the trends observed in the Combs study's examination of the 1981 city census, a high degree of endogamy continues to exist and marriages between non-Native men and Native women do not exceed those between Native men and non-Native women. In fact, the numbers indicate a higher incidence of marriage between Native men and non-Native women. These data are problematic, however, in that the high level of patrilocality in marriage causes many of the King Cove Native women who marry non-Native men to be excluded from the data base (i.e., the city census) because they have relocated to their husband's community.

To get a data base that includes King Cove women who have left King Cove, the study team obtained data on all marriages involving a King Cove resident recorded by the Cold Bay magistrate from 1974 through 1984. These data, summarized in Table 9-1, indicate that 38 marriages involving at least one Native born in King Cove occurred between 1974 and 1984 (inclusive). These data characterize the spouses by race and natal community. Of those 38 marriages, the most common pattern was for King Cove Natives to marry one another (18 occurrences).

The second most common marriage pattern was for King Cove Native women to marry non-Native, non-local men (nine occurrences from 1974 through 1984). Six King Cove Native men married non-Native, non-local women. Table 9-2 presents these data in a slightly different manner. Of all marriages involving Native King Cove women, 62 percent were to King Cove Native men and 3 1 percent were to non-local, non-Native men. In contrast, only 22 percent of all marriages involving King Cove Native men were to non-local, non-Native wornen. Thus, these data suggest that more local Native women married exogamously than did local Native men. However, the actual numbers are too small to represent a definitive trend. If these numbers do represent an actual trend, the higher frequency of King Cove women marrying exogamously should not be construed to imply that King Cove men are not such desirable mates to King Cove women as non-Native men. Rather, King Cove women may prefer to marry local men but be unable to due to the problem of interrelatedness. Furthermore, King Cove women probably have more opportunities to meet non-local, non-Native men (i.e., fishermen) than King Cove men's opportunities to meet non-local, non-Native women, a trend that appears to be reflected in these marriage statistics.

Additionally, one to seven marriages have occurred each year since 1974, averaging just over four marriages per year. The average age of men at marriage was 24, while the average wornan married at age 21.

Although few residents attended church (a pattern discussed in more detail on pages 10-2 to 10-4) during the field study, the non-denominational Bible Chapel was the only church in town and would remain so until the new Russian Orthodox Church opens. The minister of the chapel had performed seven marriages in his five years in King Cove. The magistrate's data for the corresponding five

TABLE 9-1: OCCURRENCE OF INTRA-AND INTERGROUP MARRIAGES AMONG KING COVE RESIDENTS BY NATAL COMMUNITY, RACE, AND GENDER 1974-1984

	MALES			
	KC Native	Non-KC Native	Non-KC Non-Native	TOTAL
FEMALES				
King Cove Native	18	2	9	29
Non-King Cove Native	3	NA	NA	3
Non-King Cove Non-Native	6	NA	NA	6
TOTALS	27	2	9	38

Note: No marriages were recorded that involved non-Natives born in King Cove.

NA: Not applicable.

Source: Stephen R. Braund & Associates (1985), based on personal communication with the Cold Bay magistrate.

TABLE 9-2: CHARACTERISTICS OF KING COVE NATIVES' SPOUSES IN MARRIAGES OCCURRING FROM 1974-1984

	King Cove Native Women		King Cove Native Men	
	Number	Percent	Number	Percent
Spouse				
King Cove Native	18	62%	18	67%
Non-King Cove Native	2	7%	3	11%
Non-King Cove Non-Native	9	31%	6	22%
TOTAL	29	100%	27	100%

Source: Stephen R. Braund & Associates (1985), based on personal communication with the Cold Bay magistrate.

five years indicates 23 marriages involving King Cove residents had taken place. Thus, weddings performed in the local church amounted to approximately one-third of all weddings during that time. Residents reported that a common alternative to the chapel was to marry in the bride's parents' home with the magistrate presiding.

Jones (1976) did not discuss divorce specifically, however she did comment on the high degree of mutual respect, cooperation, and harmony that characterized King Cove marriages. Residents noted in 1985 that the occurrence of divorce had increased in the 1980s compared to prior decades. Some divorce data were available from the Alaska Bureau of Vital Statistics for the years 1970 through 1983 (minus the years 1974-76, 1978, and 1980 which were not available). During this period, a total of 16 divorces occurred involving individuals from King Cove. As Table 9-3 indicates, divorce has increased over this time period, according to this partial data sample. In the years 1970-1973 and 1980, the average number of divorces per year was 1.25 (range 1-2). In contrast, data for the years 1979 and 1981-1983 indicate that an average of 2.5 divorces (range 2-3) occurred each year,

A few residents expressed the opinion that increased bar activity had a negative influence on marriages, and one couple noted that three or four divorces occurred very soon after the new bar opened. Although they realize the timing may have been entirely coincidental and ongoing problems in the marriages were undoubtedly the main cause, they felt there may have been a correlation between the bar opening and the subsequent rash of divorces. One individual attributed the increase in divorces to the influence of television, saying that as King Cove residents were exposed to the lifestyles portrayed on television, they began to accept some of the values that dominated television lives, such as the acceptability of divorce. Most people noted that divorce was a phenomenon restricted mainly to younger couples in King Cove. Based on the data in Table 9-3, the average age of women at divorce was 31 and the average man's age was 33. The yearly age averages do not indicate that divorce has occurred more often among younger couples. However, examination of the age ranges reveals that the low age range drops in later years, suggesting that divorce was occurring among progressively younger couples over time. Although its frequency appeared to be increasing, divorce nevertheless occurred relatively rarely in King Cove.

TABLE 9-3: CHARACTERISTICS OF DIVORCES INVOLVING KING COVE RESIDENTS 1970 TO 1983[1]

Year	Number of Divorces	Male Age: Average	Range	Female age: Average	Range
1970	1	27	27	30	30
1971	1	32	32	28	28
1972	2	30	28-31	29	27-30
1973	1	37	37	31	31
1977	1	34	34	27	27
1979	2	32	26-38	34	19-48
1981	2	40	27-53	37	23--51
1982	3	30	24-38	27	22-32
1983	3	35	23-43	34	24-42
TOTAL	16	33	23-53	31	19-51

1. Data were not available for the years 1974-76, 1978, 1980, and 1984.

Source: Stephen R. Braund & Associates (1985) based on unpublished data from the Alaska Department of Health and Social Services, Division of Planning.

In summary, marriage in King Cove remains strong. Nearly half of the marriages in the past 11 years have occurred between King Cove Natives. Relatively more local women than men have married exogamously, probably due to the high number of non-local fishermen who fish out of King Cove. As discussed in Residence Patterns, a strong tradition of patrilocality accompanies exogamous marriages in King Cove. Although statistics suggest a slight increase in divorces in recent years, divorce nevertheless remains an unusual phenomenon in King Cove.

Friendships

With regard to friendships in King Cove, E.R. Combs, Inc. (1982) noted that they tended to occur between members of the same sex and approximate age group. Many adult friendships were continuations of bonds established in the school years. Friendships in 1985 appeared to be consistent with this pattern observed by E.R. Combs, Inc. in 1982. However, the present study team observed that in general, kin ties characterized the majority of relationships between individuals from different households who regularly shared recreational activities. This finding was consistent with two other findings in King Cove. First, that a few large families comprised a majority of the population meant that an unusually high proportion of residents were kin to one another. Second, the high value accorded to the family in King Cove generated considerable sharing and interaction between relatives as well as strong emotional bonds.

The study team observed that sibling and cousin relationships were among the most active relationships between peers of different households. For example, the Women's Club was organized primarily by women from the same extended family, mostly sisters and daughters. Sisters were often observed together taking . their children sledding, for example, or on other outings. One peer group of men who spent considerable time in recreational activities together was made up almost entirely of cousins, uncles, and nephews. Two other groups of brothers and their wives conducted most of their recreational activities together. In general, kinship appears to be an instrumental determinant of friendships in King Cove. Consequently, distinguishing between friendships and kinship is very difficult as the two realms are highly interactive and overlapping.

Kinship and the Commercial Fisheries

The importance of kinship to King Cove residents is evident in the organization of the local commercial fisheries, which are determined largely by family ties. Historically, initial participation of many Aleuts in the early King Cove commercial fisheries was due partially to European fishermen sharing their skills with their Aleut relatives (Jones 1976). During the 1984-85 field study, the role of kinship in the commercial fisheries was most apparent in crew composition, gear sharing, and permit transfers.

As a result of continuous observation of the entire 1985 Tanner crab season, the study team successfully assembled complete crew composition data for local participation in this fishery. Because the salmon fishery is much larger and more complex, crew data for the 1984 and 1985 seasons were compiled but neither data set is complete. These data do, however, represent well over half the local crews participating in the salmon fisheries. The available data for both fisheries are discussed below in terms of current patterns, trends over time, and variations in crew structures by fishery arid gear type.

Kinship and the Tanner Crab Fishery

The 1985 King Cove Tanner crab fishery involved 15 skippers and 40 crew members (including some crew who were replaced during the season). Generally, these crews can be characterized as being local and related to their skippers.

Table 9-4 presents a distribution of skipper/crew relationships in the local 1985 commercial Tanner crab effort. Eight of the 15 Tanner crab crews consisted of a skipper and two crew members while the remaining seven were a skipper and three crew members. Thirteen of the 15 crews (87 percent) were comprised of individuals who were related to the skipper. Another entire crew of three were related to each other but not to the skipper, and four other individuals classified as unrelated to their skipper were related to other members of their crews. Overall, 23 out of 40 crew members (57 percent) were related to their skippers. Sons crewing for their fathers and brothers crewing for brothers were the most common kin ties in the local Tanner fishery; these relationships each occurred six times out of 40 crew members. The next most common kin relationship was cousins, occurring four times.

TABLE 9-4: DISTRIBUTION OF KIN RELATIONSHIPS IN THE 1985 KING COVE TANNER CRAB FISHERY

Relationship of Crew Member to Skipper	Number of Crew Members	% of Total Crew Members
Son	6	15%
Brother	6	15%
Cousin	4	10%
Distant in-laws	3	8%
Uncle . .	2	5%
Nephew	1	2%
Son-in-law	1	2%
Subtotal	23	57%
Non-kin	17	43%
TOTAL	40	100%

ADDITIONAL CREW CHARACTERISTICS:

Number of crews containing skipper's family members	13
Number of crews containing no kin	2
Total number of local crews	15
Number of crews with skipper and two crew	8
Number of crews with skipper and three crew	7
Total crews	15

Source: Stephen R. Braund and Associates, (1985).

Several factors influence the composition of Tanner crews. First, because Tanner crabbing is a winter activity, the availability of crew is limited. School-aged sons who crew for their fathers during the summer salmon fisheries are in school in the winter arid thus unavailable for the Tanner season. Hence, whereas the most common kin relationship in salmon crews was father-son, there were equally as many brother relationships as father-son in the 1985 Tanner fishery. Apparently, without sons to crew for them, skippers hired their brothers who lacked crab gear or whose summer skippers did not have access to crab gear.

Second, the smaller scale of the local effort in the Tanner fishery compared to the summer salmon season, combined with its mid-winter occurrence, result in almost entirely local crews. During the salmon season there are not enough local residents to fill the available crew positions. Consequently, several skippers hire students from Washington state (usually through an employment agency) or friends or relatives from out of town. On the other hand, many King Cove men whose primary occupation is salmon fishing are relatively idle in the winter. Hence, there is no reason for most crab skippers to look beyond King Cove for crew members. Approximately four of the total 1985 Tanner crew members were relatives from out of town who crewed for King Cove skippers during salmon season as well; all of these men have lived in King Cove, and two of them maintain homes there. The remaining non-local crew members were not related to anyone in town, The current majority of local residents on Tanner crews contrasts with an E.R. Combs, Inc. (1982) observation that the King Cove crab crews at that time (1981 field study) consisted of mostly non-local crew members. The reason cited for the high number of non-local crew members on local boats was that the success of the salmon fisheries offered little incentive to participate in the rigorous winter Tanner fishery. At that time, the Tanner fishery typically lasted longer than the one month season in 1985.

The third factor affecting crew selection is that transporting and checking crab pots in winter requires a relatively large boat and not all salmon skippers are equipped to enter this fishery. Participation in the crab fishery requires a holding tank which keeps the crab alive the three to seven days between sales. Not required for salmon fishing, these live tanks are expensive and are only found on the large salmon seine boats. Consequently, crews

include some salmon skippers (typically gillnetters) who work as Tanner crew for their fathers, fathers-in-law, or friends who are seiners. This situation occurred eight times in the 1985 Tanner season; five of those eight salmon skippers were related to their Tanner skippers. One Tanner crew consisted of a father, his son and son-in-law. The son fished the father's drift permit and boat during the salmon season; the son-in-law had his own gillnetter and permit. Neither son nor the son-in-law had the capability (i.e., gear and possibly the experience) to enter the Tanner fishery, and the father preferred to keep his fishing endeavors a family operation.

In short, the local tanner crab fishery is a concentrated, mid-winter effort made up almost entirely of King Cove residents. Just over half of the 1985 crew members were related to their skippers, primarily as sons and brothers. While kinship plays an important role in the organization of this fishery, it is possible that localness is just as important in influencing crew organization, as it is a nearly universal characteristic of the 1985 Tanner crab crew members.

Kinship and the Salmon Fisheries

Kinship in the salmon fisheries is considerably more complex than the Tanner crab fishery. There are limited numbers of salmon permits and three different gear types (drift gillnet, set gillnet, and seine). Permit transfers add a complex dimension to the analysis. Furthermore, as mentioned above, the data set on 1984 and 1985 salmon crews is not complete due to the larger size of the local effort. Unlike the data for Tanner crews, however, the salmon crew data are diachronic. As discussed in Commercial Fishing and Processing 87 Alaska Peninsula salmon permits have been issued to King Cove residents by the CFEC since 1975. Through a total of 138 permit transfers, the current configuration of salmon permit distribution is quite different than in 1975. The data suggest that kinship has been a major dynamic in this evolution. The following discussion of the role of kinship in the salmon fisheries begins by briefly examining historic trends of permit transfers and crew composition as they relate to kinship, followed by an analysis of 1984 salmon crew data.

As discussed in the commercial fisheries section, introduction of statewide limited entry in 1973 granted or denied King Cove residents access to the local salmon fisheries based upon their history of participation in each of the three salmon fisheries. The major ramifications of limited entry are evident in King Cove today. Because of low salmon runs in the early and mid-1970s, the issuing of salmon permits initially had little significance to the community. When salmon fishing became more lucrative in the late 1970s, one effect of limited entry was to stratify the community into households with access to all, some, or none of the three salmon fisheries. Several men who had fished most of their lives but had sought other work during the poor fishing years prior to limited entry ultimately did not qualify for limited entry permits. These men either continued in other employment, purchased a permit, or sought crew positions. In addition to these men, their sons and the sons of permitted fishermen no longer had direct access to the salmon fisheries under limited entry.

Traditionally, King Cove fishermen took their sons salmon fishing as soon as they reached their early teens; as they acquired skill and responsibilities, they began to earn crewshares. Eventually, the sons would lease boats from the cannery and later (i.e., 1965 on) purchase their own boats and begin their own fishing operations. With the institution of limited entry, many aspiring fishermen have been restricted in their freedom to fish independently. Access to a permit became the key to access to the fisheries, and kinship has become a primary means of access to a permit and, hence, to the preferred livelihood in King Cove.

Sons of salmon permitholders - especially multiple permitholders - were and are in a more advantageous position of access to the fisheries than the sons of non-permitholders. A trend of father-son permit transfers is well established in King Cove. Table 9-5 displays the various types of intra-family permit transfers that the study team was able to identify. Of these 21 intra-family transfers, seven (33 percent) were cases of a father, who held both drift gillnet and seine permits, transferring the drift permit to his son. Additionally, one seiner has transferred his drift permit and boat to his son-in-law. Another seiner acquired a second seine permit and transferred it to his son. Two men inherited their fathers' drift permits while another two

situation, the father usually fishes his drift permit and places the son on a limit seiner from Washington. The son earns a share as permitholder on the vessel, and another share if he crews. Fishermen indicated that approximately five to seven local fishermen utilize their sons and their permits in this manner. This strategy enables a family with two permits but only one boat to earn money with both permits.

All of the fathers who engaged in the former strategy of transferring their drift permits to their sons were considered among the best fishermen in King Cove; they had been financially successful enough to be seiners without selling their drift permits to finance the purchase or upgrade of their vessels and gear. Thus, they were in a position to be able to transfer their drift permits (and gear, if they had it) to their sons. Men who engaged in the latter strategy of placing their sons as permitholders on outside seiners were gillnetters. In view of the desirability of being a seiner and the trend toward transferring one's drift permit and gear to one's son, it is possible that these gillnetters who engaged in the latter strategy were aspiring toward the former strategy of seining while their sons fished their drift permits.

Fishermen with more sons than permits were concerned about their sons' access to the salmon fisheries in King Cove. One man said, "I am still fighting limited entry for my other permits so that I might have something to pass down to my boys." Said another, "I have four sons and only two permits. They will have to get their own permits or work together using the permits we have." These statements reflect the importance of family ties as a young man's primary means of entry into the preferred livelihood in King Cove.

Access to the salmon fisheries by sons of non-permitholders can be more difficult than for sons of permitholders. Young men whose fathers do not provide them with permits have three options available to them: one, to work as a crew member; two, to raise enough money as a crew member to purchase a boat and/or a permit (a relatively rare occurrence given the current high cost of permits); and three, to pursue alternative work.

A boy who lacks relatives with permits and boats and who has never learned commercial fishing skills is liable to experience more difficulty gaining

access to the fisheries than one who inherits a drift permit and gear or who has relatives who would hire him as an inexperienced crew member. The current shortage of locally available salmon crew members may enhance one's chances of being hired by a non-relative as an untrained crew member. However, such an individual would be at a disadvantage if the competition for crew positions were to increase. It is noteworthy that some seine crews consist of five or even six crew members in addition to the skipper. These large crews almost always have one or two young boys who are just learning to fish. One large crew in 1985 included the skipper's young son and another boy whose father had no seine or drift permits. Similarly, a drift crew consisted of the skipper's 13 year old son and an unrelated young boy.

There appears to be an informal hierarchical approach to crew selection in King Cove that favors family members. Based on conversations with fishermen and an analysis of past and present crew structures, it appears that skippers tend to draw crew members first from their immediate family, if possible. This trend is very consistent, whereas the following levels of the hierarchy are more variable. After the immediate family, a skipper is likely to hire other relatives who do not have their own boats or are not working for their fathers or other kin. If they still need crew members, they hire local non-relatives such as the sons of non-permitholders. Finally, they may resort to hiring college students, usually from Washington state, whom they obtain through an employment service. Different criteria are important to different fishermen, causing the above-mentioned variability in this informal crew selection hierarchy. For example, one fisherman indicated he preferred to hire local crew members because they did not need to be fed and lodged when they were in town. Another man hired college students because "they don't smoke or drink on the boat and don't go on binges when they are in town." Another fisherman hired a friend from Anchorage because he had difficulty finding locals who would work the entire season. That most skippers do not pay non-local, non-kin crew as large a crew share as they pay locals and/or kin is another factor that influences crew selection and is discussed in more detail below.

Most of the salmon crew data collected by the study team pertain to seine crews. Seining requires a crew of three or four individuals (excluding the skipper) compared to one or two for drifting. Consequently, seine crews

constitute a much higher proportion of the total number of people participating in salmon fishing than do drift gillnet crews. The study team assembled data on 31 seine crews (101 crew members, excluding skippers) and 17 drift gillnet crews (22 crew members, excluding skippers).

For 22 of the 31 seine crews sampled, the study team identified every crew member's relationship to the skipper. The relationship to the skipper was determined for only some members of each of the nine remaining crews in our sample. Of the 22 complete seine crews, 17 (77 percent) consisted of at least one member who was related to the skipper. Seven of the 22 crews (32 percent) contained two or more crew members related to the skipper. Only five crews (23 percent) were completely unrelated to their skippers.

Table 9-6 displays the distribution of kin and non-kin relationships within the known 1985 salmon seine crews. Of the 101 seine crew members (in 31 crews) whose relationship to the skipper was identified, 56 (55 percent) were kin to their skippers and 45 (45 percent) were not. A similar analysis of 1984 seine data (Table 9-7) revealed that 40 of 63 known crew/skipper relationships (63 percent) were kin, a ratio of almost two relatives for every non-relative. The shift toward more non-relatives in 1985 may reflect an actual trend, but may also be a function of more thorough 1985 data. The study team was present in King Cove during the 1985 salmon season and gathered a larger sample of a current activity with key informant verification of kin relationships. The 1984 salmon crew data, however, is based on fishermen's recollections of the 1984 season months after its closure. These circumstances suggest greater reliability of the 1985 data over the 1984 data.

In the 1985 seine fishery, sons crewing for their fathers was the predominant kin relationship, occurring more than twice as often as any other kin relationship. Twenty-two sons (39 percent) crewed for their fathers, in contrast to ten cousins (18 percent) crewing for cousins, the next most common skipper-crew kin relationship.

Drift gillnet crews consisted of one (12 boats), two (five boats), or no (one boat) crew members in addition to the skipper. For the 1985 season, relationship to the skipper was determined for 21 crew members on 16 of the 17

TABLE 9-6: SKIPPER/CREW RELATIONSHIPS IN 1985 SAMPLE OF COMMERCIAL SALMON SEINE CREWS

Relationship of Crew Member to Skipper	Number of Crew Members
Son	22
Cousin	10
Nephew	7
Brother	5
Son-in-law	4
Daughter	2
Distant in-law	2
Grandson	1
Uncle	1
Sister	1
Brother-in-law	1
Subtotal	56
Non-kin	45
TOTAL	101

Crew Size	Number of Vessels
Skipper and 2 crew	1
Skipper and 3 crew	13
Skipper and 4 crew	8
Skipper and 5 crew	6
Unknown crew size	3
TOTAL SAMPLE	31

Source: Stephen R. Braund & Associates (1985).

TABLE 9-7: SKIPPER/CREW RELATIONSHIPS IN 1984 SAMPLE OF COMMERCIAL SALMON SEINE CREWS

Relationship of Crew Member to Skipper	Number of Crew Members
Son	17
Cousin	4
Nephew	7
Brother	2
Son-in-law	3
Daughter	5
Distant in-law	1
Wife	1
Niece	1
Subtotal	41
Non-kin	23
TOTAL	64

Sample Size: 21 crews.

Source: Stephen R. Braund & Associates (1985).

boats (Table 9-8). Of those 21 crew members, ten (48 percent.) were related to their skipper and 11 (52 percent) were unrelated. Seven crews consisted exclusively of the skipper's relatives, another two crews consisted of one relative and one non-relative, and the remaining seven boats' crew members were unrelated to the skipper. Whereas 1984 drift crews -identified by the study team consisted primarily of the skippers' kin, only half of the skipper crew relationships identified in 1985 were kin. In 1984, 11 skipper-crew relationships were identified (plus two solo skippers). Nine of the 11 crew members (82 percent) were related to their skippers and two (18 percent) were unrelated (Figure 9-9). As discussed above with regard to the 1984-85 contrast of seine crew data, this trend toward hiring non-relatives may reflect a sampling bias that favors identification and inclusion of kin relationships in a small sample based on data gathered several months after the salmon season.

Sons crewing for fathers was the most common of the kin relationships on 1985 drift crews (four out of ten, or 40 percent). Nephews and cousins were the next most common kin ties; each represented two out of ten, or 20 percent. The predominance of sons crewing for fathers can be attributed to the commitment King Cove fathers feel for providing their sons with the livelihood that is traditional and respected in King Cove. Toward this end, men take their sons fishing in their early teens to train them in commercial fishing skills.

Although several people noted that they try to use family as crew, several other residents remarked that competition has diminished the importance of family ties in hiring crew members. To some skippers, skill, stamina, and an ability to work hard are more important qualities than kinship. In addition, many people noted that it was increasingly difficult to hire local crews. With so many permits being fished, the pool of available local crew members is smaller than that needed by local skippers. Despite these observations by King Cove residents that commercial fishing is becoming less family oriented, analysis of current crews indicated that most highliners (i.e., those most successful in the face of intense competition) had crews that were almost entirely family. Out of the known 1984 salmon crews, the only highliners observed to have non-kin crews were the young highliners in their late 20s and early 30s. Although kinship may have been more pervasive in the fisheries in the past (e.g., as recently as 1984), in 1985 it was still a very influential factor in King Cove crew composition.

TABLE 9-8: SKIPPER/CREW KIN RELATIONSHIPS IN 1985 COMMERCIAL SALMON DRIFT GILLNET CREWS

Relationship of Crew Member to Skipper	Number of Crew Members
son	4
Nephew	2
Cousin	2
Wife	1
Niece	1
Subtotal	10
Non-kin	11
TOTAL	21

Crew Size	Number of Vessels
Skipper and 1 crew member	12
Skipper and 2 crew members	5
TOTAL SAMPLE	17(1)

1. One additional crew consisted of a skipper who fished alone.

Source: Stephen R. Braund & Associates (1985).

TABLE 9-9: SKIPPER/CREW KIN RELATIONSHIPS IN 1984 COMMERCIAL SALMON DRIFT GILLNET CREWS

Relationship of Crew Member to Skipper	Number of Crew Members
Brother in-law	1
Distant in-law	1
Son	1
Nephew	2
Cousin	1
Wife	2
Father	1
Subtotal	9
Non-kin	2
TOTAL	11

Crew Size	Number of Vessels
Skipper and 1 crew	11
TOTAL SAMPLE	11(1)

1. Two additional crews consisted of skippers who fished alone.

Source: Stephen R. Braund & Associates (1985).

Crew shares offered by local skippers typically vary on the basis of kinship. One cannery official remarked that of all the towns in the Aleutians region, King Cove's skippers show the most partiality for family in awarding preferential crew shares. Family members usually receive 15 percent of gross with full crew responsibility; family members with lesser roles may receive half that amount. Non-kin crew members hired out of' Washington state are referred to locally as "tw o-percenters" or "five-p percenters", referring to their lower crew shares. Some of these crew members make up to seven percent of gross. Friends from out of town and unrelated locals may earn as much as relatives, but are likely to earn crew shares somewhere between the high percentage offered kin and the low percentage offered to Washington crew members. Some skippers prefer to hire unrelated crew because they do not have to pay as much in crew shares as for family members; however, other skippers expressed a preference for keeping the profits within the family.

Commercial fishing in King Cove has become a highly capital intensive endeavor. Consequently, equipment sharing has acquired a cash value. The field study revealed that even within families, monetary reimbursements (such as sales, leases, and owner shares) are a common feature of gear exchanges. In the case of relatives using one another's boat and/or permit, the owner usually takes a share of the catch as payment for his contribution. However, free sharing does continue to occur, both within and, less frequently, beyond the family. Before permit values escalated with the strong return of the salmon fisheries in the late 1970s, one young man traded an old truck for a seine Permit then gave the permit to his older brother. Two other brothers who have their own seine permits, boats, and crew, have developed a joint fishing strategy that enables them to combine their efforts and maximize their returns; they split their profits evenly. Brothers and cousins fishing close to one another is a common occurrence; for crabbing, some of them help each other out with moving and checking their many pots. They share not only labor but also their fishing grounds. The study team learned of non-relatives who also pooled their resources (e.g., one has a permit but no gear, the other has a boat but no permit), but such arrangements appeared to be less common than sharing between kin.

To illustrate several of the dynamics discussed in this section, kinship charts follow that depict past and present crew strategies within three representative

families. The original permitholder in each case is denoted with a dot in the charts and is referred to in this description as "Ego." He received his permit(s) under limited entry. In each family depicted, the offspring were too young to have obtained limited entry permits; they either purchased them or used their father's permits.

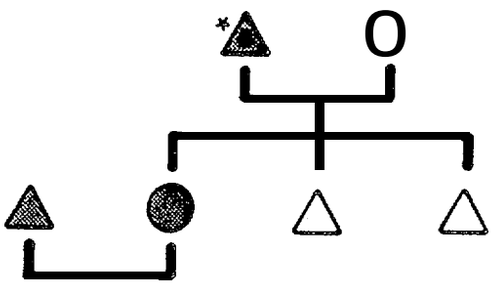
In the first family shown (Figure 9-5), the permit holder used to hire his daughter and her husband as crew. When he obtained a second vessel, he transferred the drift permit to his son-in-law. His son-in-law used Ego's first vessel to drift gillnet with his wife, Ego's oldest daughter. In 1984, Ego seined using his two sons and his sister's son.

The second chart (Figure 9-6) shows a past crew strategy in which Ego's crew consisted of his two sons and his maternal cousin. In 1985, Ego and his two sons were each skippering their own crews. Ego seined using three college students from Seattle whom he hired through an employment agency. One of his sons fished Ego's drift permit (he is purchasing it from his father) and leased his uncle's boat. His cousin (son of the uncle who owns the boat) was his crew. The other son purchased his own seine permit and boat; his sister, an unrelated local man, and two Seattle students crewed for him.

In the third family depicted (Figure 9-7), Ego used to fish with his son and daughter. (While only one daughter is shown, both of them have crewed for him in the past.) In 1984, Ego seined with his daughter and son-in-law plus two crew hired out of Seattle. He transferred his drift permit and boat to his son whose crew was from his sister's husband's family. His sister's husband (Ego's son-in-law, who originally came to King Cove from Seattle) purchased his own permit and boat; his father from Seattle crewed with him. During the 1985 Tanner season, these three crews consolidated into one skippered by Ego. His son and two sons-in-law crewed for him.

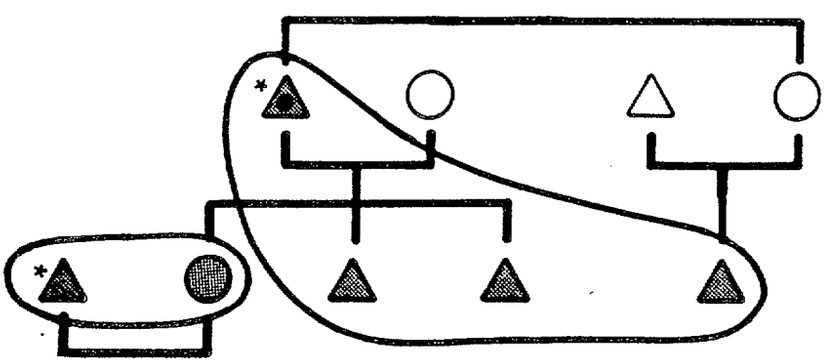
These past and present crew strategies clearly illustrate significant changes in local fishing strategies. Most of the men who qualified for limited entry permits were in their 20s, 30s, and 40s when the permits were issued to them. They initially fished both their drift and seine permits themselves each season, alternating between the two. Their young offspring crewed for them while learning fishing skills and strategies. Currently, however, many of the

Past Salmon Crew Strategy



Drift Permit

1984 Salmon Crew Strategy



Drift Permit

Seine Permit

KEY

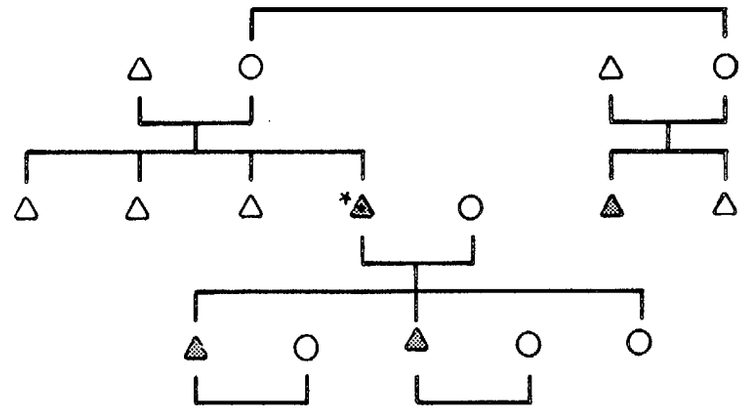
- Male
- Female
- Marriage
- Sibling
- Offspring
- Crew Member
- Permitholder
- Ego
- Delineates Crews

Figure 9-5:

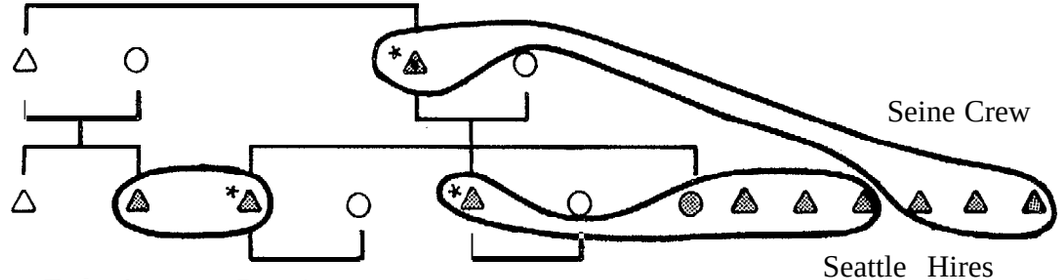
KING COVE FISHING STRATEGY
CASE EXAMPLE 1

STEPHEN R. BRAUND & ASSOCIATES 1986

Past Salmon Crew Strategy



1984 Salmon Crew Strategy



KEY

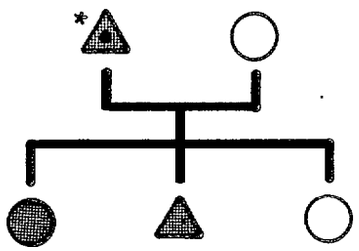
- Male
- Female
- Marriage
- Sibling
- Offspring
- Crew Member
- Permit holder
- Ego
- Delineates Crews

Figure 9-6:

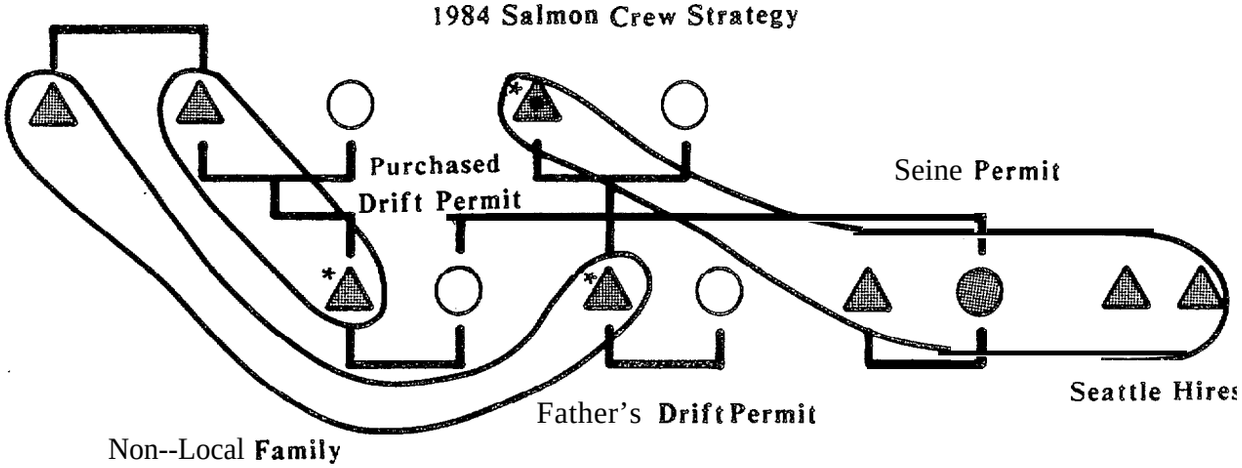
KING COVE FISHING STRATEGY
CASE EXAMPLE 2

STEPHEN R. BRAUND & ASSOCIATES 1986

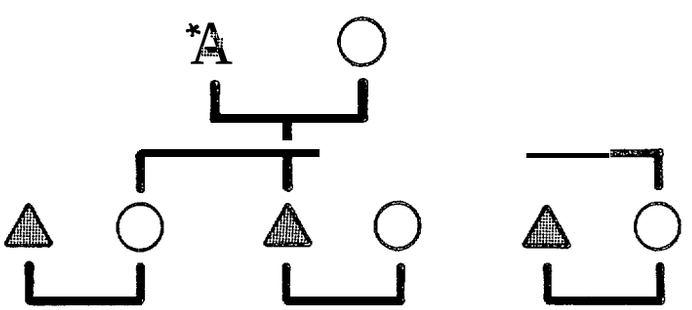
Past Crew Strategy



1984 Salmon Crew Strategy



1985 Tanner Crew Strategy



KEY

- Male
- Female
- Marriage
- Sibling offspring
- Crew Member
- Permitholder
- Ego
- Delineates Crews

Figure 9-7:

KING COVE FISHING STRATEGY
CASE EXAMPLE 3

STEPHEN R. BRAUND & ASSOCIATES 1986

sons are now using one of their. fathers' permits in their own fishing ventures, thus contributing to an increase in the amount of gear in the water during a season. While it used to be common for one crew to fish two permits, currently most permits are being fished by separate crews. Consequently, fewer kin or other local residents are available for hire and many skippers hire non-locals from the Seattle area. This is reflected in the second and third families depicted in the charts.

In conclusion, despite increasing competition in the commercial salmon fisheries, kinship continued to be a major factor in the organization of King Cove participation in these fisheries. The strongest family dynamic observed was in fathers' concern for training their sons to be commercial fishermen by hiring them as crew in their early teens. This pattern of transmitting the commercial salmon fishing tradition and livelihood is substantiated in the fact that the most common kin relationship between skippers and their crew was father-son in the 1984 and 1985 seasons. Additionally, concern for the sons' access to the fisheries as independent fishermen manifests itself in a pattern of permit transfers from father to son. Men whose fathers do not possess extra permits for their sons to use are likely to obtain crew positions with relatives. Although family values play a major role in commercial salmon fishery strategies, limited entry combined with increased competition have generated new strategies that do not favor kin ties, such as selling permits to finance one's vessel (rather than keeping the permit for one's son) and hiring non-local crew at lower crew shares (i.e. one-third to one-half the share one would give kin) to achieve a higher profit margin. However, these shifts away from family fishing operations constitute relatively minor inroads into a fishery that has been and continues to be dominated by family ties.

SOCIAL HEALTH

The following discussion of social health includes recreational pursuits in King Cove, physical health, substance abuse (including alcohol and drug use), and crime. Where evident, connections between these aspects of the community and the natural resource harvest are articulated. While these elements of community life may not seem to relate to the harvest of renewable resources, the study team concluded from participant observation that the social health of this community was directly related to the commercial fisheries.

Leisure Activities

The nature of the commercial fisheries has always required that King Cove residents work under strenuous conditions: long hours and hard physical labor for fishermen and cannery workers alike, and intense competition among fishermen. Residents also labor after the commercial salmon season to store their gear in p-roper order and to harvest and preserve the year's supply of subsistence salmon and waterfowl. Following the 1985 Tanner crab fishery, one man reflected,

> This was a really great Tanner season. It was longer than we expected, we made good money, and we worked hard. Some days out there the wind would be blowing, we'd be pulling pots in big swells, and Mother Nature was really challenging us. It's hard work when you're out there, and it's even scary sometimes, but it sure makes you feel good. I feel just fine about taking it easy for the next few months because I know I earned it.

Thus, in addition to their capacity for hard work, King Cove residents also possess a deep enjoyment of their leisure time. They engage in numerous recreational activities on an ongoing basis, some that are formally organized and some that are not formally organized but occur with regularity. Brief descriptions of voluntary service and recreational organizations, as well as other regularly occurring social activities, follow.

Bar activities. Until 1983, King Cove had only one bar and it kept irregular hours. That year, the King Cove Corporation opened a large bar in its new building in the center of town, just one house away from the first bar. In 1984, a new owner of the older bar completely renovated the older bar and established regular hours and activities. Consequently, as of 1984, residents have two nicely kept bars to visit that, between them, offer a number of recreational activities such as pool, darts, sports on a big screen television, cribbage tournaments, happy hours, dancing, and occasional live music. In the fall of 1984, one bar began offering a steak dinner on Saturday nights that children could attend with their parents. Some of these activities are regularly scheduled events, such as the Sunday afternoon cribbage and pool tournaments, whereas others occur intermittently or spontaneously, such as the Superbowl and small scale pool tournaments. Both bars have fairly consistent followings among community residents, particularly for the scheduled events.

Betting invariably accompanied the many tournaments and games. A small, regular crowd even gathered in one bar on weekday afternoons to bet on a television game show.

One colorful aspect of King Cove culture that is manifested mainly in the bars (but also within homes and at other community activities) is a polka music tradition. Several families own accordions and many residents know how to play them. A small band of local residents from a particularly musical family occasionally play polka (and other) music in the bars and they played at a wedding reception during the study team's visit. One bar played tapes of polka music during tournaments. Dancing polkas and schottisches to this music is also popular. Residents attributed this tradition to a German relative who was one" of the early settlers of King Cove and whose offspring formed the two largest lineages in King Cove. Members of both lineages were involved in managing both bars and, in that capacity, helped perpetuate the polka tradition in King Cove.

Generally, competition between the bars appeared to be friendly and many people, including the employees of each bar, visited both establishments. The bars strived to offer a warm, recreational atmosphere; it appeared in both places that the patrons sought companionship and entertainment rather than a more negative, depressive type of alcohol consumption. One man remarked, "There is not much to do here in the winter. These afternoons of games are good for everyone, good for socializing and catching up." A local woman said,

> Having the second bar has changed things in town. Now a lot of people aren't home as much. They go to the bar to have fun and they can grab a meal at the snack bar and take it into the bar to eat, while the kids play on the video games next door. There are lot of activities - tournaments, happy hours, and that kind of thing. Now they serve coffee too. People can participate in the activities and not have to drink alcohol. It's nice to go there, see people you haven't seen in a long time. I guess most people would rather spend their time there than doing a lot of other things. It's about the only thing to do anyway. It's better than television. It used to be TV was the main recreation. What else was there to do?

Married women are usually accompanied by their husbands in the bars, although married men frequently go to the bars without their wives. There appeared to be no sanction against single women participating in bar activities without

male escorts; the bars were an acceptable community gathering place by most residents' standards.

Some residents, however, expressed concern that the bars played too prominent a role in community life. They commented that with two bars in town, people spent less time with their families, less time visiting, and alcohol-associated problems had increased. One man expressed concern that children were too easily exposed to an unhealthy atmosphere by being allowed in the bar for the steak dinners and by being near it in the video game room. While the bars are certainly popular and among the few public gathering spots of a recreational nature, it should be emphasized that only a portion of the community regularly visits the bars. Further consideration of the problematic aspects of the bars is presented below in Substance Abuse.

Television. King Cove first received television when residents installed a transmitter at the school in 1974. Sand Point, Unalaska, the Pribilofs, and King Cove each bought several videotapes and sent them to network stations in Anchorage, who taped programs and circulated them through the villages. High school students taped local newscasts for broadcast over their town transmitter. In 1977, King Cove began receiving the statewide satellite programming. And in 1983, the King Cove Corporation's subsidiary, Mt. Dutton Cable Corporation, brought cable television to King Cove. One hundred and twenty-five houses were originally hooked up to the cable and currently 105 households subscribe to it for $55 per month. Subscribers receive 11 cable stations in addition to the two statewide satellite stations.

Television has become a major form of recreation in King Cove, especially since the introduction of cable television. While almost every household has a television and subscribes to cable, many people expressed mixed feelings about its effect on the community, especially on children. One 20 year old wornan said,

> Cable television is a big activity in King Cove. I almost can't remember what we did before television. Kids used to play outside more, tow boats around in the ponds; now they watch television and play video games. My little brother is glued to the the television. He doesn't know if it's raining or shining outside!

On a similar note, a parent commented that children watch television when they could be playing outside, practicing music, or doing homework. School officials, too, have observed the effects of television on school children. They reported that children would stay up late watching television and then experience difficulty staying awake in class the next" day. They also noted that children have shown significantly less interest in reading since the arrival of television in King Cove.

As to the effects of television on the adult population, several people stated that in the past, the primary form of recreation was visiting and playing cards or table games together. Now, they noted, television has become a more popular activity than visiting.

Visiting. As the preceding discussion of television and bar activities indicates, visiting is a traditional form of recreation in King Cove. It also appears to be a culturally valued activity, based on the dismay expressed by numerous residents regarding its decreasing occurrence; they believed that visiting had inherently more positive effects on the community than watching television or going to the bars. Although residents may visit less, the study team observed that visiting was still a popular activity in King Cove. Most visiting appeared to take place between family members of different households. Certain households were observed to be constantly in and Out of. one another's homes for a variety of reasons, such as sharing goods or child care, for example. However, unrelated households engage in this sharing type of visiting as well. Much of the visiting is strictly social; people visit one another simply to converse.

Two specialized types of visiting occur in a very regularized manner in King Cove. These two types of visiting, mentioned earlier in this report, take place at the harbormaster's office and at the cannery coffee breaks.

Harbormaster's Office. As discussed earlier under Family Roles, the harbormaster's office is a regular meeting place for fishermen. The study team observed that the men would stop in for a cup of coffee and, during non-fishing seasons, usually stay for at least an hour to visit with their fellow fishermen. Men of all ages, gear types, and crew positions engage in this activity. Whereas these men used to fish all year when king crab was still

open, they currently fish only brief openings in the summer and brief Tanner and halibut openings in the winter and spring, respectively. Men expressed frustration over not being able to fish more weeks per year. It is possible that visiting at the harbor is a substitute for actually fishing and gives them an excuse to spend time in their preferred domain as fishermen, rather than staying at home. Moreover, this social setting fosters an important exchange of information, stories, and ideas, and promotes "an unusual level of camaraderie and cooperation in an otherwise highly competitive occupation.

Cannery Coffee Breaks: Also mentioned under Family Roles, the cannery coffee breaks occur at 10 a.m. and 3 p.m. everyday whether the cannery is processing or not. These breaks are provided primarily for cannery employees, but the community has always been welcome to participate as well. Community participants are primarily fishermen. However, men in other occupations, such as city maintenance workers, also take the opportunity for a break from their own work.

When the cannery was not processing, most. of the people at the coffee break sat at the same table - year round cannery staff, local fishermen, and other local men taking a break from their non-cannery jobs. Other local residents participated only in their capacity as cannery employees during the processing seasons. At that time, the mess hall filled with workers who tended to sit at informally established tables of peers. For example, the fishermen and permanent cannery staff sat at the table they used year-round; another table included mostly foreign workers; and other tables were made up of non-local workers (e.g., from Seattle or Fairbanks), local women, and other local workers and their relatives from other Alaska Peninsula towns.

Women's Club". This organization was founded by a woman from the largest family in King Cove; she was recognized by many residents to be an informal leader in the town. Currently, she, her sisters, daughters, and nieces are the most active members of the group. The main objectives of the Women's Club are to raise funds for service projects - (such as purchasing a television transmitter for the community), to hold parties on holidays for all the children in the community (including gifts for each child at Christmas), and to help individual families in need. Fundraising activities include bake sales, bingos, and a Christmas bazaar in which various other organizations rent booths to raise

money for their endeavors. The Women's Club activities serve an important unifying function in the community; both the fundraising activities and the projects for which funds are raised involve the entire community in a shared activity for the common welfare of all residents.

Russian Orthodox Sisterhood: Formed in 1981, this group is like the Women's Club in that its purpose is to raise money for specific community projects. In this case, however, the focus is on projects related to the Russian Orthodox Church. The women, most of whom formerly lived in Belkofski, number approximately 16 to 22 and meet on a monthly basis. They have raised funds primarily through hosting potlucks and bake sales and have donated most of these funds to the construction of the new Russian Orthodox Church in King Cove. They also help pay for visits by the Russian Orthodox priest from Unalaska when he is needed to conduct a funeral or other church ceremony.

Celebrations: Holidays and birthdays provide opportunities for King Cove residents to gather and celebrate together. The popularity of these events attests to the high level of unity in this community; almost everyone participates in these activities and reflects positively upon them. A public event usually marks Halloween, Christmas, New Year's Eve, Easter, and the Fourth of July, and these events are usually sponsored by the Women's Club. Birthday parties are a very big occasion among school children. Typically these parties are not exclusive; every child in the class as well as other friends are usually invited to the party, and most invitees attend. One parent said that 30 children, plus many of their mothers, attended his child's third birthday party.

Video Arcade: The snack bar/video arcade in the King Cove Corporation building opened in 1983 when the building was completed. It has been popular among school aged children, although some residents indicated that youth were getting bored with the game room and not spending as much time there as in the past. Many residents mentioned the need for a community hall that would offer more diverse recreational possibilities for King Cove youth than the game room and the other activities young people presently pursue, such as riding in trucks and on three wheelers.

Basketball: Both men's and women's city league basketball teams are very popular local activities for participants and spectators alike. The teams compete with each other and with teams from other towns in the region. These groups also conduct fundraising activities to support their travel and equipment needs. Attending school basketball games was also mentioned frequently as a popular leisure time activity.

Mothershare: Mothershare meetings provide an opportunity for women and their children to get together. Meetings in the winter usually take place in the school gym where the children can play hard and the mothers can visit on the sidelines. Very few Native women participated in Mothershare during the field study period and members reported that there had never been much interest or participation by Native women in this activity.

Community School Activities: The King Cove School has obtained a Community Education grant annually for the past ten to twelve years that enables the school to offer activities and the facility for community use. The school pays a staff or community person $10 per hour to keep the facilities open for the community after school hours. Activities include ceramics, open gym, open library, evening shop classes, income tax services in January, and miscellaneous other events such as bingo, bake sales, and dances. The ceramics classes are reportedly very popular among local women. Volleyball, on the other hand, apparently is attended mostly by teachers and cannery staff.

Children's Church Groups: In addition to Sunday School, the King Cove Bible Chapel offers regular activities for its young members that include crafts and games and are scripturally oriented. Three different youth clubs are organized by age group: first grade and younger; grades two through six; and grades seven through twelve. The three clubs meet after school on Tuesdays. Additionally, the third group gathers on Fridays for Teen Night.

In conclusion, King Cove residents engage in a variety of recreational pursuits during their leisure time. Among them are visiting, Watching television, going to the bar and participating in the games and tournaments there, basketball, school events, and a variety of other activities, both organized and unorganized. Television and recreationally oriented bars were relatively recent phenomena, and residents were aware of the strong influence these two

forms of recreation had had upon the community. While many residents voiced concern over perceived negative impact-s, most enjoyed these recreational opportunities.

Physical Health

The following discussion briefly describes health problems and health care in King Cove, with reference to historical trends. Linkages to the harvest that could be significant in a harvest disruption are few; however they are identified within the following discussion.

Prior to contact with the Russians in 1741, the Aleut population thrived. The Aleuts approached their health preventively, following strict rules of prohibitions and obligations and engaging in rigorous fitness training for their challenging environment and harvest techniques. Shamans instructed their people in the proper behavior to ensure good health. They also utilized fasting, herbs and roots, massage, and other treatments when illness actually struck (Milan 1974).

The Russians' arrival drastically changed the Aleuts' health status. One impact of Russian contact was to decimate the aboriginal population. Upon reviewing several early explorers' wide-ranging estimates of the precontact population, Lantis (1970) concluded that the Aleut population numbered between 15,000 and 30,000 individuals, and that in the first two generations of Russian contact, the Aleut population dropped approximately 80 percent. The main reasons for this drastic decline were warfare with the Russians, famine and starvation, accidents while hunting sea otter, and disease.

Although Lantis did not articulate the specific types of disease that contributed to this decimation, other sources gave some detail. Milan (1974) noted that changes in religion, displacement of tribal health practices and knowledge, new residence patterns, new foods, and exposure to diseases to which they had no immunity all contributed to the radical decline in Aleuts' health. Veniaminov (in Petroff 1884) noted a paucity of information on infectious diseases, but described the spread of a "bloody fever" in the Aleutians in the early 1800s. This epidemic was reportedly caused by consuming wet rice. In 1838 a smallpox epidemic spread through the region. Additionally, Veniaminov

observed that the Russians introduced the "syphilitic diseases" to the Native population; this ailment was reportedly most detrimental around the year 1798 (Petroff 1884).

Petroff (1884) identified "consumption" as the most prevalent ailment among the Native population throughout the state. "Scrofulous diseases" were the second most common health problem. He described these as being malignant ulcers afflicting both internal organs and the skin. Less common problems included paralysis, bowel inflammation, fits, and general debility (i.e., individuals rarely lived past approximately age 50). Ten years later during the 1890 census, Porter (1893) observed that the decline in sea otter trade had caused a decline in the competition between merchants in the villages, resulting in higher prices for goods and causing villagers to refrain from making home brew as frequently as in prior years of easy access to the ingredients. Consequently, he noted, the villagers were generally healthier and better able to resist disease. The main health problems afflicting Aleuts at that time were pulmonary and syphilitic diseases.

The poor health of the Aleut population came to government attention during World War II military occupation of the region. One King Cove resident recalled that following World War H, a medical treatment ship made annual visits to King Cove and other Aleutian towns to administer tests and vaccinations for polio, tuberculosis, and other illnesses, and to check residents' teeth and general health.

Eventually the City of King Cove and the cannery, both concerned about the health of their constituents, collaborated in providing health care to both residents and cannery employees; the clinic was located in a cannery building on cannery land, and the city and cannery jointly employed a nurse to staff the clinic. This arrangement lasted until 1982 when the city constructed a new clinic on city land and hired a physician's assistant to staff the new clinic. Additionally, a community health aide works part time in the clinic, her position funded by Alaska Native Medical Services (ANS) through the Aleutian-Pribilof Islands Association's health program. The clinic also receives $4,000 in medications from ANS for providing health care to Native residents. As a consequence of high operating costs and services being offered at no charge to local residents, the clinic changed its business policy in

March of 1985 to begin charging each patient a fee for service. Since most residents are covered by some form of health insurance, either through the cannery, the city, or other plans, the city council believed this change would not seriously impact residents, and would result in a better return on the clinic operating expenses.

Current health officials in King Cove reported that, in a typical winter, the majority of patients in the clinic complain of middle ear and respiratory problems, and many patients need prenatal and pediatric care. During the summer, a large percentage of cases are accident related injuries stemming from commercial fishing activity. Cases per month numbered about 250 in the winter months in 1984, whereas in the summer the caseload typically doubles. This increase reflects the much larger population in King Cove during the salmon seasons when many outside fishermen and approximately 300 cannery workers are based in King Cove. The slowest month for the clinic is October because of the high number of residents away on vacation.

Other health problems cited by clinic staff include hypertension and heart problems, the latter being endemic to one family in particular. Paralytic shellfish poisoning and food poisoning from marine resources also occur occasionally as a consequence of the local subsistence diet.

In May of 1984, the City of King Cove formally organized a health board consisting of representatives from different sectors of the community: the clinic, the King Cove Corporation, the cannery, the city council, the school board, and the community at large. A/PIA has encouraged all towns in the Aleutians region to form these boards as advisory bodies to local city councils. Additionally, grants can be channeled through health boards for such activities as purchasing equipment for the local fire and rescue group, and sponsoring a health fair. The King Cove health board organized a health fair in March 1985 for the purpose of educating residents about health issues. Visitors to the fair could have a number of simple health tests performed, talk to the A/PIA alcoholism program representative from Sand point, and obtain other information. King Cove has had other health fairs in the past, some with themes such as three-wheeler safety and fire safety.

In general, health care in King Cove has improved significantly since the dramatic problems of the Russian and pre-statehood American periods of Aleutian history. Currently in King Cove, a modern clinic staffed by a physician's assistant and a community health aide provide most of the family health care needs of local residents. Other than illnesses related to locally harvested foods, an increased patient caseload in the summer is the main linkage between the natural resource harvest arid physical health care needs in King Cove.

Substance Abuse

Aleuts did not have alcohol until it was introduced to them by the Russians in the 1 700s. Since that time, problems with excessive alcohol consumption have been common in the region. The use of illegal drugs, on the other hand, is a more modern phenomenon. This discussion of substance abuse addresses these topics within a historical perspective and in terms of their current relationship to the natural resource harvest.

Alcohol Problems

Russians introduced alcohol to the Aleuts in the form of a home brewed beverage called "kvass". Jones (1976) suggested that Aleuts readily adopted this drink because it was introduced around the time Russian missionaries prohibited traditional Aleut ceremonies; the use of "kvass" may have served as a substitute for the traditional ceremonies since the behavior exhibited during drinking was similar to that of the Aleut ceremonies. Porter (1893: 8'7), describing an indulgent period at the height of the American fur pelt trade, wrote of Belkofski:

> Less than a decade since the sea otter pelts collected at this station numbered in the thousands, and" there were three large rival stores bidding for the precious peltry, wheedling and coaxing the lucky hunter to sell his skins, then stimulating him to the most reckless extravagance, and finally hurrying him off again with an outfit given on credit to face the whistling gale and raging sea in search of more furs. In those days the storekeeper would keep only the most expensive wares.... Each visit of successful hunters to their homes was sure to wind up with a long debauch, which left the hunter as well as his family ill prepared to meet succeeding periods of hardship, exposure, and want caused by extravagance.

Later in the same document, Porter remarked that alcohol consumption was declining during the time of his observations, As mentioned earlier under Physical Health, Porter (1893) attributed its decrease to the decline in the fur trade which reduced merchant business and competition in Aleutian villages. Monopolies on trade rendered the purchase of the "kvass" ingredients prohibitive and so its consumption declined.

Reporting on the Pacific cod fisheries, Cobb (1916: 40-41) wrote of this region,

> One of the heaviest handicaps under which Alaska [cod fishing] station owners suffered for a number of years was the presence of saloons in close proximity to the more important stations . . . . As a result of the close proximity . . . it was a very easy matter for the men to get hold of all the liquor they wished, and carouses were frequent, lasting sometimes for weeks, as fresh supplies of liquor were continually coming 'in... In 1914 the judicial authorities of the third district, in which the codfish industry is carried on, refused to renew the old licenses or grant any new ones, with the result that the district is now totally free of the legalized traffic at least."

Describing King Cove in the 1960s, Jones (1976: 85) wrote,

> As in other Aleut villages, drinking is a dominant social activity in New Harbor [King Cove]. But, contrasted with patterns in Iliaka [Unalaska], New Harbor Aleut's drinking pattern retains the flavor of a traditional ceremony . . . Because they value their way of life, New Harbor Aleuts usually stop drinking when it threatens to interfere with the performance of family, community, and work roles . . . . Drinking parties in New Harbor appear to serve the useful purpose of providing release for pent-up tensions and from the strenuous demands of work.

Generally, Jones (1976) described the use of alcohol in King Cove as relatively tame and controlled; occasional binges occurred, but were usually of a social and celebratory nature. Public drinking typically did not become a social problem or nuisance; nor did the drinking take on a depressive aspect as it did in Unalaska, the other town she studied.

One individual described alcohol problems in King Cove by saying, "Alcoholism is definitely here and definitely a serious problem, but it's not really a public problem." Other residents remarked that the presence of the new bar combined with the new ownership and remodeling of the old bar had resulted in

more drinking in King Cove. The effects of excessive alcohol consumption in King Cove were described by residents as follows.

First, several people distinguished good fishermen from less successful ones on the basis of whether they were drinkers. One non-local man observed that it was difficult to separate cause from effect.: did they drink because they were poor fishermen, or were they poor fishermen because they drank? Some men indicated they would not crew for certain skippers who drank too much. Similarly, some crew members had been fired for drinking on board.

Drinking affected not only a fisherman's earning capability, but also his ability to manage the money he earned. A fisherman received the majority of his income in one or two lump sums per year. Each fall, many King Cove residents ordered most of their meat and groceries for the entire year and budgeted their income from fishing to last the year. Typically, the people who had difficulty making ends meet through the off season were characterized as drinkers. Alcohol was blamed for their inability to plan ahead and make their summer income last through the year.

Cannery officials noted that they experienced considerable absenteeism following a payday or "draw day" (when an employee can take an advance draw on his or her paycheck). Having celebrated with their paychecks at the bar that evening, many workers were not able to work the following morning. The cannery officials also observed that in general the new bar had affected cannery work attendance. Absenteeism climbed as the summer progressed and workers became tired of working; they became more careless about letting drinking interfere with their cannery jobs. Cannery officials noted that this trend began in 1983 when the new bar opened for business and maintained hours from 11 a.m. until 3 a.m. daily.

Bartenders, law enforcement officials, and other residents observed that the bars were always full in the summertime. The current short salmon openings left fishermen idle during much of the season. Cannery workers, outside fishermen, and local fishermen spent considerable time in the bars when not fishing or processing. Some residents postulated that the frustration of not fishing combined with passing the slack time in the bar resulted in occasional fights erupting at the bars (to be discussed further under Crime).

Young people were also affected by the availability of alcohol in King Cove. A teacher commented that children would occasionally be exhausted at school from having "partied" the night before. Typically these children's parents were known to be drinkers. Alcohol consumption was considered common among youth, more than other forms of drug abuse.

In general, many residents expressed concern about the effects of alcohol in the community, particularly with the recent addition of a second bar in town. Interestingly, most of the problems noted are related to the commercial fisheries and occur in the summertime when many non-locals heavily patronize the bars. Residents associated various other problems in King Cove with the effects of drinking, such as an increase in divorces, crime, three-wheeler accidents, and problems among youth. While longtime residents noted these changes and expressed concern about them, the study team observed that most public drinking occurred in a positive atmosphere of camaraderie, concurring with Jones' (1976) observations during her 1968 field study. Alcohol is consumed by only a portion of the community, with many residents abstaining completely.

Drug Abuse

Problems of drug abuse appeared to be minimal. The recent prosperity of young fishermen and their contact with fishermen and cannery workers from the Lower 48 states are circumstances conducive in most towns to increased drug use. Residents reported this was the case during the peak of the king crab fishery, but added that local drug use declined with that fishery. Some residents, in comparing King Cove to Sand Point and the Lower 48 states, remarked that drug use in King Cove currently affects a relatively minor portion of the population.

Crime

Criminal behavior, too, is uncommon in King Cove. However, the majority of occurrences appear to be linked to the commercial fisheries. Residents and law enforcement officials noted that the most common types of infractions were disorderly behavior, theft, and some vandalism, and that their incidence increased in the summer. Residents attributed this increase to the large

number of non-locals residing King Cove during the summer. Typically, non-local fishermen and cannery workers were involved in the fights (with each other and with local fishermen) that usually originated in the bars. As one man explained,

> More permits being used means more boats, which means less fishing time for everyone and more time in port getting frustrated, bored, and drunk. When the boats come in after an opening, the bar is FULL. Crewmen would get into fights over whose skipper could catch the most fish.

Incidents of vandalism and theft occurred more frequently in the summer also. One individual observed that residents were more cautious in the summer than in the winter, locking their doors and windows. Another resident noted that the cannery was commonly the target of theft and vandalism. She explained, "People have the attitude that they [the cannery] can afford it."

It is possible that during the off season, the closeness of community residents acts as a deterrent to unacceptable behavior. When unacceptable behavior does occur, residents express disapproval among themselves (as in pre-contact Aleut society - Lantis 1970), which may also act as a sanction against certain behaviors. However, the many non-locals arriving in King Cove for the summer are influenced by neither the bonds nor the sanctions shared by local residents; rather, they are affected by the boredom and frustration mentioned above. Consequently, an annual trend of increased crime in the summer, associated with the commercial fisheries, exists in King Cove.

ETHNICITY

As discussed in Study Area, the majority of the King Cove population in 1980 was classified as Native, referring primarily to Aleuts. However, in addition to Aleut blood, most residents were also of Russian descendence resulting from over one hundred years of Russian control between 1747 and 1867. The Russians' presence resulted in a severe population decline among Aleuts and extensive Russian-Aleut intermarriage. When the United States took control of Alaska in 1867, Americans began developing the Aleutian fisheries and high numbers of northern European fishermen were drawn to the region. Many of these men married Aleut (i.e., typically Russian-Aleut) women and settled in the region permanently.

One King Cove resident well-versed in the history of King Cove indicated that most of the town's early settlers were northern European fishermen married to Aleut women who settled in King Cove because of the cannery. Some of the early European-Aleut families in King Cove were very large. Consequently, a few families constituted the majority of the King Cove population. Most of the Aleut families who participated in the fisheries and cannery work at King Cove resided in Belkofski. During the Russian period, Belkofski had been a sea otter hunting and trading center and the site of a Russian Orthodox church and school. Consequently, most of the Belkofski Aleuts were Russian-Aleuts and bore Russian surnames. With the decline of the fur trade and the development of the fisheries at Belkofski, nearly all Belkofksi residents gradually moved to King Cove on a permanent basis.

Based on these historical developments, modern King Cove consisted of two main Native subgroups: those of Russian-Aleut origin who were originally from Belkofski, and those who were of northern European-Aleut derivation. Residents indicated that most families from the former group had moved to King Cove in the 1950s and later, whereas the "latter group were descendants of the original settlers of King Cove. Additionally, smaller ethnic subgroups in King Cove included white cannery personnel and school teachers, summer cannery workers of various nationalities (e.g., Japanese, Korean, and Filipino), Alaska Natives from other towns in the Aleutians region and other parts of the state, and whites who had married King Cove Natives. The following discussion addresses' two main aspects of ethnicity in King Cove. First, traditional Aleut culture is examined in terms of its persistence in contemporary King Cove, including a description of ethnic identity among King Cove residents. Second, relationships between the ethnic groups in King Cove are discussed.

Traditional Native Culture and Ethnic Identity

As an outgrowth of the Russian period in the Aleutians region, a certain degree of acculturation occurred. In their dominant position, the Russians required that the Aleuts abandon many of their traditional ways and adopt certain Russian traditions, such as the Russian Orthodox church, housing style, and political organization. During the century of Russian rule, Aleuts integrated these Russian ways into their traditional lifestyle to such a degree that the

new Russian-Aleut lifestyle became normal and traditional for 19th century Aleuts (Jones 1976; Lantis 1970). For example, after the decline of the sea otter pelt trade and the United States' purchase of Alaska, Belkofski residents continued to be devoutly Russian Orthodox. This acculturation was not only a function of Russian governance, but more importantly of Russian-Aleut intermarriage.

In the settlement of King Cove, residents came from many different places in the Aleutians region as well as from Europe and the Lower 48 states. Various lifestyles from these places blended to form a way of life unique to King Cove and suited to the practical exigencies of commercial fishing and cannery work, which were not traditional Aleut activities. In addition, the early intermarriage between" Aleuts and Northern European fishermen must have contributed to the dilution of Aleut culture in King Cove.

Perhaps as a result of its being a modern town and originally a cannery town, contemporary King Cove does not manifest " strong linkages to traditional Aleut culture. The most traditionally Aleut characteristics of King Cove residents currently are the subsistence orientation, the marine orientation (manifested now primarily in commercial fishing, rather than in the more traditional Aleut pursuits such as marine mammal hunting), the strength of the extended family, and the Russian Orthodox church (only recently becoming active in King Cove primarily among former Belkofski residents).

In more traditional Aleut villages (e.g., Atka), the Aleut language, certain crafts, and other activities have persisted in modern times, although they have not necessarily retained their original functional roles. For example, baskets currently are woven more for sale than for practical use by the weaver. The Aleut language is still used, although mainly by elders in these villages. In King Cove, on the other hand, very few residents still speak or understand the Aleut language and no traditional arts, crafts, or dances are known to persist.

The use of the Aleut language by King Cove residents in 1985 was limited to two sisters from Atka (who spoke their dialect with one another on a daily basis), and one individual from Belkofski who was considered fluent in that local dialect. Approximately nine other former Belkofski and St. Paul residents understood their respective dialects and possessed limited ability to speak

it. One woman said that most. of the people "up here" (i.e., at the Rams) understood the language but could not speak it. Before King Cove had telephones, most families had citizen band and/or VHF radios and used these to communicate between households. The town received telephone service in 1976, but the Rams subdivision did not have phone service for some months after it opened, and residents there continued to use radios. Reportedly, the sisters from Atka and some former Belkofskiites spoke Aleut on the radio and stimulated the use of Aleut among other residents. Residents indicated that some fishermen still used Aleut while communicating between boats on the VHF radio. However, residents expected that use of the Aleut language would eventually become entirely obsolete in King Cove since young people were not learning it. One individual recalled that when she still lived in Belkofski, a man there wanted to teach Aleut but lacked interested students. Another woman said that now there would be no one capable of teaching it even if there were interest.

With regard to traditional arts, crafts, and dances, a King Cove resident's father from Akutan spends one to two weeks in King Cove each year teaching traditional Aleut activities in the school to all grade levels. He demonstrates model fox traps and other traditional devices, teaches Aleut dances and songs with caribou skin drums, as well as some Aleut language skills. Another man from Unalaska came to the school last year to teach an Aleut carving workshop. Teachers commented that the children enjoyed these sessions, but that the youth did not identify strongly with the activities as their culture. One teacher attributed this detached interest to the influence of European ancestors and to King Cove not being a traditional Aleut village. As one former Belkofski resident said,

> The traditions are fading away. The old people kept them going but they are gone now, so the traditions are gone too. Kids today are letting traditions die because they don't know much about them, those ways aren't part of their lives. [The man who teaches the traditional ways in the school] is the only one I know of who takes the time to talk Aleut with the kids and do other traditional things with them.

Thus, King Cove has not retained much traditional Aleut culture and residents expressed doubt that they would attempt to revive interest in Aleut traditional arts, crafts, and language. Probable reasons for the low in terest level were the extensive influence of other cultures on local Natives as a result of intermarriage with other cultures throughout different periods of historical

contact, the fact that King Cove was not a traditional aboriginal village, and its nature as a commercial fishing and cannery town. With regard to the latter quality, residents were oriented toward making their living in a highly competitive business that has required heavy involvement in the cash economy in order to compete with outside fishermen. As one resident said, "People here have the attitude that [preserving traditional Aleut culture] would be regressing rather than progressing." King Cove residents were more concerned with establishing their niche in the modern, westernized world than with preserving ways that had never been an integral part of the King Cove lifestyle. However, although traditional Aleut characteristics such as the language, crafts, and arts are not currently manifested in King Cove, other traditions stemming from residents' Aleut, Russian, and European backgrounds persist compatibly with the trend toward being progressive. Indeed, much of the behavior deemed "progressive" (e.g., political approaches and commercial fishing strategies) are ultimately means of supporting and protecting the traditional way of life unique to and valued by King Cove residents.

Ethnic Relations

Because of historical circumstances described above as well as in Residence Patterns, former Belkofskiites tend to reside in the Rams Creek subdivision whereas long-time King Cove families tend to reside in the main part of town. Belkofskiites and long-time King Cove families differ in other respects as well. For example, as mentioned earlier in this section, Belkofski was a Russian fur trading center and the site of a Russian school and Orthodox church. The large majority of former Belkofski families have Russian surnames and were of the Russian Orthodox faith. Since Belkofski had no harbor, it was not the site of commercial fishing activity during the American territorial period; rather, Belkofski residents remained relatively isolated after the decline of the fur trade. Lacking their own local economy, they supported themselves mainly by subsistence and by traveling to other Aleutian towns for work. When King Cove was settled, its cannery and commercial fishing boats became the nearest source of employment, and thus began the gradual migration of Belkofski residents to King Cove.

In general, compared to longtime King Cove families, former Belkofski residents tend to be more Russian Orthodox, more Russian-Aleut (and hence more Native in appearance). The long-time King Cove families, on the other hand, tend to have a large percentage of northern European blood and consequently many of them had European surnames and fair complexions. Very few are Russian Orthodox. Some residents commented that the differences between these two subgroups results in a slight division in the community between the two groups. Reportedly, some long-time King Cove residents consider the Belkofski families to be "more Native." Very little differentiation between these subpopulations was discernible by the study team. In fact, in a mayoral election that occurred after fieldwork for this study, a former resident of Belkofski was elected mayor, Generally, while there may have existed some subtle separation between these two groups, their differences did not appear to significantly affect social interaction within the community.

Based on observation and conversation with residents, the study team concluded that being a "local" or "non-local" was at least as important an influence upon social interaction as ethnicity. When referring to someone in conversation, residents frequently characterized individuals as being local or non-local. Even some year-round residents were considered to be non-locals, such as school teachers and cannery staff, apparently because they were not native, they were not related to any long-time King Cove families, they had moved to King Cove relatively recently, (e.g., within the past decade), and/or because their work brought them to King Cove, One or more of these criteria pertain to individuals described by long-time residents as being "non-locals." Being a local implies membership and acceptance in the community. It appears that non-locals are accepted in the community insofar as their involvement and activities do not interfere with customary ways in King Cove. The study team learned of numerous cases of tension between locals and non-locals. For example, one long-time resident expressed consternation that a relative newcomer to King Cove attempted to participate in local politics. A young woman visiting family in King Cove for an extended stay said that people, including some relatives, treated her "like an outsider" for the first week. Several individuals explained that non-local spouses had difficulty gaining acceptance in their spouses' families even after many years' residence in King Cove. One girl decided that she would never marry a boy from another town because of that difficulty.

Reasons for this attitude toward non-locals may be attributable to the limited resources upon which King Cove. residents depend and to their desire to maintain control over them. For example, residents indicated that friction occasionally arose between local and non-local fishermen who competed for a very limited resource (i.e., fish). Similarly, the City of King. Cove has. struggled for many years to be independent of the cannery and retain some control over resources that the cannery needed. One resident explained that outsiders' motives were questioned by locals: "What does he want from us?" Housing shortages, a highly unstable fishery, the potential fragility of local political power and control, and even the shrinking pool of eligible local spouses were causes of friction between locals and non-locals. King Cove residents valued their resources and the lifestyle based on those resources, and felt they needed to protect them from possible encroachment by outsiders.

As mentioned earlier under Intracommunity Residence Patterns, school staff and year-round cannery personnel constituted groups in King Cove that were somewhat segregated from the Native King Cove community. However, in the context of the above discussion, it would be difficult to determine whether this segregation is based on ethnicity or localness and whether it is mutual or one-sided.

Residents reported that racial tension was most evident in King Cove during the summer when various ethnic groups worked at the cannery. Fights between cannery workers of different ethnic groups are common occurrences in the summer, and Natives and Filipinos are known to occasionally fight with one another.

Generally, despite the intergroup tensions discussed above, the community is relatively harmonious and free of overt interethnic difficulties. Some tension exists between locals and non-locals, however this tension is typically related to the possibility of interference in customary ways and usually is not disruptive. As differences in ethnic origin frequently accompany differences in localness, these two qualities often overlap and are indistinguishable from one another. However, among "locals", localness appears to be a more important criterion for acceptability than race. This emphasis on localness may reflect residents' desire to retain control of their lifestyle and" the resources they depend upon, resulting in wariness of non-locals' motives for involvement in King Cove at any level.

SUMMARY

Although this chapter covers a diversity of topics, several points regarding social relations in King Cove and their linkages to the natural resource harvest have become clear in the course of the discussion. First, residence patterns are very much a function of economic well-being. Thus, several residence patterns were identified as being directly linked to the commercial fisheries. For example, the number of extended family households increases in the summer when fishing crew members from other towns reside with their King Cove relatives during the fishing season. Additionally, poor fishing years in the past forced residents to move elsewhere to seek employment, while good fishing years have attracted former residents to return to King Cove either permanently or on a seasonal basis.

Second, the family is an important institution in King Cove and acts as the primary organizing framework for most social behavior. As such, kinship is a prominent dynamic in the organization of the commercial fisheries in terms of crew composition, permit transfers, and fishing strategies. In particular, fathers show a solid commitment to providing their sons access to commercial fishing as a livelihood, an increasingly difficult field to enter due to the high costs of limited entry permits and modern fishing boats.

Third, roles assumed by men and women in King Cove are influenced by the resource harvest. Men's primary role is to commercial fish and conduct the subsistence harvest, while women's role is primarily focused around domestic responsibilities. In the past, a large proportion of King Cove women worked in the cannery. Currently, however, relatively few local women work there because the husband's commercial fishing income has been sufficient in recent years.

The above trends reveal the dominant linkages between the King Cove's social organization and the natural resources harvest. Additional but less prevalent linkages were also identified, such as the influence of commercial fishing upon the values of teenaged boys who earn high crew shares, the apparent increase in crime during the commercial salmon season, and the negative effects of alcohol on fishermen who have drinking problems.

X. BELIEF SYSTEMS

This chapter subsumes two major subtopics of belief systems, namely religion and values systems. T-he first of these topics, religion, details the current religious activities in King Cove with reference to historical patterns influencing the current configuration of religious groups in King Cove. The second topic, values systems, draws from the preceding six chapters to identify and distill the fundamental beliefs and concerns that motivate much of King Cove residents' behavior.

RELIGION

During the Russian period of Aleut history, Russian colonists imposed their religion upon the Native peoples of the Aleutian region. The Russians offered distinct incentives to the Natives for participating in the Orthodox church. For example, Veniaminov established missions that combined the functions of school and church; the Russians utilized the schools to teach certain skills to the natives while at the same time teaching religious precepts. The church conducted services in both Aleut and Russian, and certain procedures in the services were adapted to incorporate Aleut customs. Additionally, the Russians exempted Aleuts who became members of the church from paying tribute for three years (Petrof f 1884). Veniaminov, a Russian Orthodox priest who resided in Unalaska from 1824 to 1838 and wrote extensively about Aleut culture, argued that despite such incentives, the Aleuts were extremely willing to adopt this religion (Petrof f 1884). He explained (in Petroff 1884:156),

> The contempt in which the shamans were held [due to their ineffectiveness in the face of extensive Russian-introduced diseases] facilitated the work of the mission. Any other stronger reason inducing the Aleuts to accept their faith I cannot find. It is true we may say the Aleuts accepted Christianity because they had only a very vague and unsatisfactory belief that did not satisfy the demands of their souls, and that they had reason to fear the Russians and were eager to please them; and, third and last, because the acceptance of Christianity exempted them from the payment of tribute. All these reasons may have induced them to change their faith, but certainly could not make them the earnest observers of its rules that they are.

The Russian Orthodox religion gradually became the Aleut religion over the decades since Veniaminov and his successors performed their missionary work among the Aleuts. Today, most villages in the Aleutians region have a Russian Orthodox church that is the primary religious organization in the community.

King Cove is unusual in that it has never had a Russian Orthodox church. Belkofski was the site of one of Veniaminov's church-schools, and that community had become very devoted to its church over the years. Thus, the former Belkofski residents missed their church when they moved from Belkofski to King Cove. A church reader formerly resided in King Cove, however he passed away three years ago. No one was trained to replace him. Residents mentioned that the main individual currently skilled in the church ceremonies lives in Anchorage most of the time; reportedly, he is one of the only people in town who can speak Russian for the services. Occasionally a priest comes to King Cove to conduct a church service in someone's home and baptize children. Also, when someone dies, the family of deceased will pay for a priest to conduct the burial service in King Cove. At the time of the field study, a priest had not been to King Cove in over a year.

Reportedly, the Russian Orthodox population celebrates most of the religious holidays. Residents mentioned that people starred on Russian Christmas at the Rams (as that is where most former Belkofski residents' homes are concentrated). For three days during the Christmas season, groups of people walk from house to house with a large, decorated star singing Russian Orthodox Christmas songs. This activity is symbolic of the angels that sang at the birth of Christ. In addition, parties were held at both bars on the Russian New Year.

In recent years, a group Of people (mostly former Belkofskiites) raised funds to build a Russian Orthodox church in King Cove primarily from the collection and sale of scrap copper and through the Russian Orthodox Sisterhood's fundraising efforts. Additionally, many fishermen donated funds to the church at the end of salmon season. Construction of the church had been slow due to lack of funds and delays in the shipment of supplies. Finally in autumn of 1984, the building was mostly completed. During the field study for this report, residents were working on finishing the interior, including transporting paintings, the front facade, and. other preserved pieces of the old

Belkofski church by boat to King Cove. Despite the near state of completion, the church had not been blessed and no ceremonies had been conducted within it. Residents speculated that the church would open as soon as a priest or reader would agree to move to King Cove, but such arrangements had not been made as of August 1985.

Many residents, mostly former Belkofskiites, expressed enthusiasm about the new church and were looking forward to attending services when they are offered. A leader of the Sisterhood was slightly discouraged by younger womens' waning participation in Sisterhood meetings and activities but she anticipated that they would become more active when the church opens. Basically, the Russian Orthodox population of King Cove was eager to finally have a church in King Cove, having long ago moved away from their church in Belkofski. They regarded the Russian Orthodox faith as an important tradition that they were anxious to rekindle. Some individuals, however, expressed a degree of ambivalence, saying they thought many people had been without a church for so long that they would not resume the tradition. Although many lifelong residents of King Cove were baptized Russian Orthodox, they have never attended church because they have not had one; some of these individuals were also ambivalent about attending the new church.

Since its establishment in 1958, then, the only church in King Cove has been the King Cove Bible Chapel. It was founded by the Slavic Gospel Church of. Wheaton, Illinois and was recently taken over by Arctic Missions, based in Oregon and oriented toward Native communities in Alaska and Canada. Despite its longevity in the community, the congregation remains quite small. About 10 to 16 adults attend the church, most of whom are women from two long-time King Cove lineages. The minister observed that women parishioners are unable to persuade their husbands to attend the church because, he believed, church was stigmatized as a women's activity and peer pressure discouraged men's attendance. He thought that church participation was considered by King Cove men to be incompatible with being a fisherman.

In addition to a Sunday morning service, the church holds Sunday and Wednesday evening services for adults. Twenty to 40 children attend Su nday school and the "clubs" held for different age groups on Tuesdays and Fridays. Even though

many adults do not attend the Bible Chapel because they are Russian Orthodox, they let their children participate in the church activities.

A few King Cove residents, including the minister, explained the lack "of interest in the Bible Chapel as a consequence of the prevailing allegiance to the Russian Orthodox church. The fundamentalist approach to Christianity was referred to jokingly by some residents (particularly youth) as "Bible pounding." Other residents said that King Cove simply is not a very religious community; other faiths had attempted to establish themselves in King Cove and had failed to arouse community interest.

In summary, few people in King Cove participated in religious activities during the field study. The two faiths in King Cove, Russian Orthodox and fundamentalist Christian, each had small followings within the community, although it appeared that the construction of a new Russian Orthodox church would generate more Russian Orthodox activities and stimulate many inactive members into participation. Only two linkages to the natural resource harvest were observed. First, fishermen donated money to the Russian Orthodox church after the salmon season; and second, attending the Bible Chapel was not common among fishermen, reportedly because of peer pressure against participating in what was considered a women's domain.

VALUES

E.R. Combs, Inc. (1982:193) identified three main values held by King Cove residents: "the importance and integrity of the family/household, the pursuit of fishing as a livelihood, and the exercise of local control." The study team concurs with this finding as these values were still pre-eminent within the community in 1985. Additionally, two other values emerged during the field study that were found to be very important to residents: progressiveness and the importance of subsistence.

The importance of commercial fishing has become increasingly apparent throughout this report. Its dominance in the community pervades nearly every aspect of community life, a fact that King Cove residents freely admit. They are extremely proud of being fishermen, both individually and as a community that has successfully competed in a highly competitive business. Fishing is

more than just a business, however; it represents a strong cultural heritage in this community. The marriages between Aleuts and northern European fishermen in early King Cove blended two cultures that had always depended upon the sea. Thus, fishing is not just an occupation, rather it is a way of life that is highly valued by the entire community.

Jones (1976) postulated that much of King Cove's success as Aleuts dealing with change was due to the ability of this community to maintain some control over local resources. In particular, she referred to commercial fishing and even local cannery workers' leverage in dealing with the cannery. In this study, it has become clear that King Cove is highly motivated to not only maintain but expand its control of local resources. This tradition dates back to the drive to incorporate as a city in the 1940s for the purpose of becoming independent of non-local government agencies. More recently, the city government has taken bold steps toward independence and fiscal self-sufficiency, not the least of these being its taxation policies. The city and cannery have enjoyed a relatively congenial relationship over the decades, but the importance of local control and self-sufficiency outweighed the potential loss of benefits from the cannery in the eyes of local residents. They preferred to risk jeopardizing the cannery's good will in exchange for increasing the sales tax and thus the city's revenues.

The King Cove Corporation has also acted explicitly to maintain control of its lands, and residents express the importance of local control in their attitudes toward outsiders. King Cove residents are very protective of their community and its position in the natural resource harvest. Thus, this value is closely linked to the preceding one, the importance of fishing as a way of life.

The importance of the family is another value that, like the importance of fishing as a way of life, pervades nearly every aspect of life in King Cove. The family appears to be a thriving institution in King Cove; traditional patterns and roles within the family are clearly established and remain unchallenged among King Cove residents. As has been stated throughout this report, the large size of several families and the small size of the population have resulted in a community with a high level of interrelatedness. It is a community that, hence, operates largely on family ties and with little factionalism.

Subsistence is also an element of King Cove life that is highly valued. In a community such as King Cove, where incomes from commercial fishing might permit most families to purchase all their food, residents continue to take the time and effort to harvest much of their food from the surrounding land and waters. Use of local foods is traditional and, for most people, preferred. Clearly, in 1984-85, the choice between local and store-bought foods is not motivated economically; rather, subsistence, like commercial fishing, is a way of life that is traditional. Although harvest techniques have modernized and merged to some degree with the commercial fishing harvest, King Cove residents' heritage cannot be separated from this important community activity regardless of the shape it takes. In addition to the utilitarian pm-pose, subsistence activities serve an important social function that enhances community solidarity and pride. Thus, subsistence activities and foods are a vital component of modern King Cove residents' lives.

Finally, the study team observed that King Cove residents have shed many other traditional cultural features of their Aleut heritage because, in the words of one resident, they would be considered "regressive rather than progressive." This statement applies not only to ethnic traditions but also to many aspects of residents' lives. As commercial fishermen, King Cove residents have realized the importance of being competitive with outside fishermen and have committed themselves financially to upgrading their equipment so that they might remain competitive. Thus, t-hey are progressive as fishermen. Politically, too, local governmental/political bodies are expressly progressive in their goals and policies. Although Aleut traditions such as language and crafts are becoming obsolete in King Cove, other fundamental traditions persist and are highly valued by King Cove residents, such as subsistence, the marine orientation, and the importance of the family. While protecting their way of life is residents' primary political and economic goal, doing so in the most effective manner is implicit in their endeavors.

These five communally held values guide much of the individual behavior manifested in the daily lives of King Cove residents. Moreover, they motivate residents' responses to issues they confront as a community. While occasional tensions exist within the community, residents are largely united in their values and in the goals they share for the community.

XI. RENEWABLE RESOURCE HARVEST DISRUPTION EFFECTS ANALYSIS

The previous 10 chapters present ethnographic information on the socioeconomic and sociocultural systems of King Cove, a community primarily dependent on the harvest of renewable resources. Throughout collection and analysis of the baseline data, the study team placed particular emphasis upon identifying the relationships between community residents and the harvest of renewable resources. This research focus facilitated identification of economic, social, and cultural components of community life potentially sensitive to a harvest disruption. The purpose of this chapter" is to assess the socioeconomic and sociocultural ramifications of potential renewable resource harvest disruptions on the community of King Cove and its residents. Specifically, two hypothetical harvest disruptions are considered: an oil spill in the Unimak Pass area during the June salmon fishery and construction and operation of a onshore facility in Morzhovoi Bay.

A harvest disruption effects analysis must attempt to answer the following questions: Given certain types and levels of disruption to the harvest of renewable resources, what will be the direct effects (both long- and short-term) on the community's economy, including subsistence and cash; and what will be the secondary impacts on the sociocultural patterns of the community, such as decision-making processes, value systems, and kinship patterns? This chapter addresses these questions in the following five steps:

1. Review the salient aspects of other harvest disruption approaches.
2. Explain the study team's approach to harvest disruption analysis.
3. Identify the components or categories of the socioeconomic and sociocultural systems that would likely be disrupted.
4. Set forth assumptions and standards related to these impact categories.
5. Analyze the effects of the two hypothetical disruptions on the impact categories.

REVIEW OF PREVIOUS HARVEST DISRUPTION ANALYSIS METHODS

The analysis of harvest disruption impacts on rural Alaskan communities is a relatively undeveloped field, particularity in terms of the predictive capability of such analysis. While conducting research in King Cove, the study team evaluated existing impact and harvest disruption analyses, including the John Muir Institute (JMI) studies of Unalakleet (Jorgensen 1984), Wainwright (Luton 1985), and St. Lawrence Island (Little and Robbins 1983), Fienup-Riordan's (1983) study in the Yukon Delta, and recent Canadian models for socioeconomic impact assessment (Blishen 1979, Carley 1984).

In JMI's harvest disruption study in Unalakleet, Jorgensen (1984) ranked harvested species, by season, according to four criteria:

- o contribution to diet;
- o efficiency of extraction;
- o preference; and
- o resource availability.

Contribution to diet carried more weight than the other factors because it defined which resources were predominant staples and which were secondary or tertiary food sources in each season. Jorgensen further ranked each resource by the other three criteria and derived an overall score for each resource.

Jorgensen defined low, medium, and high harvest disruption scenarios based on the ethnographic data collected in Unalakleet. He defined a low level scenario as the current situation in which harvest limitations occurred but were not restricted to one resource and were not of significant duration. A medium level disruption was one in which three predominant staples and secondary sources (any combination thereof) were unobtainable for two consecutive seasons. A high level disruption occurred when four predominant and secondary sources were unobtainable for an entire year.

Jorgensen's ethnographic analysis of Unalakleet emphasized subsistence related topics for which he defined low, medium, and high levels of harvest disruption. He then assessed the similarities and differences between Unalakleet Eskimos and Western American Indians, followed by descriptions of the impacts of large-scale, rapid energy developments on the Western American

Indians and" Alaskan Inupiat. Comparison of Unalakleet Eskimos to these other indigenous groups was the framework for Jorgensen's harvest disruption impact assessment. Jorgensen (1983:342) wrote:

> An assessment of significant similarities and differences, followed by brief assessments of the social and cultural consequences to American Indians in the Western United States and to North Slope Inupiat from large-scale, rapid energy developments in their midst, will provide us with a comparative framework from which concluding postulates about the consequences from medium and high levels of disruptions to the harvests of naturally occurring, renewable species can be drawn.

Jorgensen's comparison between Alaska Inupiat and Western United States Indians underscores the importance of studying other populations that have experienced major impacts to their environment and, consequently, their culture. However, the historical circumstances surrounding disruptions brought on by rapid energy development in the Western United States are significantly different than both the historical harvest disruptions that have occurred in King Cove and the hypothetical disruptions discussed in this chapter. Therefore, while the study team did adopt for use in this effects analysis the four, variably weighted criteria Jorgensen used to rank the importance of subsistence resources, comparison with Western United States Indians was not undertaken.

Also included in the JMI harvest disruption series is a study of Gambell conducted by Little and Robbins (1983). Lacking temporal data to draw conclusions about Gambell's processes of change and adaptation, Little and Robbins employed the same comparative framework as Jorgensen (i.e., between Western American Indians and Alaskan Natives). The Gambell study lacks quantitative data on the subsistence harvests in Gambell. Thus, the authors were unable to analyze the dependence upon each species with the degree of thoroughness that characterized Jorgensen's analysis. Rather, the authors defined the levels of disruption in terms of the effect the disruption would have upon the culture and social structure of the community. Their definitions were similar to Jorgensen's for Unalakleet in that they measured the number of predominant staples and secondary food sources being disrupted simultaneously for a certain length of time.

JMI conducted another harvest disruption study in the village of Wainwright (Luton 1985). Luton incorporated previous ethnographic work in Wainwright into an ethnographic baseline that included an analysis of significant changes in the community over time. Similar to Jorgensen (1984), Luton defined low, medium, and high harvest disruptions in terms of limitations and obtainability of local resources, described the cultural consequences from rapid, large-scale industrial developments among Native Americans, compared Wainwright Eskimos with Western American Indians, and assessed the cultural consequences to Western American Indians from energy developments. Next, Luton discussed the cultural consequences to North Slope Inupiat (including Wainwright residents) from energy related development in the North Slope and described the relevance of energy related developments in the Barrow Arch to the village of Wainwright. These discussions provided the framework for Luton to assess the "plausible cultural consequences" to Wainwright resulting from medium and high level disruptions to the harvests of naturally occurring renewable resources.

Fienup-Riordan (1983) evaluated the effects of harvest' disruption on the socioeconomic and sociocultural systems of three villages in the Yukon Delta. She divided her analysis into three sections. The first section analyzed historic harvest disruptions in order to understand the mechanics of cultural change in the villages. A detailed ethnographic analysis followed which, along with the historical overview, provided the foundation for the third section in which projections were made of sociocultural and socioeconomic change as a result of harvest disruptions. This study focused on the sociocultural and socioeconomic elements that were deemed most sensitive to harvest disruption (as suggested by both the historical and baseline analyses). These elements included:

- dollar replacement cost of subsistence resources;
- cost of harvest;
- village cash economy;
- relationship between income, employment, and harvest levels;
- division of labor;
- exchange of goods;
- exchange of persons; and
- exchange of ideas.

The strength of this approach lies in its use of historic responses to change set in an ethnographic context. Although people and. communities adapt in unique ways to each different situation, analysis of past responses to change can help illuminate possible future responses.

In addition to the above harvest disruption studies, two impact studies of northern Canadian communities are pertinent to harvest disruption effects analysis. Blishen et al. (1 979) stressed the importance of a conceptual framework rather than relying only on the researcher's own experience to suggest the range of cultural categories that could be impacted. This framework for analysis, using community process and change, can be summarized as follows: the current objective economic, social, and political structures exist in a subjective social psychological climate of values, When development occurs, it has social, political, and economic impacts that provoke social psychological responses in the community. These responses determine the collective response to the impact which may in turn influence how consequent social and economic changes occur (Blishen et al. 1979).

The Blishen model relies on both objective and subjective data on political, social, and economic topics. The objective indicators show actual changes such as changes in population, income, and number of welfare recipients. The subjective indicators assess how the changes are perceived by the residents. Blishen et al. (1979) maintained that the residents' level of satisfaction (a subjective indicator) depended on how residents perceived the conditions in their community relative to their expectations, This model is strong in its use of subjective and objective approaches to data collection and its geographic and temporal replica bility but does not include predictive capabilities.

Carley's (1984) cumulative socioeconomic monitoring model for northern Canada was built around seventeen issues which were empirically determined through four sources: extensive interviews with knowledgeable people; local newspapers and newsletters of the past four years; written statements of local and Native groups and government agencies; and extensive review of articles and reports on the region since the 1950s. Having identified those issues which should be monitored due to their importance to the residents of the area, he identified

indicators linked to those issues. "The selection of indicators is then derived from a thorough examination of these issues. Issues are paramount, indicators help us think about issues" (Carley 1984:63). The indicators were both quantitative and qualitative; the latter required a brief report in lieu of statistics. The first year data constitute a baseline and subsequent years' data were to be compared to the baseline to show changes (impacts).

The strength of Carley's model is in the recognition that issues should be studied for they are indicative of the concerns of the local people. Issues usually indicate tension or conflict between two or more interest groups and serve to articulate the values and expectations held by each group. For our purposes in impact assessment," the identification of issues can offer an excellent window on the values, expectations, and processes of change in a community. Another strength in Carley's model was the selection of issues to be monitored. His search was thorough and reflected what was important to the region rather than what was important to the researcher or what data were available. This empirical focus on local issues is a sound approach to understanding community values, expectations, and perceived threats, and is a useful guide to the preliminary selection of impact indicators.

In conclusion, review of past harvest disruption studies and impact assessment models from Alaska and northern Canada was the first step in the development of the methodology used in King Cove. Elements from these previous studies have been incorporated into the King Cove harvest disruption methodology and effects analysis. Jorgensen's (1984) weighted ranking of subsistence harvest data according to contribution to diet, efficiency of extraction, preference, and availability is used in the analysis of potential subsistence impacts. In a similar manner to Fienup-Riordan (1983), SRB&A analyzed past harvest disruptions in King Cove to identify likely response patterns to potential disruptions. After Carley (1984), SRB&A used empirically derived local issues as a method to identify potential impact categories and to ensure that impact categories selected were the most relevant. In sum, the King Cove harvest disruption methodology incorporates aspects of previous research efforts with a number of new elements designed specifically for application in King Cove. This methodology is presented below.

HARVEST DISRUPTION EFFECTS METHODOLOGY

The methodology SRB&A used to analyze the effects of renewable resource harvest disruptions on the community of King Cove has three major components: baseline information, data categories (organized around aspects of King Cove society vulnerable to disruption), and harvest disruption scenarios. How these components are integrated so that local response to the disruptions can be forecasted is outlined in the Conceptual Framework below. Underlying the collection of baseline data, the identification of appropriate data categories, and the selection of realistic harvest disruptions is a theoretical approach that accommodates the adaptive techniques by which people interact with their total environment.

Theoretical Approach

Our theoretical orientation is derived from the theory of cultural ecology. From this perspective, the economic sphere (which, in King Cove is founded in the harvest and processing of renewable resources) is considered a primary operant variable within the cultural system. As such, the commercial and subsistence harvesting of renewable resources is seen as a fundamental influence on the culture. Hence, local values and behavior reflect the importance of these activities. Disruption to the resources can have far-reaching implications in the community related to behavior, values, and the structure of the social system.

While the study team believes that the identified purpose of the King Cove harvest disruption study implies the operant nature of the economic sphere, we also realize the importance of the other components of the cultural system. The concept of feedback allows the non-economic (e.g., social, political, and ideological) subsystems to affect the process of change within the cultural system as a whole, For example, in King Cove the local fishing union is constantly promoting change within the economic subsystem by influencing the price paid to fishermen for their catch. However, our approach requires the existence of commercial fishing before the political sphere responds with the formation of a fishing union. The ideological subsystem is also an important source of feedback into the other components of the cultural system.

Based on this theoretical orientation and the focus of the research problem, SRB&A field tested four preliminary assumptions related to the harvest of renewable resources by King Cove residents. The assumptions tested were:

1) The harvest of renewable resources (both commercial and subsistence) is responsible for much of the diet, income, and time allocation in the community.

2) The reliance upon these resources is significant enough to form much of the social, political, economic, ideological, and other behavior in the community.

3) A disruption to the harvest may affect any number of aspects of culture.

4) Because the harvest of these resources is also the main source of cash income in the community (primarily through fishing and fish processing), the ramifications of a disruption would be more far-reaching than in a community where the cash base is not as dependent on the -harvest of natural resources.

These assumptions were subsequently refined to include the knowledge gained from the field portion of the study. The refined and field tested assumptions read as follows:

1) The commercial harvest of renewable resources is the primary source of income for the vast majority of King Cove households while the subsistence harvest of renewable resources provides 60 percent of the meat, fish, and other seafoods consumed in the community. These commercial and subsistence efforts require the majority of time allocation in the community.

2) The reliance upon renewable resources is so significant that it influences and shapes much of the social, political, economic, ideological, and other behavior in the community.

3) A significant disruption to the renewable resource harvest activities (both commercial and subsistence) will affect residence patterns, kinship, employment, social health, ethnic relations, political dynamics as well as other elements of village culture.

4) Because the commercial harvest of renewable resources is the main source of revenue to the community (primarily through fishing and fish processing), the ramifications of a disruption would be more far-reaching than in a community where revenues are not so disproportionately dependent on the harvest of natural resources.

These four modified assumptions, all tested in the field, demonstrate the theoretical orientation that underlies our approach to analyzing the effects of a harvest disruption in King Cove. As stated above, baseline information, data categories, and harvest disruption scenarios are the necessary building blocks for forecasting potential impacts. The conceptual framework presented below shows how each of these components is related in our approach.

Conceptual Framework

Our conceptual framework is, simply stated, a method for standardizing the thought process used in the harvest disruption effects analysis. It is a method of indicating how the study team views processes of change while focusing on salient aspects of change. By demonstrating how the major components of our methodology are interrelated, the conceptual framework explains schematically the steps taken by the study team in assessing the impacts of renewable resource harvest disruptions on the community of King Cove.

Figure 11-1 graphically represents the relationships between the major components of our analytical framework, including the forecasted responses of King Cove residents. Collection and analysis of baseline information on the community is considered the first step of analysis and is subdivided into three categories:

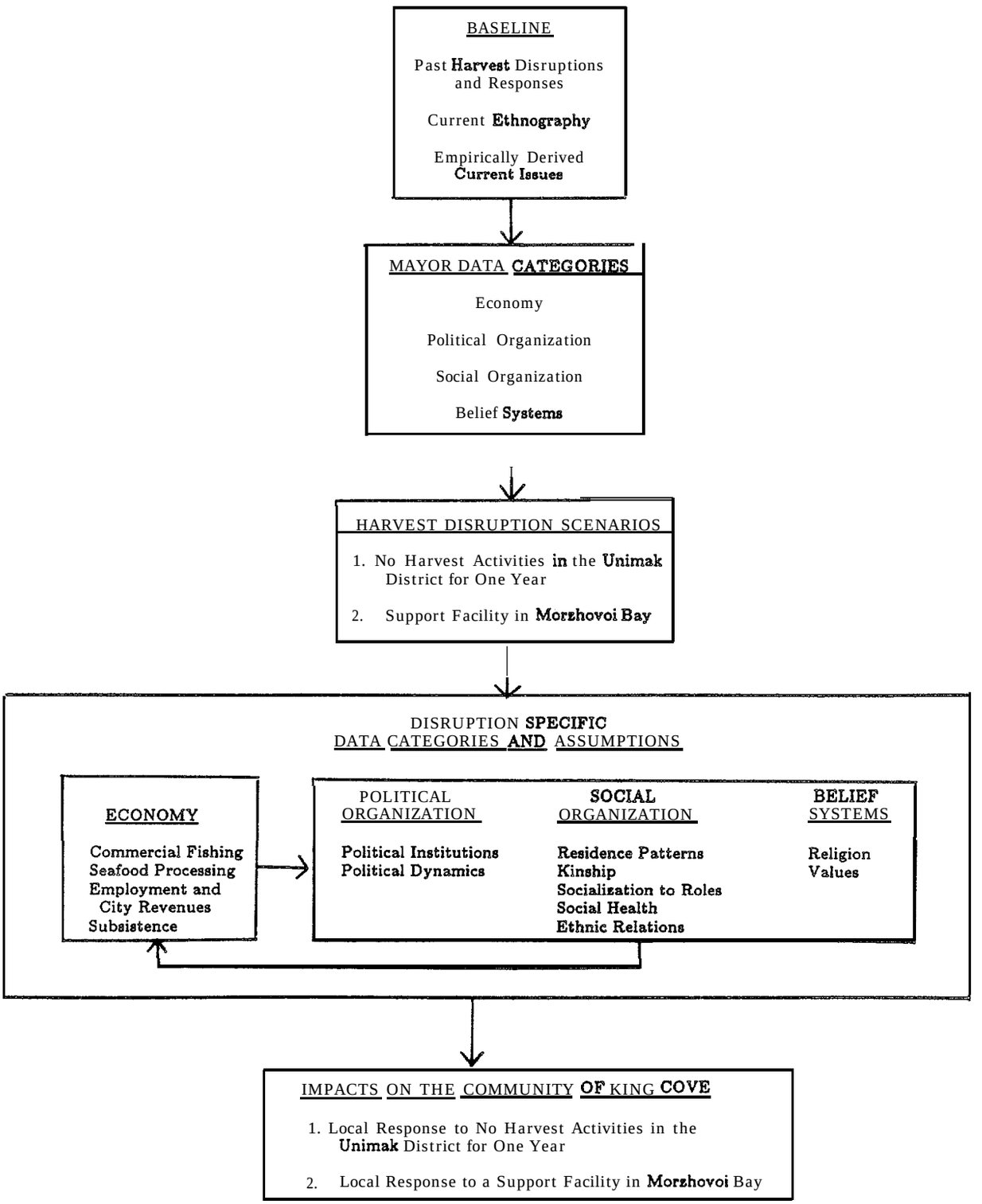
1) An historical analysis of previous disruptions to King Cove's renewable resource harvest activities including descriptions of community and individual reaction to the disruptions.

2) A current ethnographic description that provides the baseline information necessary to identify and measure the significance of changes brought on by a disruption.

3) An assessment of empirically derived current issues related to renewable use patterns as well as possible responses to disruption.

As shown in Figure 11-1, review of baseline information results in identification of the major topical elements potentially influenced by a harvest disruption. These topics are, at the broadest level, the data categories to be considered in the effects analysis. At this point in the

Figure 11-1: KING COVE HARVEST DISRUPTION EFFECTS ANALYSIS - CONCEPTUAL FRAMEWORK



methodology, a harvest disruption is imposed as the initial stimulus or force for change. In consultation with MMS, SRB&A selected disruptions based on the availability of relevant data and" the likelihood or feasibility of the disruption actually occurring. The two harvest disruptions considered in this study are

- o No fishing at South Unimak for one year.
- o Construction and operation of an onshore facility in Morzhovoi Bay.

Because the location, magnitude, and duration of a disruption are dependent on the exact harvest disruption scenario chosen, the specific data categories and assumptions to be considered in the effects analysis were determined after the disruption scenarios were chosen. The disruption first impacts the economy, including both subsistence and cash economies. Economic repercussions, in turn, may cause a variety of secondary impacts and responses in the social and cultural spheres. Finally, the economic, social, and cultural impacts and individual and community responses are described.

The remainder of this methodology section describes each of the various components presented in the conceptual framework in more detail. Discussion of the three major categories of baseline information (past harvest disruptions, ethnography, and current issues) is followed by detailed descriptions of the two disruption scenarios chosen. The section concludes with the economic, social, and cultural assumptions for the major data categories addressed in the harvest disruption effects analysis.

Past Harvest Disruptions in King Cove

One of the most valuable approaches to projecting the impacts of a harvest disruption on a community is to review historic disruptions and analyze the impacts they had upon the community at that time. As discussed above, review of past disruptions formed an integral part of the methods used by Luton (1984) in Wainwright and Fienup-Riordan (1983) in several lower Yukon communities. Fienup-Riordan contends, and we concur, that trends in past and present sociocultural systems will "structure the response of a particular community to unprecedented events" (Fienup-Riordan 1983:449). This section describes past

disruptions in King Cove's harvest of renewable resources and discusses the community's response to them.

Since the founding of King Cove in 1911, the community has relied on the harvest of fishery resources for its economic well-being. Acting as a focal point for local fisheries activities, the community expanded at the expense of other communities (e.g., Belkofski) in the area. Despite both market and resource fluctuations over the years, King Cove has continued to grow and the once small fishing fleet has flourished. The nature of these past fluctuations and the conditions that allowed the community and fishing fleet to persist are the focus of this discussion. In particular, SRB&A examines historic changes in resource abundance and resource markets as the primary cause of past harvest disruptions in King Cove.

The review of these previous disruptions was two tiered: SRB&A first reviewed all related literature and second spoke with local residents about how they responded to the past disruptions. While resource fluctuations and changes were discussed in the literature, inadequate consideration was given to the linkages between these disruptions and the rest of the economic, social, and cultural elements of the community. This information gap was especially evident in areas such as past harvest patterns (of both commercial and subsistence resources) and associated sociocultural effects. Consequently, the memories of key informants became the primary data source for this information.

The examination of historic changes in resource abundance and resource markets focused on three historical harvest disruption% the demise of the Pacific cod industry in the 1930s, steep declines in the salmon catches in the mid- 1960s and mid- 1970s, and, more recent! y, the decline of king crab stocks and closure of that fishery in 1982. For each of these disruptions SRB&A staff attempted to:

1) Determine what economic adaptations the community made in response to the disruption.

2) Determine if the adaptations were satisfactory to the village residents, and why or why not.

3) Identify the pivotal linkages between the disruption and each category of the social system by specifying the issues of concern to the local community.

4) Identify the categories of the social system which were affected by the disruption.

By subjecting past episodes of disruption to this analysis, several patterns of change and adaptation that are characteristic of King Cove have been identified. These patterns are described below and summarized at the end of this analysis of past harvest disruptions in King Cove.

Commercial Cod Fishery

The following information on the early cod fishery is from Cobb (1916) and Natural Resource Consultants (1981). Americans first sought cod in the Gulf of Alaska around the Shumagin Islands in 1865. Fishing was carried out exclusively by vessels sailing from San Francisco and Puget Sound until 1876 when the first shore station was established at Pirate Cove in Popof Island (in the Shumagin Island group). The fishery rapidly expanded with peak catches occurring during World War I when annual catches of about 3.8 million fish, corresponding to about 44 million pounds, were taken. Catches tapered off after 1920, although a few schooners continued to operate in the Bering Sea until the early 1950s. The main product of this fishery was dry salted cod, although limited quantities of stockfish (air dried cod), pickled cod, and cod tongues were also produced.

The shore-based fishery was centered around the Shumagin Islands and the Sanak Islands, areas close to the important fishing banks. Shore-based fishing was carried out from dories operated by one man, in waters close to shore.

Cod was not processed on shore in King Cove. The nearest shore station was located at Thinpoint, and in 1915 four stations were located on Sanak Island. Cobb (19 16) states that Natives who participated in the fishery in 1915 did so exclusively as fishermen, not as shore workers. Of the 159 inshore fishermen operating in 1915, 16 were Native, although no information is given about their home village.

The decline of the early U.S. Pacific cod fishery essentially resulted from market factors. Fishing firms experienced difficulty penetrating established markets in the U.S. and elsewhere because of the perceived inferiority of

Pacific cod to Atlantic cod. In addition, competition with cheaper products from European countries, and later, competition from Japan impeded continued development of. the fishery.

Although the major declines in the area's cod fisheries occurred several decades after the establishment of King Cove, the disruption of this industry significantly influenced King Cove in three ways. First, the cod industry decline was an instrumental force leading to residents of the region settling in King Cove on a permanent rather than seasonal basis. Second, field data suggests that many of the major families that currently dominate King Cove's population moved to King Cove to take advantage of the new opportunities there. Third and finally, migration to King Cove represented adaptation to a completely different fishery.

As stated previously (see Chapter IV, History Of King Cove), people moved to King Cove from a number of locations on the Alaska Peninsula (e.g., Belkofski, Thinpoint, Morzhovoi) as well as from locations in the Sanak, Shumagin, and Unimak islands (e.g., Sanak and Pavlof harbors, Unga, Ikatan, and False Pass). However, interview data suggest that during the 1920s and 1930s residents of Belkofski continued to travel to the community seasonally while families and individuals from the more distant failing cod stations chose to settle permanently near the new salmon processing facility. King Cove elders who remember bringing their young families to King Cove for permanent settlement occasionally noted that this decision resulted in separation from other family members but considered the improved economic opportunities related to the salmon cannery more important than kinship ties. These settlement patterns suggest the demise of the cod industry was a major influence in the establishment of King Cove as a permanent settlement instead of a seasonal processing center.

As stated above, the King Cove cannery was never involved in this historical cod fishery. Although the new facility located in King Cove was also dependent on the harvest of renewable resources, the salmon industry was significantly different than the cod industry - especially in terms of processing. Unlike cod processing which required only salt and sun, salmon canning required substantial investments in machinery resulting in a more permanent

infrastructure. The existence of this infrastructure, and local residents' adaptation to this industry, would prove important during later periods of disruption and change.

In summary, the crash of the cod industry occurred early in the history of King Cove. Consequently, as the cod fishery declined, people migrated to King Cove from the various outlying cod processing stations. Because of the nature of this disruption and the in-migration to King Cove from many different locations, it was difficult for the study team to determine whether or not the adaptations were satisfactory in the minds of village residents. Some elder residents of King Cove, however, noted that moving to King Cove resulted in separation from family members. The new residents of King Cove, while still dependent on the harvest of renewable resources for their livelihood, demonstrated a flexibility and willingness to adapt to changing conditions that is still prevalent today among King Cove residents.

Declining Salmon Harvests (1960s - 1970s)

The history and dynamics of the commercial salmon fishery since it began in the Alaska Peninsula region in 1906 are complex and were discussed in Chapters IV and VI. In King Cove, commercial salmon fishing must be considered in the context of the ever-changing relationship between the residents of the community and the cannery. It is sufficient here to state that until Alaska achieved statehood in 1959, the cannery depended primarily on company owned fish traps for harvesting salmon with relatively few local residents owning fishing boats. With the outlawing of traps in 1959, the number of local residents buying boats and actively participating in the salmon fishery in other ways (set gillnetting, hand seining from small skiffs, or as crew) increased. Unfortunately, this expansion coincided with declining salmon stocks.

Salmon catches which had been relatively low during the 1950s and early 1960s plummeted during 1966 and 1967. They recovered somewhat in 1969 and 1970, then entered another sharp decline with 1974 and 1975 being among the worst years on record {Figure 4-2). Local King Cove residents responded to the declining salmon stocks with the following economic adaptations:

1) Increased effort in crab and halibut fishing.

2) Withdrew from salmon fishing or supplemented salmon fishing with other wage employment both in and outside the community.

3) Migrated to Anchorage or other communities to seek full-time employment,

In the first two instances, where the disruption did not necessitate out-migration from the community, local residents stated that their personal use of renewable resources remained high, accounting for the majority "of their diet. Local residents reported mixed feelings when asked if these adaptations were satisfactory. All respondents remembered the poor salmon years and the financial hardships endured. Those residents who left and subsequently returned to King Cove expressed the least satisfaction with the adaptations made necessary by the disruption.

Three specific impacts to the social system were identified as a result of this disruption. The first and most significant impact was the strain placed on social relations and kinship ties due to the out-migration of some local residents. Second, once local residents identified the unstable nature of the salmon fishery, they placed increased value on formal education for their children. Finally, a local fishing union designed to influence salmon management and market conditions was established. These adaptations to reduced salmon stocks present important patterns of change and adaptation by King Cove residents.

The Crash of the King Crab Fishery

The sharp decline of local king crab stocks in the early 1980s and the closure of that fishery beginning with the 1983 season marked the end of 30 years of king crab fishing in King Cove (Figure 4-3). The study team initially thought that this disruption, being the most recent, would have had dramatic impacts in the community. However, the multi-species nature of the King Cove fishing industry and the complementary roles of salmon and crab served to lessen the impact of this important event. As shown in Figure 6-1, by 1982 crab accounted for 19 percent of King Cove fishermen's gross earnings. Of this total, slightly more than half of these earnings were from king crab. This loss of

earnings had the most impact on those relatively few individuals (Table 6-3) who specialized in crabbing only. It should be emphasized that if the demise of the crab industry had occurred during a period when salmon earnings were also depressed, rather than during a period of near record salmon harvests, impacts would have been far more severe and long lasting

The processing sector in King Cove was perhaps more seriously impacted by the multiple king crab closures throughout the Westward Region than were the King Cove fishermen. As shown in Table 6-21, king crab from the Bering Sea and local waters was a major product for the PPSF plant from 1979 through 1981 and allowed the plant to operate year-round. Lacking adequate king crab supplies, the plant has been forced to close for much of the winter, significantly reducing its efficiency,

One important linkage between the closure of the king crab fishery and the sociocultural systems operating in the community was a dramatic reduction in the amount of time residents were actively involved with fishing activities. Prior to the crab fishery closure, a King Cove resident could conceivably fish nine or 10 months of the year (Figure 6-2). Currently, fishing for most King Cove residents is limited to three months of salmon fishing, a month of Tanner crab fishing, and several 48 hour halibut openings. It is noteworthy that participation in the local halibut fishery has been increasing in King Cove since 1980. This increase is a good example of how the non-economic (political and social) influences of the cultural system can, through feedback, influence economic activities. Our field data suggest political forces (related to the possible future implementation of a limited entry system for halibut fishing) and social forces (related to the excessive amount of free time local residents now have since the king crab decline) in combination with underlying economic forces were the reasons for this increase. Some King Cove fishermen might not have commercially fished halibut for economic reasons alone. However, given the political and social forces just described combined with the financial opportunity provided by commercial halibut fishing, this essentially economic activity was undertaken.

Past Disruptions Summary

The responses of local residents to these and other past disruptions demonstrate the community's ability to adapt to harvest disruptions. Important characteristics of the community and its residents regarding disruptions include:

- o The continued reliance on the harvest of renewable resources, both subsistence and commercial, as the mainstay of their livelihood.
- o The adaptive ability to change harvest effort among species groups depending on market conditions and resource fluctuations.
- o In-migration and out-migration and the associated impacts to kinship networks and social ties.

These observed patterns can be considered in light of potential future harvest disruptions.

Ethnography

A complete and current ethnography provides the majority of the baseline data necessary for the harvest disruption effects analysis. The ethnography, describing current economic, social and cultural conditions, is important for two reasons. First, the process of collecting this information is one method used to identify important community issues (the importance of these issues is discussed below). Second, the ethnographic description of current conditions in the study community forms the baseline or base case against which changes caused by potential harvest disruptions can be measured. A current ethnographic description of King Cove is presented in the previous 10 chapters of this report.

Current Issues

Issues can be considered indicative of conflict or tension at the values level of a community and for this reason are a valuable tool in selecting appropriate data categories for analysis. In the face of a crisis such as a harvest disruption, the values and goals of local residents will affect community responses to the disruption. In identifying the values, expectations, and

aspirations of King Cove residents, we have taken from Carley (1984) the approach of specifying issues of local concern.

An understanding of the values held by. King Cove residents as identified through issues was accomplished by attendance at meetings, analysis of written statements and reports, and discussions with local residents and between study team members. As additional indicators of values, we also ascertained through interview data residents' goals with regard to economic development, subsistence, family life, community well-being, and other topics. These subjects were discussed at length in the preceding ethnographic chapters and summarized in Chapter X.

The ideological structure, representing community held values and goals, is essential to the King Cove harvest disruption study because goals and values are cohesive elements guiding the everyday behavior of individuals. The study team identified five main values that characterize the community:

1) Local Control
2) Importance of Commercial Fishing
3) Importance of Family
4) Subsistence
5) Progressive vs. Regressive

Selection of each of these community values was based on a number of supporting issues identified in the field by King Cove residents. For example, the controversy surrounding the city's tax on raw fish - effectively a tax on the cannery - clearly united community residents in a desire to maintain independence from the cannery and maximize resources to benefit the community. Residents expressed strong sentiments regarding the importance of not letting the cannery dominate the balance of power within the community (see PP 8-11 to 8-13). Understanding King Cove residents' goals and values, especially as they relate to the renewable resource harvest, was undertaken as a means of more accurately projecting the choices the community will make in response to a harvest disruption.

Impact Categories

As described in the Conceptual Framework, the study team's approach to evaluating the potential effects of harvest disruptions includes both an historical review and current assessment of quantitative and qualitative elements of King Cove's socioeconomic and sociocultural system. The categories listed below are the salient elements of modern King Cove that the study team believes are most susceptible to change in the case of a harvest disruption.

ECONOMY

- Commercial Fishing
- Seafood Processing
- Employment and City Revenues
- Subsistence

SOCIAL ORGANIZATION

- Residence Patterns
- Kinship
- Socialization to Roles
- Social Health
- Ethnic Relations

POLITICAL ORGANIZATION

- Political Institutions
- Political Dynamics

BELIEF SYSTEMS

- Religion
- Values

After presentation of the harvest disruption scenarios used in this analysis, assumptions that enable the study team to describe likely impacts to King Cove residents are assigned to each of the impact categories. The selection of assumptions was guided in part by the chosen disruption scenarios. Finally, the ethnographically based assumptions and standards are considered together in addressing potential changes to the baseline arising from one of the two hypothetical harvest disruptions. The baseline data for this analysis are found in the preceding ethnography while potential changes resulting from the two scenarios are discussed in this chapter.

HARVEST DISRUPTION SCENARIOS

As discussed above, the objective of this chapter is to explore the potential consequences of disrupting King Cove residents' renewable resource harvest activities. Because it is beyond the scope of this project to explore all ongoing and possible future OCS oil and gas development activities that, under certain circumstances, could disrupt the natural resources upon which King Cove residents depend, only impacts related to two selected disruption scenarios are

described. No effort has been made to address the probability of the disruptions described actually occurring. Nonetheless, in order for this analysis to be of use to policy makers, the disruptions that are analyzed must be realistic in light of anticipated onshore and offshore activities ongoing or planned in the area. Given this aim, the following discussion is divided into two sections. First, ongoing and planned OCS development in the study area and the potential impacts resulting from this development are briefly reviewed. Second, the two disruption scenarios used in this analysis are described in detail.

OCS Development

The St. George Basin Final Environmental Impact Statement (United States Department of the Interior [USDI], MMS 1985) cited a number of federal offshore oil and gas lease sales that have already occurred in the Bering Sea, or that are planned for the near future. These sales include three in the St. George Basin (Sales 70,89, and 101), two sales in the Navarin Basin (Sales 83 and 107), and one sale in the North Aleutian Basin (Sale 92). To date, draft or final environmental impact statements have been prepared for Sales 70, 83, 89, 92 and 100 in an effort to identify characteristic activities and possible impacts that could result from these sales (USDI, MMS 1982, 1984, 1985a, 1985b and 1985c). In addition, each document considers the cumulative effects of these and other OCS activities on the southern Bering Sea and Alaska Peninsula/Aleutian Islands region. These studies demonstrate a thorough knowledge and understanding of the potential form that OCS development might take, including the resulting environmental impacts. However, the assumptions upon which the facility locations and transportation scenarios are based vary between the different studies as do the described impacts. The following discussion presents a generalized summary of the potential OCS activities in the study region.

Oil produced in the southern portion of the St. George Basin and that produced in the North Aleutian Basin would likely be transported by "underwater pipelines to the Alaska Peninsula at which point an overland trans-peninsula pipeline would transport the oil to a tanker loading facility and oil terminal built on the southern shore of the peninsula. Each additional sale in the region that resulted in 'oil production would increase the "number of platforms and

pipelines in the southeastern Bering Sea, and the potential for additional oil spills from oil production in these areas" (USDI, MMS 1985a: IV-101). Any oil produced in the Navarin Basin or from the proposed Barrow Arch (Sale 109) and Norton Sound (Sales 57 and 100) would also likely be transported by tankers through the southern Bering Sea, Unimak Pass and the North Pacific Ocean. In addition, the tankering of some Canadian oil through this region is also a possibility (USDI, MMS 1985a). In summary, there is a significant" increase in cumulative oil-spill risk in the region due to:

> potential tanker traffic from Navarin, Norton, and Barrow Arch Basins; other oil transportation; and combined St. George and North Aleutian Basin leasing activities (USDI, MMS 1985a:IV-60).

In addition to the potential impacts of oil-spills in the region, onshore development and increased human use of the peninsula could impact resources upon which King Cove residents depend. Assuming oil production occurs in the southern Bering Sea, population increases would be likely in Cold Bay (due to this community's importance as an air transportation center) and in the area of the tanker-loading facility on the southern side of the peninsula. Impacts could include both physical changes (pipelines, roads, and facilities) as well as increased human use of natural resources. According to the Bristol Bay Cooperative Management Plan (State of Alaska and USDI, 19848-192), most physical impacts related to onshore development would be temporary and site specific while human impacts could be mitigated by housing "personnel "for operation and maintenance of the pipeline and terminal . . . in self-contained enclaves."

Because of the nature of development in the region, SRB&A is using a geographical scenario approach to harvest disruptions. We believe that given the abundance and diversity of resources in the area, it is unlikely that a particular resource will become unavailable throughout the entire harvest area used by King Cove residents. Rather, it appears more likely that particular resources in particular locations could be made unavailable for certain periods of time. Thus, the remaining sections of this chapter analyze the impacts of two hypothesized scenarios that result in localized harvest disruptions. No predictions are made as to the likelihood of these scenarios occurring. Rather, the scenarios were chosen in consultation with MMS for their

reasonableness, their illustrative value, and their pertinence to resource management issues.

Scenario 1: No Fishing in South Unimak Vicinity for One Year

This scenario assumes a large oil spill occurs within Unimak Pass in early June. This spill results in closure of the South Unimak fishery for that year and in near shore marine and coastal areas being essentially off limits for subsistence harvests for one year (Figure 11-2). This scenario was chosen for several reasons. First, the South Unimak fishing grounds are at the southern portal of Unimak Pass, the primary tanker route for all OCS activities in the Bering Sea as well as other lease areas of the western Arctic. As such, a catastrophic event here is possible, especially considering that:

> Unimak Pass represents the principal portal through which U.S.-generated traffic enters the Bering Sea region [and that] navigation within the Unimak Pass area is usually complicated by storms and heavy fog (USDI, MMS 1985a: 111-89).

Second, the South Unimak salmon fishery is of great importance to all King Cove salmon fishermen (i.e., both seiners and drift gillnetters), and therefore a disruption here would likely have measurable and far reaching consequences in the community. Third, salmon harvested at South Unimak Pass in June are en-route to Bristol Bay and the Yukon-Kuskokwim drainages. Thus, the South Unimak fishery is called an "intercept" fishery. Bristol Bay and Yukon/Kuskokwim fishermen rely heavily on these salmon for much of their livelihood. Consequently, since salmon passing through the South Unimak area are destined for Bristol Bay drainages and the Yukon and Kuskokwim rivers, a disruption at South Unimak would be significant to not only South Unimak fishermen but potentially to fishermen from communities further north as well.

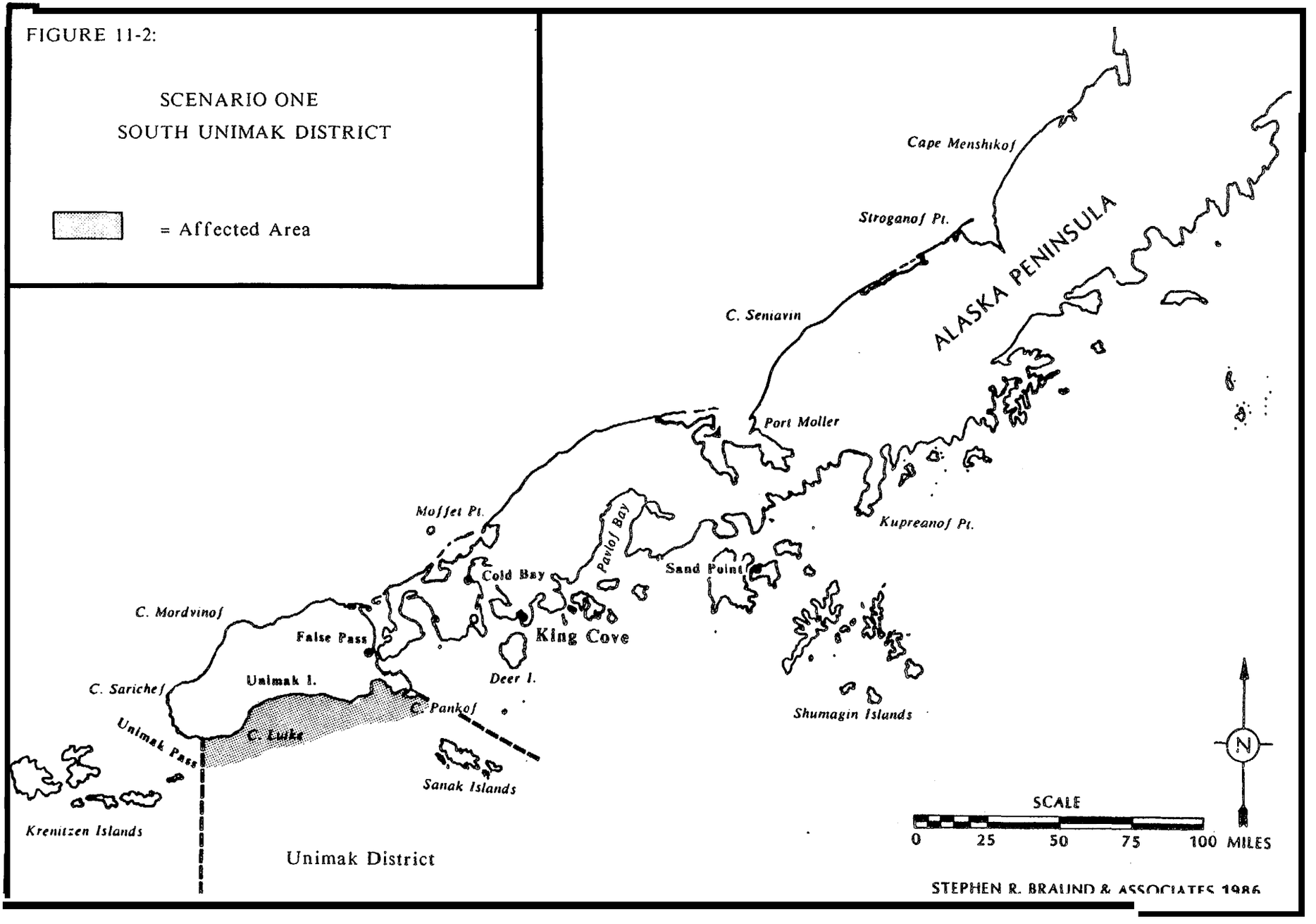
Scenario 2: An Onshore Facility in Morzhovoi Bay Which Limits Access to the Uplands at the Head of Morzhovoi Bay and the Fishing Grounds Within the Bay

Morzhovoi Bay has been named by the MMS as one of several potential oil and gas processing and tanker terminal sites in the Alaska Peninsula region :

FIGURE 11-2:

SCENARIO ONE
SOUTH UNIMAK DISTRICT

= Affected Area

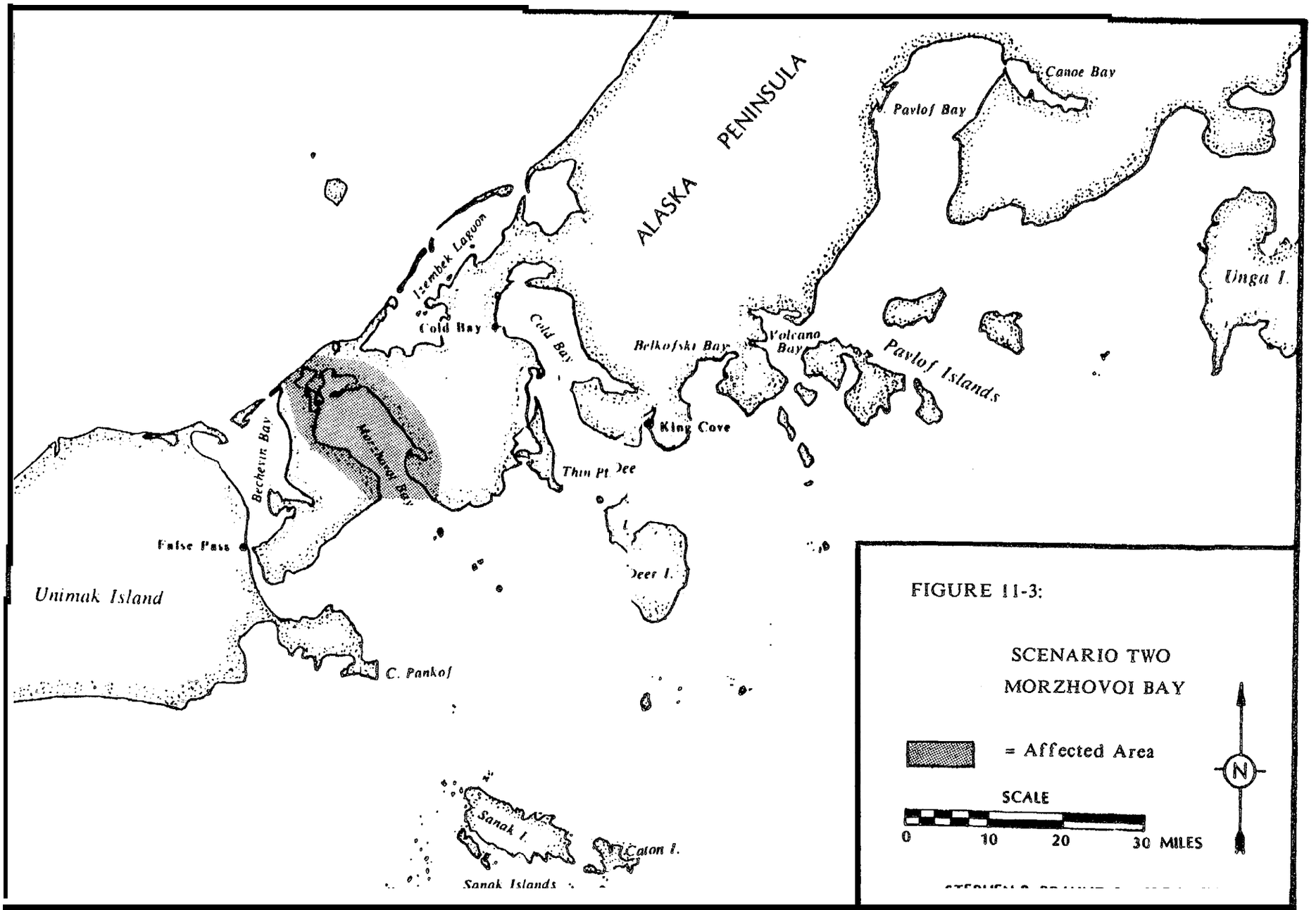


> Morzhovoi has a large, natural, deepwater harbor with sufficient adjacent land for shore facilities. Deepwater moorage begins 914 to 1,820 meters (3,000-6,000 ft.) offshore. Assuming a landfall on the Bristol Bay coast, only 5 to 13 kilometers (3-8 mi) of pipeline, constructed over generally flat terrain, would be needed to reach the site (USDI, MMS 1982:III-85).

This south Alaska Peninsula bay was also selected as an alternate site for a trans-peninsula pipeline and tanker terminal loading facility by the Bristol Bay Cooperative Management Plan:

> Bering Sea to Morzhovoi bay: This corridor passes through Morzhovoi Isthmus and under Morzhovoi Bay to either its north or south headlands. The. length of the corridor through the Isthmus is about six miles. An additional nine to fourteen miles is required to reach a terminal site (State of Alaska and USDI 1984:4-101).

Figure 11-3 shows the area assumed to be impacted by the proposed development and operation of such a trans-peninsula pipeline and tanker terminal facility. A large oil spill in Morzhovoi Bay or at the mouth of the bay would likely damage an area larger than the bay itself. However, as the major focus of this scenario is impacts to the coastal and terrestrial habitat and resources, the affected marine environment was limited to within the bay. Two potential sources of disruption to the renewable resource harvests of King Cove residents could emerge as a result of development in Morzhovoi Bay. First, harvest activities could be disrupted through damage to fish and wildlife populations or the habitat upon which they depend. Second, competition for the resources could increase with the increased number of people working at the terminal site. For the purposes of this disruption scenario, it is assumed that nonresidents workers in such a development enclave (Nebesky et. al. 1983 estimated a peak employment of 2,650 people) would be prohibited from hunting and fishing in the area. However, it also is assumed that for whatever reason (either due to the construction process or due to an oil spill in the bay after completion) that development of the terminal site restricts access to the upland areas at the head of the bay, as well as to the bay itself. This scenario allows a review of both onshore and offshore impacts, as the Morzhovoi Bay area is used for both subsistence hunting and commercial salmon and Tanner crab fishing. However, for the purposes of this discussion, the study team assumed that oil spilled in Morzhovoi Bay would not have impacts that extend beyond the mouth of the bay.


ALASKA PENINSULA
Canoe Bay
Pavlof Bay
Unga I.
Izembek Lagoon
Cold Bay
Cold Bay
Belkofski Bay
Volcano Bay
Pavlof Islands
King Cove
Thin Pt
Bechevin Bay
False Pass
Unimak Island
Deer I.
C. Pankof
Sanak I.
Caton I.
Sanak Islands
FIGURE 11-3:
SCENARIO TWO
MORZHOVOI BAY
= Affected Area
SCALE
0
10
20
30 MILES
N

In summary, a multitude of events associated with OCS oil and gas development could result, under certain circumstances, in a disruption of the natural resource harvests upon which King Cove residents depend. Additional effects that may accompany petroleum development, such as increased employment opportunities, an expanded tax base, and/or land leases are beyond the scope of this study. Rather, this analysis focuses on potential impacts resulting from renewable resource harvest disruptions. 'The two disruption scenarios selected were chosen for their illustrative value without assessing the likelihood of their actual occurrence. The reader is referred to the environmental impact statements prepared by the MMS on OCS activities in the region (USDI, MMS 1982, 1984, 1985a and 1984b) for oil spill risk probability analyses.

DATA CATEGORY ASSUMPTIONS

The study team selected data category assumptions for the elements of King Cove susceptible to change from the described disruption scenarios. These assumptions could vary if different disruptions were considered. For example, an oil spill in a different location and at a different time of year could impact the Tanner crab fishery far more than the salmon fishery. In this section, assumptions are made for each of the broad level data categories (see Impact Categories) related to the specific activities that would be impacted by either of the selected disruptions.

The Economy

The economy of King Cove is based "on the commercial harvest of renewable resources, which includes both commercial fishing and fish processing. As demonstrated in Chapter V, the fishing industry is an essential element of the King Cove cash economy. The fishing industry is, of course, extremely sensitive to any changes in the availability of commercial species; consequently it is sensitive to impacts from a harvest disruption. Because of extensive linkages between the fishing industry and other segments of the economy, any disruption affecting the fishing industry will affect other economic sectors as well. The subsistence harvest of renewable resources, while of secondary importance to the commercial fishing industry, is also integral to King Cove's economy. As in the case of commercial fishing, subsistence harvest

activities are also susceptible to the effects of a harvest disruption. Specific assumptions pertaining to each economic impact category are presented below.

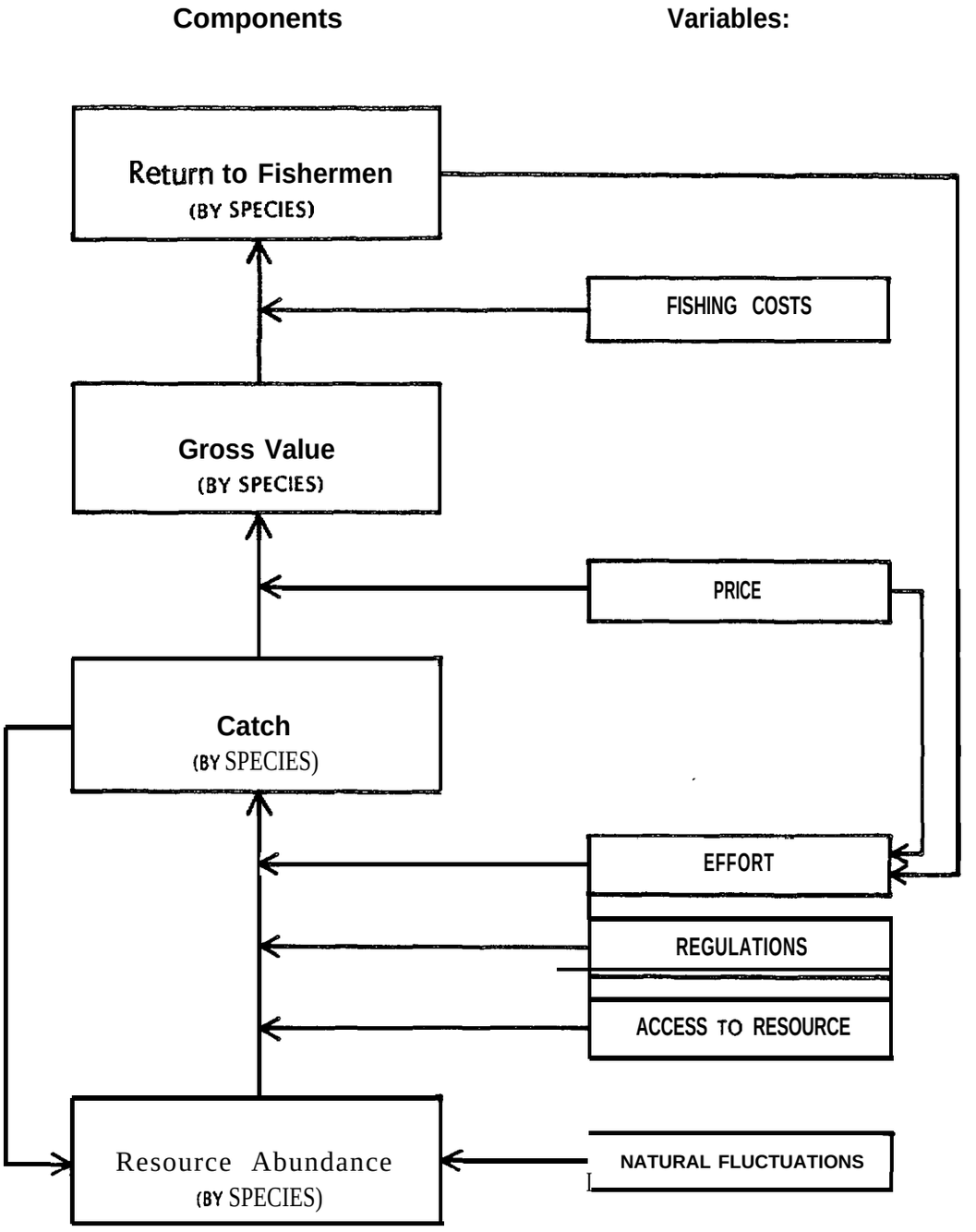
Commercial Fishing

The components that define the King Cove commercial fish harvesting sector and the major variables that affect these components are illustrated in Figure 11-4. This diagram is useful in that it depicts how different variables and changes, both "natural" and those resulting from OCS oil and gas activities, can affect King Cove's commercial fisheries. It must be emphasized that commercial fishing is a dynamic economic activity. Each year a large number of variables interact to determine whether the year will be economically good or poor. Many of these factors are not likely to be affected by OCS oil and gas activities. Examples of non-OCS factors that typically cause variations in commercial fisheries include the following

- o Annual and long-term variations in resource abundance.
- o Market variations that can affect ex-vessel price, the number of buyers interested in a product, and the total market demand.
- o Competition for the resource. Increases or decreases in the number or efficiency of fishermen targeting a particular species can result in changes in total. catch per fisherman, changes in the timing or duration of the fishing season, and/or how the catch is distributed among participating fishermen.
- o Management and/or regulatory changes that restrict or increase access to a resource and/or allow more or less of the resource to be harvested.

The existence of naturally occurring disruptions or perturbations means that all harvest disruptions resulting from OCS oil and gas activities are superimposed on a highly dynamic situation; hence, the consequences of such disruptions depend in large measure on the particular configuration of the industry when the disruption occurs. The possible impacts of oil and gas development on commercial fisheries have been explored through a variety of studies funded by MMS (e.g., Centaur Associates et al. 1984, Thorsteinson 1984, Hameedi 1982); and in the environmental impact statements prepared by MMS prior to lease sales. The environmental impact statement for North Aleutian Basin Sale 92 (USDI, MMS 1985) specifically addresses potential impacts of that sale in the commercial fisheries of the Alaska Peninsula. The document concludes

Figure 11-4: MAJOR INFLUENCES ON COMMERCIAL FISHERIES IN KING COVE



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that the effects of oil spills on North Peninsula salmon fisheries west of Port Moller (where King Cove fishermen fish) "are expected to be moderate but could be major if a major spill occurred" (USDI, MMS 1985:IV-B-92). Other potential impacts specifically related to King Cove are not identified. Potential OCS-related impacts on the industry include:

- Reduction of the resource base through pollution-related events or habitat modification.
- Temporary and/or permanent usurpation of fishing grounds by OCS oil and gas-related facilities or activities, e.g., seismic surveys, oil spills, pipelines, drilling or production platforms),
- Competition for labor.
- Port congestion/competition for berthing space.
- Increased vessel traffic.
- Product marketing difficulties caused by actual or perceived tainting.

To date, analyses of such impacts have been made only on entire fisheries (e.g., the Bering Sea groundfish fishery) and not on a specific community which depends on the potentially disrupted fishery.

In developing the commercial fisheries analysis, the following assumptions have been made.

- The disruption scenarios do not result in any long-term changes in resource abundance of commercially important species. This assumption is based in the conclusions reached by the fisheries resource group at the North Aleutian Shelf synthesis meeting when they considered two hypothetical oil spills (Thorsteinson i 984).
- Species currently of primary commercial importance to King Cove fishermen include pink salmon, sockeye salmon, chum salmon and Tanner crab; coho salmon, herring and halibut are of secondary importance. We assume that salmon will continue to dominate the harvests of King Cove fishermen and be the primary determinant of fishing strategy.
- Groundfish species are not currently of commercial importance to King Cove residents nor are they likely to become important in the near future (Resource Analysts et al. 1984; E.R. Combs, Inc. 1982). The major factor that will limit King Cove fishermen's participation in developing the domestic groundfish fishery is the relatively small size of their fishing vessels.

- King crab, formerly of importance to King Cove fishermen, was discussed in the context of a past harvest disruption. We assume that king crab populations will not recover sufficiently in the next several years to support a commercial fishery (ADF&G 1984a).

- There will be no major changes in the capabilities of the King Cove fishing fleet. Much of the King Cove fleet has been upgraded since 1979. In 1981, the last year for which complete data are currently available, 54.7 percent of the fleet was less than five years old (E. R. Combs, Inc. 1982). The largest boats in the fleet are limit seiners which are less than 58 feet in length. It is unlikely that larger boats will be purchased, as they could not be used in the salmon fishery.

- There will be no major regulatory changes in the next several years such as significant limitations on the South Unimak fishery or limited entry into the halibut fishery.

- Markets for salmon and Tanner crab will remain strong.

- Fishing is, and will continue to be, the occupation of choice of King Cove male residents.

Seafood Processing

Seafood processing is and, we assume, will continue to be the dominant land-based economic activity in King Cove. We make the following additional assumptions about the fish processing sector in King Cove.

- Peter Pan Seafoods, Inc. will remain the only processor in King Cove and the company will continue to invest in its facility.

- Seasonal cannery work will remain a relatively unattractive employment option to most King Cove residents and residents who take such positions will continue to be individuals with few other options.

- Professional and managerial jobs at the cannery will continue to be filled by individuals who are not regarded as "local", even though they may spend many years in King Cove.

- Non-local seasonal laborers will continue to comprise a major portion of the wage-labor workforce during both the summer salmon season and the winter crab season. The total number of non-local workers employed during the salmon season will remain much higher than the number of winter employees.

- Non-1ocal workers will play a relatively unimportant role in the year-round community activities, values, and political structures.

Employment and City Revenues

- o King Cove's dominant economic base will continue to be commercial fishing and processing, This industry will continue to provide revenues, directly through commercial fishing and indirectly through jobs, to the majority of households in King Cove. The industry will also continue to influence the level and cost of services provided by the city to residents through its contribution to the city budget.

- o Consequently, the strength of the local economy is dependent upon the strength of the fisheries. The following economic elements of the community will fluctuate as the commercial fishing industry fluctuate

  - o Availability of cannery jobs

  - o Revenues to the city through the city sales tax and the state raw fish tax.

  - o City services and jobs to the extent they depend on fisheries tax revenues.

  - o Jobs in other businesses (e.g., store, King Cove Corporation) to the extent those businesses depend on fisheries related business.

  - o Household income from commercial fishing (and from the above jobs in other sectors of the economy).

Subsistence

One of the most significant differences between King Cove and communities 'to the north, and an important aspect of our disruption analysis, is the direct linkages (in terms of timing, seasonality, and gear) between commercial and subsistence activities. This linkage between commercial and subsistence use of renewable resources considered in combination with the perennially ice free environment, year-round availability of many resources, and overwhelming reliance on boats as the mode of access, has resulted in major changes in the initial assumptions presented in the field plan. In addition, the assumptions made concerning recent in-migrants from Belkofski proved ill-founded after field testing.

The following assumptions related to subsistence harvest activities have been field tested and represent an integration of previous literature on King Cove and extensive fieldwork in the community.

- The harvest of subsistence resources provides the majority of King Cove residents' protein; local sources of protein are preferred over non-local protein sources.

- While recent in-migrants from Belkofski harvest a greater variety of renewable resources than long-time King Cove residents, there is not a significant difference between the two subpopulation in overall subsistence dependence or in distribution and consumption patterns.

- For those subsistence resources that are gathered (clams, bidarkis, and berries) rather than hunted or fished, harvest ranges are concentrated in the vicinity of King Cove. However, for most other subsistence resources harvest ranges are not contiguous to or concentrated in the immediate area surrounding the community.

- King Cove residents enjoy year-round access to and availability of subsistence resources; however, due to commercial fishing activities and ADF&G regulations, subsistence harvest activities are focused during specific times of year.

- Subsistence production is not necessarily conducted in extended family groups and while paths of distribution may begin with the extended family, field observations indicated that distribution was, for the most part, egalitarian.

- Regulations governing the harvest of subsistence resources will not undergo significant changes in the near future.

- The subsistence harvest of many marine resources is conducted simultaneously and with the same gear as commercial fishing harvests.

- The primary mode of access for the majority of all subsistence resources harvested in King Cove is the commercial fishing boat.

- Reliance on subsistence harvest products increases in those years when there are poor commercial fishing seasons.

- Commercial fishing activities (including boat ownership, permit ownership, captain and crew members) supply the major source of money for subsistence harvest equipment.

- The method and timing of some subsistence activities has been altered due to conflicts with commercial fishing (e.g., king crab and halibut harvests as a by-product of the commercial Tanner crab season).

- Commercial fishing and other sectors of the cash economy have not prevented King Cove residents from harvesting the desired amount of subsistence resources.

- Despite the importance of commercial fisheries in King Cove, subsistence harvest activities and products continue to be valued by local residents.

Sociocultural Systems

As stated above, the harvest of renewable resources is an economic activity, whether for subsistence or commercial purposes. The immediate impacts of a harvest disruption occur in the economic sector of the community; however, both commercial fishing and subsistence activities in King Cove possess non-economic dimensions. The impacts of a harvest disruption on the community's economy will have both direct and indirect or secondary impacts upon those sociocultural structures that are sensitive to a harvest disruption. Direct impacts affect the sociocultural components directly involved in the harvest, such as the role of kinship in harvest strategies. Indirect or secondary impacts affect those areas that are sensitive to the economic changes stemming from a disruption. For example, a disruption to the commercial fisheries would likely result in reduced incomes, which may affect some families' ability to meet the monthly payments in their new AHA homes, causing them to move in with relatives in an older home. In this manner, a harvest disruption may affect residence patterns in the community.

Thus, altered harvest strategies and decreased incomes to both the cannery and the fishermen are assumed to be the main vehicles for impacts upon sociocultural structures. Changes in harvest strategies will impact the kinship system primarily. As indicated in the economic assumptions, decreased incomes to fishermen will directly affect household economies, while decreased cannery income will result in lower city revenues from the tax on raw fish which the cannery pays to the city. City revenues are highly dependent upon this tax base and Support many of the services currently enjoyed by King Cove residents. Therefore, we have assumed that city functions and services will be sensitive to a commercial fishing harvest disruption, with repercussive effects upon the residents as services are reduced. Thus, harvest strategies, individual incomes, and municipal revenues are seen as the pivotal linkages between a harvest disruption and the sociocultural structures of the community.

The following assumptions are presented in a manner that explains the linkages between an aspect of the sociocultural system and a disruption in the resource harvest.

Political Organization

A number of local and regional organizations exist whose responsibilities are to represent local residents on issues pertaining to coastal management, commercial and subsistence fisheries and wildlife management, municipal matters, land use, and investments, among other responsibilities. In addition to the advocacy role linking most of these organizations to a potential harvest disruption, some of these bodies also depend upon revenues from the commercial fisheries, whether directly or indirectly.

- As explained in Chapter V, the city budget is currently heavily dependent upon revenues generated by the commercial fisheries in King Cove. Therefore, city revenues and the services offered by the city are sensitive to a harvest disruption in that depressed commercial fisheries will result in decreased revenues to the city.

- King Cove Corporation investments are somewhat linked to the commercial fisheries. For example, fishermen generate much of the corporation's bar and hotel revenues; these revenues are concentrated during the commercial fishing season. Additionally, the corporation draws income from the cannery's lease of an apartment building. Thus, the corporation's income is linked to the strength of the local commercial fishing economy.

- Similarly, the Mt. Dutton Cable Corporation's revenues are linked to the strength of the local economy. Whether or not households subscribe to cable television is a function of whether or not they can afford it. Thus, this organization's financial health is closely linked to the local economy, which is heavily dependent on the commercial fisheries.

- As the PMA is the organization representing fishermen in lobbying and price negotiations, this organization is clearly linked to the commercial fisheries harvest and we assume it would play a role in a harvest disruption.

- The King Cove Fish and Game Advisory Committee is an organization through which local concerns pertaining to commercial and subsistence wildlife and fisheries management can be articulated to the state Board of Fish and/or Board of Game, who determine policy on management issues. A commercial or subsistence harvest disruption would fall within the domain of this local committee; therefore, their involvement in responding to a disruption is assumed.

- As the AECRSA deals with coastal management issues from a local standpoint, this organization's involvement in responding to a major oil spill or other environmental disruption is also assumed.

o To the extent that a harvest disruption motivates political responses from local leaders, political . dynamics are assumed to be sensitive to a harvest disruption.

Social Organization

Many elements of the community's social organization are linked to the commercial and/or subsistence harvest of natural resources and therefore could potentially be affected by a disruption to those resources. The precise nature of the relationship between these elements and the natural resource harvest is presented in the following assumptions.

Residence patterns

o Nuclear family households will continue to be preferred over extended family households. However, household composition will be sensitive to a harvest disruption due to the linkage between income and affordability of nuclear households.

o Families living in housing with monthly payments (e.g., AHA housing) and young couples wishing to establish their own households will be particularly vulnerable to the effects of lowered incomes on housing situations.

o A relationship exists between the strength of the fisheries and the population of King Cove. In past harvest disruptions, the population has declined as residents left the community, permanently or seasonally, in pursuit of other employment. Conversely, the population tends to increase when the commercial fisheries are strong.

Kinship

o Kinship will continue to be the primary organizing framework for most social behavior and the extended family will remain strong in King Cove.

o Kinship and harvest activities are currently closely related; we anticipate that this pattern will continue indefinitely. Abundant commercial fisheries and subsistence resources have allowed several options for King Cove residents in such areas as crew selection, fishing and permit strategies, and subsistence harvesting and sharing. Kinship plays a primary role in these patterns. Due to the strong family values in King Cove, a harvest disruption is likely to accentuate the importance of family ties in coping with reduced resources and options, with kinship becoming an even more important factor in determining harvest and use strategies.

Socialization to holes

o King Cove residents highly value the two main sources of their livelihood, commercial fishing and subsistence hunting, fishing, and gathering. These fundamental elements of community life will

continue to be valued. The importance placed on these activities will encourage young men's acquisition of the appropriate skills and participation in the activities.

- o During past lean commercial fishing years, residents have placed increased emphasis upon education due to the realization that residents need other occupational options besides commercial fishing. Thus, the value placed upon education varies according to the strength of the commercial fisheries.

- o Trends have shown that women's participation in the workforce is in large part a function of the need for the additional income generated by her work. In poor commercial fishing years, the number of local women working at the cannery has been higher than in good fishing years. Thus, that women's labor force participation fluctuates according to the strength of the commercial fisheries.

Social Health

- o Cable television and bar activities are currently popular recreational pursuits in King Cove. However, as they are cash dependent activities, levels of participation are assumed to be related to the strength of the local economy (more specifically, personal cash flow).

- o Stress levels in the community are linked to the harvest due to extensive financial (and other) dependencies upon the resource harvest.

- o The incidence of alcoholism and stress-related diseases is linked to the stress levels within the community.

- o As most of the crime in the community (albeit infrequent and involving non-local fishermen and cannery workers as well as local residents) is linked to alcohol consumption and to the intensity, competition, and frustrations associated with commercial fishing, the occurrence of alcohol related criminal behavior is linked to the strength of the commercial fisheries.

- o However, given King Cove residents' history of successful adaptations to difficult financial times, the negative responses to harvest disruption stresses are assumed to affect a relatively small percentage of the population.

Ethnic Relations

- o Residents' protectiveness of their community, expressed in the distinction between locals and non-locals, will continue to influence their attitudes and behavior toward non-locals. Moreover, the negative value associated with this distinction will vary according to the availability of resources upon which local residents depend for their livelihood.

Belief Systems

Assumptions pertaining to King Cove' residents' belief systems are as follows:

Religion

- o Religion does not currently play a major role in the community and we assume that this trend will continue.
- o To the extent the local churches depend on donations from fishermen at the end of each fishing season (as indicated in the ethnography), those organizations are linked in that manner to the commercial fisheries.

Values

- o The fundamental values articulated by King Cove residents will remain essentially the same. These values include: commercial fishing as a way of life; maintaining local control over resources; the importance of the family; subsistence as a way of life; and pride in being progressive rather than regressive.

SCENARIO ONE IMPACTS ON THE COMMUNITY OF KING COVE

As described above, Scenario One would result in no harvesting of renewable resources in the Unimak District, for either commercial or subsistence purposes, for one year. The impacts of this disruption are discussed as they relate to each of the major data categories (fishing industry, employment and city revenues, subsistence, political organization, social organization, and belief systems). For each major category, baseline data introduce the discussion of how the proposed disruption will cause deviation from the standards; the extent this alteration will impact the community of King Cove and its residents is then evaluated.

Commercial Fishing in the Unimak District

Currently, commercial fishing in the Unimak District by King Cove residents (Figure 6-4) is almost exclusively limited to the June salmon fishery although crab harvests were strong in this district in the past. After the June fishery ends, salmon fishing continues in this district through September, but at considerably reduced levels. King Cove fishermen rarely frequent this district after June.

In the early 1960s, when South Peninsula king crab harvests peaked, over half that catch came from the Unimak Bight area. In the declining years of the king crab fishery, Unimak Bight catches also declined dramatically (ADF&G 1984a). Tanner crab catches from this area have also been very low in recent years, although, as with king crab, the area was an important producer in the past. Fishing in the open waters of the Unimak Bight area is often treacherous during the fall and winter crab seasons. Hence, even though this area was once an i report ant crab producer, it is not often frequented by the relatively small 'vessels of the King Cove fleet. In 1985, one King Cove Tanner crab boat set some pots in Unimak Bight, but had no success. Total Tanner crab catch from the Unimak District in 1985 was only 112 pounds (Table 6-18).

The South Unimak June salmon fishery targets sockeye salmon and has been in existence since 1911 (Holmes 1984). Since 1975, guideline harvests have been set for this fishery as a proportion of the forecasted Bristol Bay harvest. By regulation (5 ACC 09.365), the South Unimak fishery may harvest up to 6.8 percent of the forecasted Bristol Bay sockeye salmon harvest. Fishing effort is generally distributed throughout the month of June to ensure that no one stock is over harvested in this mixed stock fishery. Weekly openings are set by emergency orders. In addition to sockeye salmon, chum, pink and king salmon are also taken in this. fishery. The total numbers of sockeyes and chums (the two species that represent the vast majority of the harvest) taken in the South Unimak fishery since 1976 are shown in Table 11-1. It should be reemphasized that the size of the South Unimak harvest is directly related to the size of the forecasted Bristol Bay sockeye run.

In the existing South Unimak fishery, fishing effort is concentrated in two locations: Cape Lutke and the Ikatan Peninsula (False Pass to Cape Lazaref) (Figure 6-4). In the Ikatan Peninsula area, purse seines, drift gillnets, and set gillnets are all utilized. In the more exposed waters around Cape Lutke, most effort is by purse seiners.

Fishing effort in the South Unimak fishery has increased dramatically during the last 10 years (Table 11-2), but now appears to have stabilized. With good fishing conditions, the over 290 units of gear that operate there are able to harvest their weekly quota in one or two days. In 1984, the last year for

TABLE 11-1: SOUTH UNIMAK JUNE SOCKEYE AND CHUM CATCH AND PROPORTION OF ALASKA PENINSULA TOTAL SALMON HARVEST AND VALUE

YEAR	CATCH[1] (number of fish)				ESTIMATED VALUE	
	Sockeye (x 1000)	%AK Pen.	Chum (x 1000)	%AK Pen	s Unimak[2] ($ x 1000)	%AK Pen. Total[3]
1976	235	23	327	54	1,256.8	19
1977	193	24	93	25	886.1	15
1978	419	28	105	15	2,255.1	14
1979	683	22	64	12	4,703s6	13
1980	2,731	54	457	22	10,042.2	27
1981	1,474	36	521	21	10,263.4	25
1982	1,670	44	934	36	11,126.1	30
1983	1,545	34	615	30	8,953.1	29
1984	1,132	28	228	9	5,813.1	16
1985	1,383	30	321	16	NA	NA

1. Small numbers of king and pink salmon are also b-vested during this fishery but are of minor importance.

2. Value estimates were based on average price per fish for sockeyes and chums with values set forth in Tables 6-9 and 6-10.

3. Includes all species, value estimates found in Table 6-10.

Source: ADF&G (1984b); ADF&G (1985 b), Personal communication.

TABLE 11-2: MAXMUM UNITS OF SALMON GEAR ON SOUTH SIDE OF ALASKA PENINSULA DURING JUNE[1]

Year	Purse Seine	Drift Gillnet	Set Gillnet
1976	25	94	16
1977	15	98	16
1978	22	106	17
1979	33	100	22
1980	51	123	24
1981	74	126	32
1982	85	126	33
1983	92	139	41
1984	102	138	52
1985	90	140	NA
Additional Units Since 1978	69	32	

1. Includes South Unimak and Shumagin Islands fisheries.

Source: Holmes 1984; ADF&G (1985 b), personal communication.

which complete data are available, 95 percent of the active Area M seine permits, 93 percent of the active drift gillnet permits, and 73 percent of the active set gillnet permits were fished in the South Unimak fishery (Holmes 1984).

Prior to 1979, the largest proportion of the South Unimak salmon catch was made by drift gillnet gear. Since 1979, when a sharp switch occurred in gear used, seine gear has taken an average of over 60 percent of the catch. Set gillnetters, the least efficient gear type, harvest very small percentages of the catch (Holmes 1984).

The contribution of the South Unimak salmon fishery to the Alaska Peninsula fleet is significant (Table 11-1). Between 1976 and 1985, this fishery accounted for between 23 and 54 percent of the total Alaska Peninsula sockeye harvest (recent five year average was 34.5 percent), and between nine and 54 percent of the total Alaska Peninsula. chum harvest (recent five year average is 22.4 percent). During the same years, the South Unimak fishery has been worth between $886,000 and $11.1 million which has represented between 13 and 30 percent of the ex-vessel value of the Alaska Peninsula salmon fishery.

Importance to the King Cove Fleet

The South Unimak fishery is of great importance to commercial fishermen from King Cove as it is to most Alaska Peninsula permit holders. Data specific to the King Cove fleet are only available for 1980 and 1983. As discussed in detail in Chapter VI, 1980 was an excellent year for the King Cove salmon fleet with a record sockeye harvest as well as a near record pink salmon harvest. In contrast, the 1983 season resulted in the poorest salmon harvest since 1978 with pink salmon catches the lowest since that time. Hence, data from these years allows us to assess a harvest disruption in the context of both a good fishing year and a poor fishing year. For both years, the importance of catches from this area is assessed by looking at the level of participation in the fishery, the catch in the Unimak District (Table 11-3), and earnings from the catch (Table 11-4).

TABLE 11-3: KING COVE SALMON FLEET PARTICIPATION AND CATCH IN THE UNIMAK DISTRICT BY SPECIES AND GEAR TYPE, 1980 & 1983

1980

Gear Type[1]	Participation number	Participation percent	Catch (1000 lbs) Sockeye	Chum	Pink	King	Coho	Total
Ps	11	30	1,914.9,	383.0	429.5	11.4	.8	2,739.6
DGN	16	43	173.9	43.5	0 . 0	.4	0.0	217.8
SGN	Data Not Available							
Total	27	51	2,088.8	426.6	429.5	11.8	.8	2,957.6

1983

Gear Type[1]	Participation number	Participation percent	Catch (1000 lbs) Sockeye	Chum	Pink	King	Coho	Total
Ps	23	61	1,024.5	1,040.5	3 1 . 4	25.7	22.2 "	2,144.3
DGN	31	89	415.7	230.6	0.0	9.9	4.3	660.5
SGN	0	0	0.0	0.0	0.0	0.0	0.0	
Total	54	78	1,440.2	1,271.1	31.4	35.6	26.5	2,804.8

1. PS: Purse Seine; DGN Drift Gillnet; SGN: Set Gillnet.

2. Number and percent of active CFEC permits.

Source: SRB&A and LZH Associates (1985) based on data from the CFEC fish ticket files and special computer run August 16,1985.

TABLE 11-4: KING COVE SALMON FLEET EARNINGS IN THE UNIMAK DISTRICT BY SPECIES AND GEAR TYPE, 1980 & 1983

1980

Gear Type[1]	EARNINGS ($1,000) Sockeye	Chum	Total[2]	% Total Salmon Earnings[3]	% Total Fish Earnings[4]
PS	708.5	126.4	960.8	23	
DGN	76.5	18.8	96.0	13	
SGN	Data Not Available				
Combined Fleet Earnings	785.0	145.2	1,056.8	22	13

1983

Gear Type[1]	EARNINGS ($1,000) Sockeye	Chum	Total[2]	% Total Salmon Earnings[3]	% Total Fish Earnings[4]
Ps	868.6	322.6	1,230.9	38	
DGN	343.8	76.6	430.2	29	
SGN	Data Not Available				
Combined Fleet Earnings	1,212.4	399.2	1,661.1	34	30.[5]

1. PS: Purse Seine; DGN: Drift Gillnet; SGN: Set Gillnet

2. Includes earnings from all species of salmon.

3. Unimak salmon earnings as a percentage of all King Cove fleet salmon earnings from the Alaska Peninsula area.

4. Based on earnings as shown in Table 6-1.

5. Estimated from data found in Table 6-11, Figure 6-7, and Table 6-20.

Source: SRB&A and LZH Associates (1985) based on data from the CFEC fish ticket files and special computer run August 16,1985.

Participation

The total number and proportion of King Cove commercial fishermen participating in the Unimak District salmon fishery is high and appears to have increased in recent years. In 1980, 27 fishermen. made landings in the Unimak District, representing about one half of the active salmon permit holders from King Cove. In 1983, 54 King Cove fishermen made landings in the Unimak District. This represents 78 percent of the total number of permit holders in 1983. Participation in this fishery in 1983 was highest by drift gillnet fishermen where 89 percent of all active permits were used; in contrast only 61 percent of the active seine permits were used. This difference reflects the trend where owners of both seine and drift gillnet permits who own relatively small boats use drift gillnet gear rather than seine gear in the South Unimak June fishery. While CFEC data specific to King Cove are not available for 1984 and 1985, based on field discussions, the study team believes a larger proportion of seine permits were active in the Unimak fishery during 1984 and 1985. In the past two years, King "Cove residents have more aggressively fished all their CFEC salmon permits by transferring them to another family member (see Chapter IX, Kinship and the Salmon Fisheries). None of the six active set gillnet permits held by King Cove residents were used in the Unimak "District in 1983.

Catch

King Cove salmon fleet catches from the Unimak District in 1980 and 1983 are shown in Table 11-3; their relative importance compared to other Alaska Peninsula fishing districts is shown in Tables 6-13 and 6-14. The Unimak fishery is most important for sockeye catches. In 1983, 27 percent of the drift gillnet and 70 percent of the purse seine sockeye catch came from the South Unimak District. The June fishery in the Unimak District is the only time during the salmon season when the seine fleet targets on sockeyes, whereas the drift gillnet fleet targets this species throughout much of the summer fishing season. Chum catches in South Unimak also comprise important proportions of the total chum harvest for both seiners and drift gillnetters. In 1980 and 1983, Unimak chum salmon catches represented 17 percent and 36 percent (respectively) of seiners' total chum catches and 12 percent and 44 percent of drift gillnetters' total chum catches. Catches

of other species are usually relatively insignificant, although in some years (1980 is a good example) pink catches may be quite high.

Earnings

Based on the 1980 and 1983 data, earnings from salmon fishing in the Unimak District are a significant proportion of total earnings for both purse seiners and drift gillnetters (Table 11-4). In 1980, a year with near record pink salmon earnings, the King Cove fleet's earnings from the Unimak District were just over $1 million and represented 22 percent of the fleet's total salmon earnings. In 1983, a poor year for pink salmon, earnings from the South Unimak District totaled $1.6 million but represented 34 percent of the fleet's total salmon earnings. In 1980 and 1983, both the total dollars earned and the proportion of total earnings from the south Unimak fleet was greater for the purse seine fleet than for the drift gillnet fleet. In 1980, South Unimak catches contributed 23 percent of King Cove seiners' total earnings compared to 13 percent of drift gillnetters' earnings. In 1983, South Unimak contributed 38 percent to seiners' earnings and 29 percent to drift gillnetters' total salmon earnings. As stated above, this difference is probably a reflection of the fact that the South Unimak fishery is the purse seine fleet's primary opportunity to target on the relatively high value sockeyes. In addition, the South Unimak fishery has short openings which tends to favor the larger, more efficient seiners.

Impacts on Commercial Fishermen of No Fishing For One Year In South Unimak

If commercial fishing were cancelled in the Unimak District, King Cove commercial fishermen would not have a June fishery. The magnitude of impacts would depend on both the timing of the fishery closure. notification and the success of other Alaska Peninsula salmon fisheries that year. If closure notification is given well in advance of the usual opening, alternative plans to minimize impacts may be made. If a closure occurs at the beginning of the June salmon fishing season, impacts are likely to be more severe.

Loss of Income

As discussed above, fishing income earned in 1980 and 1983 in the Unimak District and its relative importance to the King Cove fleet was significant. Earnings from this district represented 13 percent in 1980 and 30 percent in 1983 of the total fishing (all commercial species) earnings of the King Cove fleet. Earnings from this district represented from one-quarter to one-third of the total salmon earnings for the King Cove fleet. In' 1980, only earnings from the Southwestern District were more important to the fleet, and in 1983, earnings from the Unimak District were higher than the Southwestern District (Table 6-12). The Unimak District is especially important to King Cove purse seine fishermen in years with poor pink salmon earnings such as 1983. To drift gillnet fishermen, its relative importance is probably more constant. King Cove set gillnet fishermen do not fish in this district, and hence they would experience no 10ss of income from a closure. Individual purse seiner gross earnings averaged $87,300 and $53,500 in the Unimak District for 1980 and 1983 respectively (Table 11-5).' Individual drift gillnetters earnings averaged $6,000 and $13,900 in the Unimak District during these same years respectively. It should be noted that these average figures are not representative of any one fishermen. Figure 11-5 shows the distribution of income among drift gillnet and purse seine fishermen in the South Unimak fishery for the same two years. Relatively few fishermen make significantly more than the average income and many fishermen earn less than the average.

In addition to the income and catch discussed above, other King Cove residents earn income from the South Unimak fishery through leasing out their permits. Under one strategy, a multiple permit owner puts his seine permit in his son's name, placing his son on an Outside boat that lacks a permit while the permit owner drift gillnets. This strategy is primarily done in the South Unimak fishery and without this fishery it would no longer be an option. Men who have only a permit (and no boat) might join a crew as permit holder on a local or Outside boat that lacks a permit. Finally, some individuals with an extra permit may lease the permit out for the entire summer. In each strategy, income goes to an individual who may not have actually participated in that fishery. While these earnings are

TABLE 11-5: AVERAGE KING COVE SALMON EARNINGS IN THE UNIMAK DISTRICT BY GEAR TYPE, 1980 & 1983

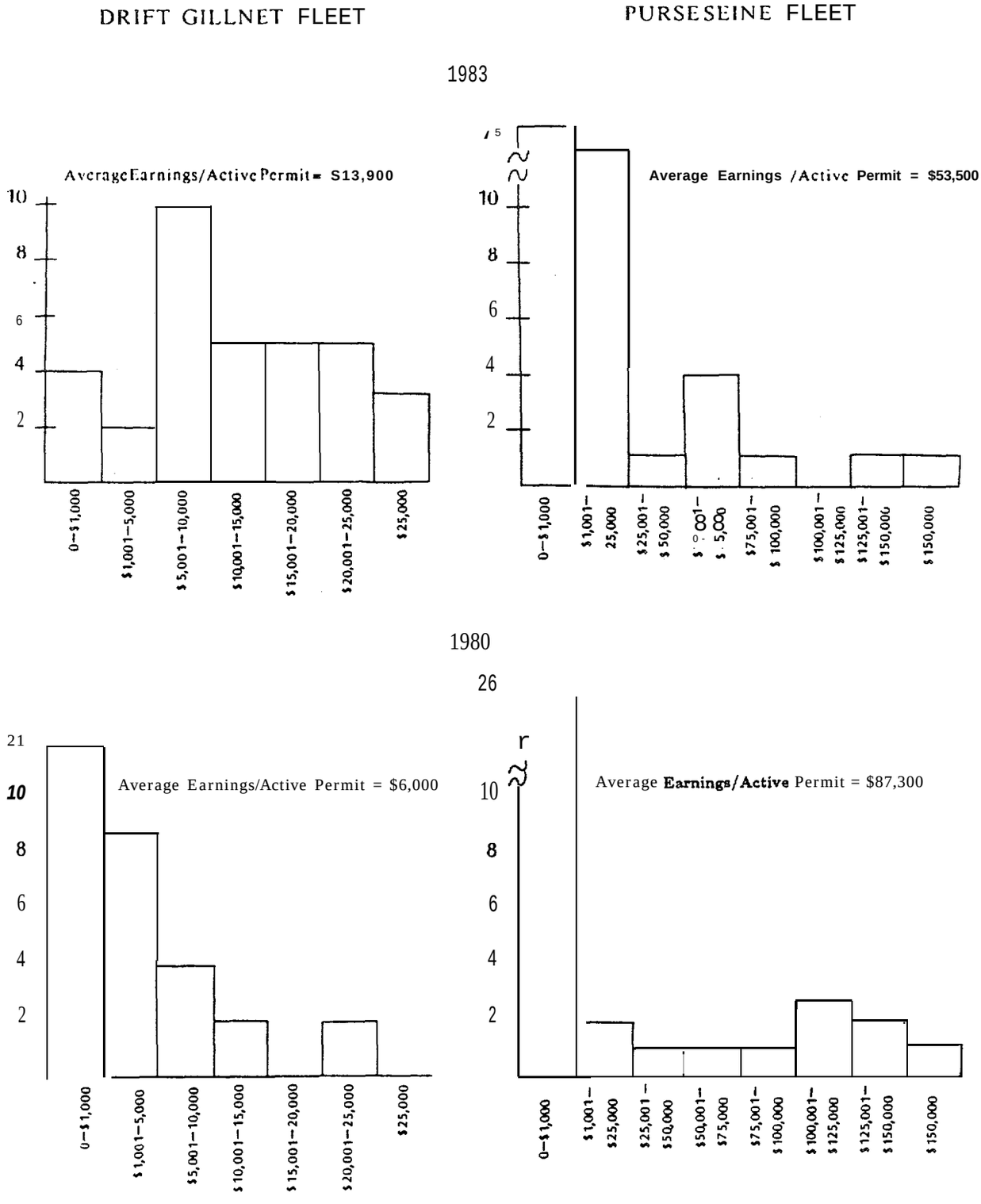
Gear Type	Year	Average Unimak District Salmon Earnings Per Permit Holder	Percent of' total Salmon Earnings
PS	1980	$87,300	23%
	1983	$53,500	38%
DGN	1980	$6,000	13%
	1983	$13,900	29%

PS = Purse Seine

DGN = Drift Gillnet

Source: SRB&A and LZH Associates (1985) based on data from the CFEC fish ticket files and special computer run, August 16, 1985.

FIGURE I I-5: KING COVE SALMON FLEET EARNINGS IN THE UNIMAK DISTRICT BY SPECIES AND GEAR TYPE, 1980 & 1983



Source: SRB&A and LZH Associates (1985) based on data from CFEC fish ticket files and special computer-run August 6, 1985.

included in the total earnings discussed for the South Unimak June fishery, they are not necessarily represented in the King Cove salmon fleet's catch data from the Unimak District. That non-participating permit owners rely upon income from this fishery is noteworthy, as they would be affected by a harvest disruption.

In summary, an oil spill in the Unimak Pass area could cause a loss of up to 34 percent ($1,61 1,100) of gross salmon earnings by the King Cove fleet (based on the value of the salmon harvest from the Unimak District in 1983). Applying the assumptions used in the ethnography to estimate net fishing income, local captains would experience an income loss of up to $208,000 and local crew members would experience an income loss of approximately $400,700. The average income loss to King Cove households could be as high as $4,'700. However, the severity of this income loss would be distributed unevenly throughout the community. Families that rely exclusively on salmon fishing for' household income would experience the greatest reduction in income while families with other sources of income would be affected relatively less. In addition, purse seine fishermen would likely experience a greater impact than drift fishermen; set gillnet fishermen would not be directly affected.

It should be noted that a number of complicating factors could cause variation in the magnitude of the impacts associated with Scenario One. Fishing incomes can and do vary widely between years, locations, and gear types. Figure 11-5 shows variations in earnings between drift gillnetters and purse seiners for 1980 and 1983. Because of the importance of pink salmon to the seine fleet during even years such as 1980, a disruption in the June sockeye harvest would have a proportionally smaller impact to the purse seine fleet in an even year than in an odd year. Finally, as discussed below, a portion of lost earnings could be recouped by some fishermen through changes in fishing strategies (e.g., fishermen could shift their efforts to other areas or fisheries).

Less Fishing Time .

As documented in Chapter VI, the activity of the King Cove fleet has been significantly reduced over the past decade. Commercial fishing now occupies a much smaller part of the year than it did in 1977 (Figure 6-2). The June salmon fishery is currently the fleet's only fishing activity during that period of the year and is the traditional start of the salmon season, the community's major event. Over the past ten years the number of fishing days during June has been reduced as the fleet has grown and become more efficient. Hence, much of the month of June is now spent waiting for openings. The effects on the community of waiting between openings are discussed in Social Health (Chapter IX). If the June season were to be cancelled entirely, the fishermen would have to either wait for the next opening or change their fishing strategy. Changes" in fishing strategies are discussed below.

Potential Changes in Fishing Strategy

If a major disruption to the salmon fishery occurred, such as a closure in" the Unimak District, it is reasonable to assume that the resourceful King Cove fishes-men would attempt to recoup the potential losses incurred by altering their fishing strategies. The issue then is whether alternative fisheries are available that would allow them to do so. The possibilities include:

Switch Geographic Locations. The most obvious adaptation would be to switch fishing effort to another location during June in an attempt to harvest an equivalent amount of fish elsewhere. However, the only other Area M salmon fishery open for seiners during this period is the Shumagin Island fishery. Like the South Unimak fishery, the allowable harvest in the Shumagin June fishery is based on a percentage of the forecasted Bristol Bay sockeye harvest. The Shumagin fishery is much smaller than the Unimak fishery with a maximum allowable harvest of only 1.5 percent of the forecasted Bristol Bay run. This small fishery occurs in open, unprotected waters and, by regulation, drift gillnetting is not allowed. The Shumagin fishery is dominated by the Sand Point seine fleet, and the King Cove salmon fleet has no history of participation in it. As this fishery is

currently structured, it could not absorb the effort that would be displaced by a closure in the Unimak District; hence is cannot be considered a viable alternative. The only other alternative for many fishermen would be Port Moller; the sockeye runs are not strong there until late June. Additionally, competition in this fishery is already intense.

Utilize Other Species. During past harvest disruptions, King Cove fishermen have attempted to make up lost fishing income caused by a reduction in the availability of a particular resource by substituting another species or catching more of a currently harvested but somewhat under utilized species. This adaptation was observed during the early 1970s when king crab stocks declined and King Cove crab skippers began to harvest Tanner crab; more recently, the closure of the king crab fishery resulted in increased effort for herring and halibut. The question then is, could the income derived from the harvest of salmon during June in South Unimak be replaced by fishing for other species during the same time period. Two alternative fisheries occur in June, but King Cove fishermen do not currently participate in them. These are the South Peninsula roe herring fishery and the Gulf of Alaska June opening for halibut.

The herring fishery in South Peninsula waters is relatively small. In 1984, its ex-vessel value was only $136,000 which was divided among five participating seiners (none from King Cove). Roe herring harvests on the North Peninsula are also relatively small.

The halibut fishery in the King Cove area is dominated by large boats from outside the area. While earnings by King Cove fishermen in the halibut fishery have increased in recent years, they remain well below Unimak salmon earnings and in 1985 totaled less than $100,000 (Table 6-20). Even if King Cove fishermen were able to harvest all the halibut currently taken in IPHC Statistical Area 33 (the King Cove vicinity), the income would not equal lost salmon income. In 1980, the value of the Statistical Area 33 catch was about $17,000 and in 1983, $323,000. It is important to note that the halibut fishery is already highly competitive with very short openings. The King Cove fleet's ability to compete effectively in this fishery is hampered by the small size of their boats and the resulting inability to operate offshore in rough weather.

As documented in Chapter VI, prospects for significant diversification by the King Cove fleet into groundfish are seriously hampered by the size of local vessels.

Fishing "More" or "Harder" Later. The next question that arises is whether the King Cove fleet could make up for the loss by more intensive salmon fishing later in the season. In Chapter VI, the intensely competitive Alaska Peninsula salmon fishery is described. Both seine and gillnet fishermen already fish at maximum capacity throughout July and the beginning of August. Effort on coho salmon, which are fished in August, is less intense. Information on coho salmon in Alaska Peninsula waters is sparse. While there is a major coho run in Nelson Lagoon, and widely scattered small runs in both north and south Peninsula streams, coho salmon do not appear to be as abundant as the other salmon species (Resource Analysts et al. 1984a). Neither Alaska Peninsula nor King Cove coho catches have been large, and while additional effort would likely yield somewhat larger catches, the potential increased coho yield is not thought to be large. In addition, the market value of coho salmon is usually significantly less than sockeye salmon.

Relative Vulnerability of Different Groups of Fishermen

The impacts of the hypothesized harvest disruption would be felt differently by different groups of fishermen. By gear type, King Cove set gillnetters would be affected least as they do not fish in the Unimak District. If the disruption occurred in an area where they did fish, however, they would be very vulnerable as they have the least options for a successful adaptation. As discussed above under Loss of Income, both drift gillnetters and seiners would be severely affected by the hypothesized disruption. In 1980 and 1983, individual purse seiners averaged $87,300 and $53,500 respectively in the South Unimak fishery representing 23 percent and 38 percent of their total salmon earnings for these two years (Table 11-5). Individual drift gillnetters averaged $6,000 in 1980 and 13,900 in 1983, representing 13 percent and 29 percent of their total salmon earnings for these years.

Within these groups, individuals with large annual debt payments would be most vulnerable to long term impacts resulting from the disruption (i.e., if they were unable to make a payment and consequently iost a boat or permit). Generally, seiners are more vulnerable in this respect. They tend to have a higher debt structure, higher fixed costs, and catch a higher percentage of Unimak fish. Furthermore, the South Unimak fishery represents their major access to sockeye salmon, the "money" fish to commercial fishermen. If the South Unimak disruptions were combined with a poor pink salmon year (the mainstay of the purse "seine fleet), seiners could be severely impacted. For fishermen without high fixed costs, the impacts would be similar to those experienced during a very poor fishing season: short term hardships endured with optimism for a better season next year.

Importance of Unimak District Catches to the Processing Sector

Quantitative data on the importance of salmon caught in the Unimak District to PPSF are not available. As shown in Table 11-1, a significant proportion of the total Alaska Peninsula sockeye and chum harvest is taken in this fishery. Consequently, fish from the Unimak District are an important source of raw product for the PPSF plant in King Cove. PPSF estimates that it buys about half of the King Cove fleet's Unimak District catches, as well as a substantial amount of product from other fishermen on the Unimak fishing grounds. Sockeyes and chums taken in June are especially high quality fish. Almost all of the June production is frozen and brings premium wholesale prices.

Competition for fish during June in South Unimak is intense, with between 10 and 15 cash buyers on the grounds, in addition to tenders from the full service shore-based processors of the region. This competition leads to good prices for the fishermen, with the effect of' increased prices often lasting throughout the season.

Impacts on the Processing Sector

Impacts on the processing sector could include reduced production, reduced gross income, and reduced overall employment and wages.

Reduced PPSF Production Levels

It is unlikely the PPSF could make up for lost production associated with a closure of the South Unimak Fishery. . Substitution of other sources of fish during June would be difficult even though PPSF has a large fleet of tenders capable of bringing fish in good condition to King Cove from as far away as Prince William Sound. Alternative sources of salmon simply are not available" in sufficient quantities in June. Other June salmon fisheries are small enough that local processors can handle them.

Other species potentially available for processing in June include black cod, Opilio crab, and halibut. None of these species provide an economically viable alternative. The NPFMC is considering instituting a quota for black cod in the Gulf of Alaska. If they do so, the quota will likely be filled by June. Opilio catches are down and there is plenty of processing capacity for this species in Dutch Harbor/Unalaska, the traditional landing port for the large boats that pursue this species in the Bering Sea. Halibut openings in June usually last only 24 to 48 hours, and PPSF is not currently set up to market large volumes of halibut.

Reduced Gross Income

Data are not available regarding the value to PPSF of fish purchased in the South Unimak fishery. The amount of fish and their relative and absolute values vary from year to year depending on the market and the amount of that species purchased from other locations. The South Unimak fishery is PPSF'S major and preferred source of chum salmon. Sockeye salmon tendered from Bristol Bay are also processed at the King Cove PPSF plant. During a year with a harvest disruption at South Unimak, it is likely that PPSF would increase their sockeye purchases from Bristol Bay if possible.

Reduced Overall Employment and Wages

If one assumes no processing activities in June, one would expect a major reduction in the total number of person days worked during the salmon season and the wages paid. If PPSF management knew there would be no June fishery prior to the season, they would delay the arrival of their large summer work force to minimize costs. If, however, the work force was already in King Cove, PPSF would have to absorb the added economic impacts

relating to feeding and housing a non-working crew. currently, the PPSF processing work force is dominated by non-locals (94 percent in 1984). In 1984, PPSF paid only $30,000 in processing wages to local residents. Hence, even if June cannery employment decreases, income loss to King Cove residents would not be significant.

The no fishing in South Unimak scenario could result in a smaller cannery work force but with a possibly higher proportion of King Cove residents. The economic dislocation caused by the harvest disruption could result in more residents seeking cannery employment. In addition, an uncertain supply of raw product could make management prefer to hire workers that do not require room and board when there are no fish to be processed.

Employment and City Revenues

Data presented in Chapter V clearly demonstrate that the economy of King Cove is dependent on the harvest of fishery resources. Although the closure of the South Unimak fishery for one year has the potential to affect more than just King Cove residents (e.g., the 304 non-local seasonal employees who work for PPSF), this impacts analysis only considers the potential affects to permanent King Cove residents.

Employment and Income

A disruption to the South Unimak fishery that reduces fishing incomes by as much as one-third will have a similar effect on other sectors of the King Cove economy dependent on commercial fishing (e.g., income from fish processing will be reduced). Entities that are not exclusively dependent on the fisheries for their revenues (e.g., the city) will experience up to a one-third cut in that portion of their revenues derived from the fisheries.

Non-wage employment (commercial fishing and subsistence harvest dollar equivalents) accounts for approximately 63 percent of the income to permanent King Cove residents (Table 5-2). Impacts to this sector are addressed under commercial fishing and subsistence activities.

Wage employment from the fish processing sector (including administration and processing labor) accounts for 23 percent of the wage income to permanent King Cove residents (from Table 5-2). If wage employment related to the fish processing sector were reduced by one-third as a result of the South Unimak disruption, income losses to King Cove residents would be approximately $139,000 for the year, or seven percent of the total wage income to community residents.

Transfer payments currently contribute approximately two percent to King Cove residents' income. The stores in King Cove report that they receive more food stamps in the spring (March, April, and May) as income from the previous fishing season runs low at that time. Because the reduction in commercial fishing incomes and wage employment from the assumed harvest disruption will cause substantial household income losses, dependence upon transfer payments will increase in the year following the harvest disruption. March. April, and May will still be the high-use months for food stamp use (and, presumably, other transfer payments).

City Revenues

The city government is heavily dependent on income sources directly related to the commercial fishing industry. The raw fish tax and the city sales tax (largely supported by processor sales) represent $454,400 or over 40 percent of the City of King Cove's revenues (Table 5-3). Hence, income losses to the cannery as a result of no South Unimak fishery for one year would result in revenue losses to the city. If these revenues were cut by one-third related to the South Unimak harvest disruption, income to the city could drop by as much as $150,000 for the year. This represents a reduction in total city revenues of approximately 14 percent. In addition, the city would receive fewer revenues associated with boat harbor user fees if closure of the Unimak fishery decreased activity at the boat harbor.

Subsistence Impacts

The subsistence harvest patterns of King Cove residents are discussed in detail in Chapter VII. The following discussion of the impacts of Scenario One on the subsistence activities of King Cove residents can be broken into two sections.

The first section analyzes the subsistence activities that occur in June and how these activities would be affected by the described closure. The second section assesses how the loss of income to the fishing fleet resulting from such a closure would affect overall subsistence patterns and subsistence dependence. Based on the assumptions presented earlier in this chapter, the following analysis considers each of these sections using the standards developed in the baseline.

Subsistence in the Unimak District

As described in Chapter VII, King Cove residents do not conduct any subsistence harvest activities in the near shore waters of the Unimak District except during the June commercial salmon fishery. Subsistence harvests in this region are limited to king and sockeye salmon, harbor seal, and sea lion. Based on Table 7-4, approximately 100 pounds of sockeye salmon, 90 pounds of king salmon, 50 pounds of harbor seal, and 38 pounds of sea lion per household are harvested annually for subsistence purposes. With the exception of king salmon, the harvest of these species occurs both incidentally during the June salmon fishery as well as in other locations and at other times of the year.

Salmon

Field data suggest that the majority of the subsistence king salmon harvest occurs during the June fishery. King salmon currently comprise 15 percent of the subsistence salmon harvest and five percent of the harvest of all species. While incidental harvests of king salmon are known to occur later in the salmon season, it is unlikely that these additional harvests could match current levels of subsistence king salmon production. Thus, "the closure of' this area would eliminate King Cove residents' primary source of king salmon.

Sockeye salmon are both available and taken not only in the Unimak fishery but also later in the summer. King Cove residents noted that productive subsistence sockeye harvest areas are currently underused and could accommodate the increased fishing pressure that would result from a closure of the Unimak District. Closure of the Unimak District would therefore concentrate sockeye harvest effort later in the season.

Marine Mammals

King Cove residents noted that both harbor seal and sea lion are caught during the June fishery, especially in the waters surrounding the Ikatan Peninsula on Unimak Island. However, as described in Chapter VII, both these species of marine mammals are readily available throughout the year with direct harvests generally occurring during the fall and winter. The general abundance of both these marine mammal species in the King Cove area suggests that King Cove residents would respond to the lost opportunity to harvest sea mammals during the June salmon fishery by harvesting these species in other locations throughout the rest of the year.

In assessing the severity of impacts on local subsistence resources and practices associated with closure of the June salmon fishery, the study team considered four criteria: efficiency of extraction, contribution to diet, resource availability, and taste preference. First, all of the subsistence resources affected are currently harvested as incidental catches during the commercial salmon fishery. Hence, the harvest of each resource was considered to be equally efficient and therefore was not considered important in this instance. Second, if the entire harvest of each of these resources occurred during this fishery, red salmon would provide the greatest contribution to the diet followed by king salmon, harbor seal, and sea lion. However, field interviews suggest that at this time of year, king salmon provide a greater contribution to local residents' diet than any of the other affected species. Third, as described above, king salmon is the only affected species for which the June fishery provides the major harvest opportunity. Therefore, on the basis of resource availability, impacts to the king salmon harvest were considered significant. Finally, although preference between the different salmon species was not determined, salmon was preferred by far more respondents than seal, and sea lion was not listed as a preferred species by any respondent (Figure 7-1 5). The first fresh salmon of the summer are enjoyed by all King Cove residents. In particular, these salmon are consumed by the commercial fishing crews, especially during the early portion of the season when the fishermen are "fish hungry." The taste preference associated with salmon harvested in the June fishery could increase the level of impact associated with disruption of the subsistence king and sockeye salmon harvest.

In summary, King Cove residents are known to harvest four renewable resources for home use during the June fishery: king salmon, sockeye salmon, harbor seal, and sea lion. Due to patterns of resource availability, impacts to King Cove residents' harvest activities related to these four resources would be greatest for king salmon. Unlike the three other species, which are currently available and harvested at other times of year and in other locations, the June fishery provides King Cove residents with their major opportunity to harvest king salmon. Because it is unlikely that King Cove residents could harvest the desired quantity of king salmon at a later date, the majority of subsistence king salmon production during the year of the the disruption would have to be replaced by other resources.

General Subsistence Impacts

King Cove residents' participation in the commercial fisheries is essential to their subsistence harvest patterns for several reasons. First, commercial fishing supplies the major source of money for subsistence activities. Second, King Cove residents' primary mode of access to the majority of all subsistence resource harvest areas is the commercial fishing boat. Finally, the subsistence harvest of many marine resources is conducted simultaneously and with the same gear as commercial fishing harvests. We have previously discussed how the Scenario One disruption would impact the subsistence harvest activities that occur simultaneously with the June commercial fishery. This discussion considers how the loss of commercial fishing income and the potential loss of commercial fishing vessels would impact subsistence harvest activities.

As described in the baseline, the commercial fishing industry provides the major source of cash necessary to conduct subsistence activities outside the context of commercial fishing. While average subsistence fuel expenses for important harvest locations as well as a partial list of subsistence equipment and annual costs ($1,247) were identified (Tables 7-2 and 7-3), the complex interrelationship between commercial fishing and subsistence activities makes it impossible to accurately assess all the production costs related to subsistence activities.

The one-third loss in commercial fishing income that could potentially result from the Scenario One disruption would affect King Cove residents' ability to pay their commercial fishing, household, and subsistence expenses. Hence, the disruption would cause a general "belt tightening" manifested by more efficient spending patterns.

In an effort to conserve available financial resources, King Cove residents would likely increase their dependence on subsistence resources (thus reducing their household expenses) while simultaneously increasing the efficiency of their subsistence harvest activities. The abundant renewable resources presently available to King Cove residents are underutilized; increased use of these resources (by both commercial fishing crews and King Cove households) would help defray the loss of commercial fishing income. Increased efficiency in subsistence harvests would be accomplished in three ways. First, King Cove residents could increase the harvest of subsistence products while primarily engaged in a commercial activity, when expenses could be allocated to the commercial catch. Second, subsistence activities conducted outside the context of commercial fishing would be more carefully planned and coordinated so that several resources could be efficiently harvested during one trip, thereby reducing fuel and food costs. A third method of increasing the use of subsistence resources without increasing subsistence costs would be to increase the use of resources available in the immediate area of the community (e.g., mollusks, salmon, bottomfish, trout, ptarmigan, greens, and berries).

It is unlikely that the one year disruption described in this scenario would, in and of itself, cause the loss of fishing vessels through loan defaults. However, if the reduction in commercial fishing income resulted in some King Cove residents losing their commercial fishing vessels, the consequences to their subsistence harvest activities could be significant. Not only would the affected fishermen and their families lose income derived from commercial fishing but they would also lose the opportunity for both" the incidental and direct harvests of subsistence foods from their commercial fishing vessels. While there are currently more than enough boats in King Cove to meet local demands for access to resource harvest areas, the loss of a number of locally owned boats could significantly alter the subsistence harvest patterns of King Cove residents. Responses to the loss could include increasing the efficiency

of their subsistence harvest efforts (i.e., by concentrating harvest efforts near the village), as well as the realignment of subsistence harvest production groups along kinship lines.

In summary, the closure of the June fishery would have both direct and indirect effects on the subsistence practices of King Cove residents. The subsistence harvest of king salmon would be the activity most directly impacted because the availability of this resource is generally limited to early summer, and the harvest conducted incidentally to the June salmon fishery. King Cove residents' use of sockeye salmon, sea lions, and harbor seals would be less significantly impacted as harvest effort for these species could be shifted to unaffected locations and other times of year. The loss of up to one-third of King Cove residents' commercial fishing income due to the disruption of the June commercial salmon fishery would also have indirect impacts on local subsistence activities. In an effort to cover their household, commercial fishing, and subsistence expenses, King Cove residents would likely increase their overall reliance on subsistence foods and also seek methods to increase the efficiency of subsistence production activities.

Sociocultural Systems

The preceding analyses of Scenario One's effects on commercial fishing, employment, government revenue, and subsistence have identified several impacts to the economy of King Cove. In brief, those economic impacts that would generate further effects upon the sociocultural structures include the following:

- o A one year disruption to the South Unimak fishery would result in up to a one-third gross earnings loss to the King Cove fleet since the South Unimak fishery has represented this" percentage of the fleet's earnings in the past. Fixed costs will remain the same while being deducted from up to one-third lower gross earnings. Consequently, those fishermen with high fixed costs are hit harder by a disruption than fishermen with low fixed costs; it is possible that some fishermen could end the season with no net income after paying all fixed and operating costs for the season.

- Some fishermen would be idle during the month of June as no comparable fishing alternatives are available to King Cove fishermen during that time.

- Individuals who rely upon cannery employment in June after a winter with little or no income would have to wait until July to begin their cannery jobs, potentially causing financial hardship if they were counting on paychecks in June.

- Income losses to the cannery would result in revenue losses to the city (from city and state taxes on the fishery) of approximately $130,000 or 14 percent, based on a 33 percent loss of income to the cannery.

The implications of the above primary impacts are carried through to the sociocultural impact categories in the. following discussion. For each impact category, current standards are presented and followed by the effects analysis.

Political Organization

City Government

A reduction in city revenues of approximately 14 percent will force the City of King Cove to reduce its expenditures. While it is impossible to predict precisely which costs are essential and which are expendable, it is likely that a few jobs will be reduced to part-time or discontinued. The city sponsored electrical subsidy could be discontinued, causing an increase in household electrical rates. The city could raise the cost of short-term moorage at the harbor as that increase would affect non-local fishermen rather than local fishermen. Public safety, the clinic, road and boardwalk maintenance, and the school system are other city funded services that could be trimmed due to budget constraints. Special events sponsored by the city, such as Clean-Up Day, could be dropped or pared down during the affected fiscal years.

As discussed in Chapter VIII, the city has endeavored throughout its history to be as self-sufficient as possible. The fact that the city is 65 percent self -supported in its 1986 budget was mentioned previously (City of King Cove, Chapter VIII) as an example of the high level of economic independence achieved. However, with as much as a one-third cut in tax revenues from the cannery (or a 14 percent overall budget reduction), the

extent to which the city is fiscally self-supporting would decrease. In addition to responding with budget cuts, the city administration may also appeal to outside sources for funds to a greater degree than has been typical in recent years.

The manner in which this disruption would impact the relationship between the city and PPSF is difficult to predict. One possibility" is that the reduction in city revenues would cause the city to raise the tax on the cannery in an effort to increase revenues to the city. However, the study team considers this response unlikely for the following reasons. First, to increase the cannery's taxes during a lean year would seriously compound the financial impacts on PPSF of the disruption. Despite the city's movement toward greater independence from the cannery, the city and PPSF do have a history of being good neighbors. While the city might (and did in 1984) raise the taxes during a good or normal fishing year, it is doubtful that they would attempt to increase city revenues at the expense of the cannery during a particularly difficult year. Second, after the last tax increase, the cannery responded by raising the cost of products they sell in the community and suspending benefits previously afforded residents. Thus, community expenses increased. In anticipation of a similar response, and in light the above considerations, the city likely would not impose a tax increase.

King Cove Corporation

As some of the corporation's main investments (described in Chapter VIII) rely upon fisheries-related business, a harvest disruption could cause a decrease in corporation profits during the disrupted year. If residents frequent the bar less (see Social Health impacts below) and non-local fishermen are absent during the month of June, an important source of corporation revenues will decline. Similarly, hotel occupancy will decline by that amount associated with the June fishery.

Financial difficulty in the year(s) following the disruption could cause some residents to sell the one acre lots they received from the corporation several years ago. Sale of these lots to non-local buyers could produce some tension within the community, depending on the new owners' use of the land. As discussed in Ethnic Relations, Chapter IX, values expressed by

residents do not favor land ownership by people they consider non-locals, nor are residents receptive to newcomers settling in King Cove.

Mt. Dutton Cable Corporation

If fewer residents subscribe to cable television because of income limitations, this organization will experience decreased income.

Aleutian/Pribilof Islands Association

This agency has had little involvement in King Cove to date because, according to one resident, the community has not needed or "wanted very much from A/PIA. A/PIA's programs are service oriented dealing primarily with education, health, community service, and housing (AHA) needs. If a harvest disruption causes increased stress in the community and negative adaptations to that stress, A/PIA will likely respond to the greater need for its services in such areas as alcoholism, health education and counseling, and mental health care. If families have difficulty making their monthly housing payments on the Rams Creek and Deer Island homes, the AHA would attempt to resolve such problems to the satisfaction of the resident and the AHA. Most families will be able to make minimum payments and it is doubtful that any houses will be foreclosed as a consequence of this scenario. However, a more extended disruption could result in AHA foreclosures on King Cove homes.

Aleutians East Coastal Resource Service Area

If the harvest disruption is caused by human activity with environmental consequences (such as an oil spill), this organization may consider amending its coastal management guidelines to be more stringent and enforceable. AECRSA would probably work with the state Coastal Management Program staff to explore their options in responding to this disruption.

Peninsula Marketing Association

As the voice for Area M fishermen, PMA likely will have a role in responding to a harvest disruption in South Unimak. If the disruption is regulatory in nature, the PMA will lobby the Board of Fisheries in favor of reopening the South Unimak fishery. The seriousness of this issue to Area M fishermen will intensify PMA's effort to restore at least some part of the fishery through lobbying or legal means.

King Cove Fish and Game Advisory Committee

In a commercial fishery disruption, this committee probably would express its concerns and recommendations to ADF&G. In addition, the committee would likely urge PMA to take the necessary action, PMA is more broadly based and better organized for applying political and lobbying pressure than the Fish and Game Advisory Committee.

Political Dynamics

A harvest disruption will place more pressure on community leaders to find creative solutions to problems stemming from the disruption, Those residents showing leadership qualities during this crisis will be elected (or reelected) to public office as an expression of community confidence in that individual's ability to minimize the impacts of the disruption.

Social Organization

Residence Patterns

Household Composition. As stated in Residence Patterns, Chapter IX, household composition in 1984 was approximately four persons per household and most households were comprised of nuclear families. Nuclear family households were not only dominant but also preferred by residents. In the event that fishermen's incomes are reduced for one year, those families who pay for their housing may have difficulty meeting that obligation. Payments for the AHA houses at the Rams subdivision are relatively low (approximately $110 per month plus average utilities of $237) and probably manageable for most families to endure for one year despite a potential one-third loss of income. Those families living in apartments pay considerably higher rent (approximately $600 per month for a one bedroom apartment, including utilities). However, during the field study only a few of the 12 apartments were occupied by local fishing families; the remainder were occupied by teachers and non-local city employees such as the policeman and the physician's assistant. The fishing families residing in apartments tended to be young people establishing their first household independent of their parents' home. These families may be unable to sustain their rent through a low income year and would be likely to move in

with parents or other relatives for a portion of that year. Similarly, young couples residing with one set of parents who hoped to establish their own households may be unable to do so in a low income year and thus would remain living with their parents.

Seasonal In-migration. As indicated in the ethnography, the number of extended family households increases in the summer with the arrival of relatives from other towns to participate in the commercial fishery. In 1984, 15 of the 129 King Cove households contained extended family all year, while another nine households gained members of the extended family only during the summer. With no June fishery, this in-migration would be delayed until July. It is possible that some non-local relatives would pursue other income options, given the loss of the June fishery, and not return to King Cove.

Out-migration. " Based on one low income year, it is unlikely that any residents would decide to move from King Cove permanently in pursuit of another livelihood. However, some individuals may leave King Cove for the winter following the disrupted season in pursuit of employment to supplement lower fishing earnings. This trend occurred during previous lean fishing years. Eventually, some residents who initially out-migrated only for the winter, moved permanently when the fisheries remained depressed for a series of years, Thus, we anticipate that out-migration in response to the proposed one year disruption would be seasonal, lasting just the winter. If the disruption continued for two or more years, however, a number of residents likely may move from King Cove permanently.

Vacations. Most King Cove residents leave the town in the fall for anywhere from two weeks to three months for vacation. Travel from King Cove is very expensive. Thus, confronted with a loss of income, many families may forego their vacations or shorten the duration and distance traveled in the autumn following the disrupted commercial fishing season.

Kinshiv

General Interdependency of Kin. Families in King Cove are currently quite self-sufficient; financial well-being has enabled them to meet most of

their everyday needs comfortably. However under financial constraints, the interdependence of related households may increase. For example, residents currently hire baby-sitters when needed. Tight budgets may encourage relatives to rely upon one another for child care as an economical alternative" to hiring a baby-sitter. Other similar forms of sharing and exchanging resources (as alternatives to paying for them) may become more common in the case of a harvest disruption.

Commercial Fishing Crew Structures. In 1984, 63 percent of known skipper/crew relationships in the seine fishery were kin relationships; in 1985, 55 percent of seine crew members were related to their skippers. In the drift gillnet fishery, 82 percent of the 1984 crew members and 48 percent of the 1985 crew members" were related to their skippers. Although the proportion of kin crewing for skippers appears to have declined from 1984 to 1985, relatives nevertheless constitute a large proportion of the crew positions. In the ethnography, we ascertained that more crew positions in the King Cove fleet are available than are local residents to fill those positions. Therefore, several residents have relied upon non-local, unrelated crew members.

When the July fisheries open (following the assumed South Unimak disruption), residents will realize fully that their incomes from this season will be considerably lower than most fishing years. Thus, given the values placed on family and seeing to the family's well-being, we expect that King Cove fishermen will hire relatives rather than non-relatives whenever possible. They will compose their crew to the best economic advantage. For example, rather than hiring non-local crew members, some fishermen may take their wives or daughters as crew members, thereby keeping the income in the family.

Commercial Fishing Crew Shares. The ethnography also reported that King Cove fishermen give proportionately higher crew shares to relatives than do fishermen in other Alaska Peninsula fishing towns who hire relatives. Relatives on King Cove crews typically earn crew shares of about 10 to 15 percent (ranging from 7.5 to 25 percent) whereas a crew member from Washington might be paid three or eight percent. Under economic strain, a

skipper could hire non-local, unrelated crew, thus cutting costs by paying the lowest possible crew shares. However, as stated in the preceding paragraph, skippers will attempt to hire relatives whenever possible. It is likely, however, that skippers may lower the percentages offered relatives as crew shares after a harvest disruption because their fixed costs (e.g., insurance, boat payments, and/or permit payments} would be proportionately higher in a low income year. Furthermore, a family crew member (as opposed to non-family) may be more willing to sacrifice some of his or her individual earnings for the sake of the family as a whole.

Commercial Fishing Strategies. In the past, some fishermen sold their second or third permits to acquire capital. It is unlikely that a one year disruption to one part of the fishing season would result in King Cove fishermen selling permits or boats; nor is it likely that lending agencies would foreclose on boat or permit loans to fishermen for not making full payments one year. However, if the harvest disruption were of such a magnitude as to cause permit or boat losses, the study team expects that family members would attempt to help the disadvantaged individual by sharing equipment, hiring him as crew, and collaborating in whatever way possible to ensure that person still had a livelihood in commercial fishing.

Commercial Fishing Permit Transfers. In the event that individuals begin selling second permits to help meet costs through a lengthy disruption, the established trend of fathers transferring their drift permits to sons would decline. As stated in Kinship and Commercial Fisheries, Chapter IX, this trend reflects the father's ability to afford transferring the permit to his son when he has the option of selling it or leasing it for high sums of money. In a harvest disruption, a father may no longer be able to afford to help his son in this manner. However, King Cove residents have seen the value of Area M permits increase dramatically in the past decade and realize the extreme difficulty their sons would have obtaining a permit. Consequently, the study team anticipates that permits would be sold out of the family only under circumstances of extreme financial stress.

Subsistence Harvest Strategies. As indicated in the earlier discussion of subsistence impacts from Scenario One, King Cove residents will lack their major opportunity to harvest king salmon for a season, but will probably manage to replace it with other species. Subsistence sockeye salmon harvests lost from the South Unimak fishes-y will probably be replaced with harvests of this species later in the season.

If a continued disruption were to cause loss of boats (i.e., through foreclosure), this would affect 'fishermen's ability to harvest not just salmon but also most other resources. In response, residents likely would consolidate their equipment and efforts to obtain desired amounts of subsistence resources. Because of the strong family values, these collaborative efforts likely would occur along predominantly kinship lines as individuals would be concerned for their family's welfare prior to that of non-relatives.

Subsistence Sharing. Current resource abundance results in surplus harvests occasionally being left on the dock for anyone in town to take. The study team projects that curtailed access to the resources. may result in less of this type of sharing. Sharing patterns are likely to become more deliberate with concern for ensuring that one's relatives have subsistence foods, particularly those households lacking a subsistence hunter or fisherman. Currently, King Cove residents often send quantities of local foods to relatives in Anchorage and other towns. Sharing salmon in this manner would diminish if subsistence harvests are reduced under this scenario.

Socialization to Roles

Commercial Fishing as a Livelihood. King Cove residents overwhelmingly value commercial fishing as the traditional, preferred, and dominant livelihood in King Cove. The all-pervasive influence of fishing in King Cove has been discussed in previous chapters. In the assumed harvest disruption, residents will continue to value the commercial fishing lifestyle. The one year disruption will allow them to still fish part of the affected season and resume fishing a full season the following year. This level of disruption will be temporarily discouraging and difficult for

fishermen; however, they have endured such disruptions in the past and will be optimistic that the Tanner season and the following salmon seasons will be productive.

Some residents will be reminded that the pattern of depending so heavily upon a fluctuating industry is akin to having "all of one's eggs in one basket." As in past disruptions, parents will encourage youth to broaden their educational/vocational backgrounds so they will be equipped to earn a living in another manner, either temporarily or permanently, if necessary.

Teenaged boys who have known only highly successful seasons and have become accustomed to earning considerable incomes will encounter the downside of the fisheries for the first time. Many middle-aged fishermen noted that their incomes as youth were contributed to the household budget in contrast to the current trend. in which a young man's earnings are kept and spent by him. It is likely that incomes will be combined in a household during and immediately following a harvest disruption; the need for a family to make ends meet will outweigh the individual's desire to keep his earnings separately.

Work force Participation by Gender. As stated in the ethnography and the assumptions, women's participation in the work force fluctuates according to the strength of the fisheries. In lean fishing years, more women work in the cannery, while in strong years they prefer not to work since commercial fishing provides sufficient income. Therefore, if the June salmon fishery closes, a higher percentage of women are likely to pursue cannery work in the remaining months of the summer than have worked in the cannery in recent years. As fishermen's incomes will be relatively low for the year (possibly longer) following the disruption, the same trend of increased female participation in cannery work will be evident during the Tanner season and probably also the following salmon season. In general, local labor likely will represent a higher percentage of total cannery labor for the year following the harvest disruption.

Subsistence Harvest Skills. As described above related to the subsistence impacts of Scenario One, a decline in commercial fishing revenue would

likely increase subsistence reliance. Younger King Cove residents, who have seem subsistence hunting as an enjoyable means of supplementing the food supplies of their families, would for the first time see the importance of subsistence resources to their household's economy. An increased interest in subsistence harvest skills among young residents would likely result in higher levels of participation and an increase in intergenerational production groups as a means for young hunters to increase their knowledge and skills.

Social Health

Recreational Activities. Visiting the local bars and watching cable television are among the more popular activities in King Cove at present. Reportedly, these activities have increased at the expense of the more traditional pastime of visiting. As the assumed harvest disruption could reduce the household economy by as much as one-third, individual spending habits are likely to become more conservative. Consequently, recreational (or luxury) expenditures such as subscribing to cable television or visiting the bar may diminish. Similarly, if local funding for community activities (e.g., basketball tournaments in city and school leagues) declines due to decreased city revenues, free or inexpensive activities such as visiting, and productive activities such as subsistence hunting, may increase.

Alcohol Consumption. As stated above, one response to decreased incomes may be fewer visits to the bar. While many individuals will respond in this fiscally prudent manner, a few individuals may react maladaptively to the stress of a harvest disruption and its implications by consuming more alcohol than usual.

Health. As noted previously in Chapter IX, two of the largest "King Cove families, as well as some smaller families, have high incidence of heart disease. Conceivably, the stress produced by a harvest disruption could be significant enough to aggravate preexisting heart problems and/or introduce new heart problems. Additionally, numerous other illnesses are known to be induced or aggravated by stress. Thus, as stress levels increase in King Cove in response to harvest disruption effects, health problems are likely

to increase as well. The exception to this trend will be in fishing related accidents, currently the most common ailment treated in the clinic during the summer. Less fishing time during the disrupted season should result in fewer fishing accidents for that season.

Given the possible city revenue reduction of approximately 14 percent, the clinic (operated by the city) may suffer budget cutbacks. Thus, while general health in the community may deteriorate, causing increased demands for health care, the clinic may be less able to meet its normal case load due to these budget constraints. Higher than average health care needs combined with less than average capacity would result in a significant decline in the quality of health care in King Cove.

Crime. Most crime in King Cove is associated with alcohol consumption and commercial fishing, as explained in the ethnography. Typical crimes involve fights originating at the bar, vandalism, theft, "and other forms of mischief. Many of these fights (and possibly some of the other types of crime) involve non-local fishermen. If the June fishery closure is announced or occurs well before June (i.e., in time for non-local fishermen to postpone their arrival in King Cove), the incidence of such fights with non-local fishermen will decrease during that month, as will other crimes involving nonresidents. During their presence in King Cove the remainder of the summer, fights may occur more often than usual due to the higher stress levels stemming from a disrupted season (i.e., decreased earnings and increased competition).

If the closure is announced immediately prior to the expected opening of the June fishery, King Cove will be crowded with non-local fishermen who may opt to wait there until the next fishery opens in July. Such a situation is likely to be volatile given high stress and frustration levels among fishermen. The bars will still be popular places to pass the time; thus, alcohol as a contributing factor to disturbances between fishermen will aggravate an already volatile situation.

Social Health Adaptations. In closing this discussion of the social health effects of a commercial fishing harvest disruption, the study team wishes

to reiterate an assumption stated earlier in this chapter. Namely, given King Cove residents' history of successful adaptation to past harvest disruptions, the maladaptive responses (i.e., increased alcoholism and crime) to a harvest disruption are assumed to affect a relatively small percentage of the population.

Ethnic Relations

The ethnography (Chapter IX) established that the distinction residents make between "locals" and "non-locals" is more significant than racially-based distinctions in King Cove. Having identified this distinction as being linked to the protectiveness and territorialism King Cove residents feel for the natural resources they depend upon, the negative value associated with this attitude is assumed to be linked to the abundance of resources. Therefore, the study team anticipates that the scarcity of resources caused in a harvest disruption will increase the amount of tension expressed by King Cove residents toward non-locals (in particular, those whose presence in the community is linked to the harvest). In this scenario, the scarcity applies only to commercial and subsistence salmon. With the commercial fishing season significantly shortened, King Cove fishermen will be concerned that the remainder of the season is maximally productive. Thus, residents are likely to feel threatened by non-local fishermen who are in the area to catch salmon and whose harvests might be so large as to prevent King Cove residents from catching their desired quantities.

Belief Systems

Religion

Decreased household incomes may reduce the amount of money individuals contribute to their church. Thus, the churches in King Cove may undergo financial hardship due to the harvest disruption.

Values

King Cove residents' main values, described in Chapter X and in the assumptions section of this chapter, are strong and long-standing enough that they will not be swayed by a harvest disruption. The importance of

education and vocational training, not found in the ethnography to be among the most important values, is expected to be more highly valued in a harvest disruption as residents realize the insecurity of relying too heavily upon commercial fishing as a livelihood.

SCENARIO TWO IMPACTS ON THE COMMUNITY OF KING COVE

As stated earlier, this scenario assumes the placement of a trans-peninsula pipeline and tanker terminal loading facility in Morzhovoi Bay. The construction and operation of such a support facility. could impede subsistence and commercial resource harvests. The area assumed to be affected in this scenario is shown in Figure 11-3. The scenario was designed to focus on local response to disruption of coastal and terrestrial areas. The marine waters of Morzhovoi Bay are included in this scenario due to the potential for tanker traffic and chronic discharges from the facility. The scenario assumes that there will be no impacts to the marine environment outside the bay. The following analysis of Scenario Two impacts is based upon the assumptions set forth earlier in this chapter combined with standards drawn from the ethnographic baseline and incorporated in this discussion.

Commercial Fishing Impacts

Morzhovoi Bay proper, while of limited importance to the King Cove commercial fishing fleet in general, is important to some King Cove fishermen. Salmon harvests from this area are small, representing less than one percent of the total Alaska Peninsula harvest. While all five species of salmon have been taken there, only chums are taken in significant numbers (Table 11-6). Morzhovoi Bay is of greater significance as a Tanner crab harvesting area. In 1985, over 700,000 pounds of crab were taken from this bay and adjoining marine area, representing 29 percent of the total South Peninsula harvest. Average gross earnings of the King Cove vessels in the Morzhovoi Bay area were $78,000 per vessel. Competition from non-local vessels was greater in Morzhovoi Bay than in other areas where King Cove crabbers fished (Chapter VI).

TABLE 11-6: COMMERCIAL FISHERIES HARVESTS FROM MORZHOVOI BAY

SALMON

	1980	1983	1984
Pink			
Number	85,494	5,470	15,123
sockeye			
Number	13,645	4,624	19,676
Dollars		$22,565	
Chum			
Number	12,278	56,039	54,570
Dollars		$128,329	$93,297
King			
Number	16	9	0
Dollars		$251	
Coho			
Number	1,931	57	0
Dollars		$209	
Total			
Number	113,364	56,039	90,369
Dollars	$231,877	$156,825	$108,430
Percent AK Pen.	0.7	0.6	0.5

TANNER CRAB

	1981-82	1983	1984	1985
Pounds	243,563	NA	213,738	752,901
Dollars	$253,277	NA	$213,000	$1,054,061
Percent South Pen.	5.0	NA	11.9	29.0

Source: ADF&G (1984a & 1984b).

Several salmon spawning streams flow into Morzhovoi Bay (Resource Analysts et al. 1984a), and any disruption of these streams would result in locally significant reductions of salmon populations. However, it is unlikely that such reductions would significantly affect the overall Alaska Peninsula or King Cove salmon fishery. There is, however, one set gillnet site on the west side of Morzhovoi Bay (Figure 6-4) that is utilized by King Cove fishermen. If a facility were located in the immediate vicinity of the site, these fishermen would be affected. The impact could be especially significant as few good set gillnet sites exist in the King Cove vicinity.

Crab fishing in Morzhovoi Bay occurs in the outer reaches of the bay (Figure 6-8). It is unlikely that fishing would be affected by an onshore facility unless chronic pollution or a major pollution event altered resource abundance. Conflicts with tanker traffic are also a possibility. Inner Morzhovoi Bay is a documented king crab spawning area (Resource Analysts et al. 1984a).

In summary, impacts from Scenario Two on the entire commercial fishing industry are not anticipated as being significant. Although less than one percent of the total Alaska Peninsula salmon harvest is taken in this area, the impact to a few King Cove residents (i.e., owners of the set net site in Morzhovoi Bay) could be" severe. The potential income lost to commercial salmon and crab fishermen is shown in Table 11-6. It is unlikely that the entire value of the Morzhovoi Bay salmon and crab harvest would be lost in the case of a disruption because much of the crab harvest occurs outside the affected area and because other alternatives exist for most King Cove salmon fishermen. However, if oil-related impacts (i.e., a large spill) extended beyond the mouth of the bay, impacts on the commercial fishing industry would be much more severe.

Subsistence Impacts

An onshore facility in Morzhovoi Bay that limits the access to both the uplands and marine fishing grounds within the bay would impact King Cove residents' current (1985) subsistence harvest patterns. Unlike the one year disruption described for the Unimak District, an onshore facility has the potential to limit access to subsistence harvest areas for the duration of the facility's

operation. Thus, the following discussion summarizes King Cove residents' use of Morzhovoi Bay and considers the subsistence impacts of reduced access to, and/or reduced resource abundance in, this region for an indefinite number of years.

Current Use of Morzhovoi Bay

As presented in Chapter VII, King Cove residents harvest a number of subsistence resources in the Morzhovoi Bay area. Subsistence harvests occur incidental to commercial harvests in the bay while direct subsistence activities occur both in the bay and in the surrounding coastal and terrestrial areas. Species harvested include caribou, waterfowl, salmon, bottomfish, and crab.

Occasional subsistence harvests occur in Morzhovoi Bay incidental to commercial salmon and Tanner crab fishing. As described above, for the majority of King Cove residents, commercial use of the area affected by the Scenario Two disruption (Figure 11-3) is limited. However, Morzhovoi Bay is important to a few King Cove fishermen. Resources harvested for home use during commercial salmon and crab openings include: salmon, king crab, Tanner crab, halibut and cod. Because the actual extent of commercial fishing activities within the affected area is relatively minor, incidental subsistence harvests are assumed also to be minor.

On the other hand, field interviews suggest that Morzhovoi Bay is very important to King Cove residents for subsistence harvest activities that occur outside the context of commercial fishing. King Cove residents use Morzhovoi Bay and Cold Bay more commonly than any other major subsistence harvest areas. And although these two areas share similar geographic features, King Cove residents indicated that hunting success was generally better in Morzhovoi Bay than Cold Bay due to higher levels of human activity in Cold Bay from King Cove and Cold Bay residents and increasing numbers of non-local hunters. King Cove residents' preference for using Morzhovoi Bay is demonstrated by subsistence hunters' willingness to spend greater travel costs and time to hunt in this area (Table 7-2). Although harvest activities occur in Morzhovoi Bay throughout the year, field data suggest that direct subsistence use of this area is concentrated in the fall.

While a wide variety of resources are harvested in Morzhovoi Bay and the surrounding uplands, subsistence harvest patterns described in Chapter VII demonstrate that Morzhovoi Bay is more important for some species than others. There are important harvest areas for salmon, crab, waterfowl, and caribou in the area potentially affected by an onshore facility in Morzhovoi Bay. The potential for disruption to harvest patterns resulting from the development of an onshore facility would be greater for these species than other resources that are only occasionally harvested in the Morzhovoi Bay area.

Salmon

Five species of salmon account for 36 percent of King Cove residents' estimated mean household harvest of all subsistence resources (Table 7-4). Out-migrating and returning salmon use Morzhovoi Bay as a feeding area, and sockeye, chum, and pink salmon spawn in the streams that flow into the bay (State of Alaska and USDI 1984). The facility described in Scenario Two has the potential to disrupt these salmon species in both the spawning and feeding areas. If disrupted, King Cove residents' use of these resources could be impacted. However, as described in chapter VII, King Cove residents currently harvest salmon in numerous locations with the most important harvest sites closer to the community than Morzhovoi Bay (e.g., Thin Point, Deer Island, Cold Bay, and Lenard Harbor). Impacts to subsistence use of salmon would be minimal for most King Cove residents but significant for those commercial fishermen who regularly harvest salmon for home use incidental to commercial fishing activities in Morzhovoi Bay.

Crab

The average King Cove household uses relatively small quantities of both Tanner crab (four pounds annually) and king crab (11 pounds annually) for home consumption. Concentrated subsistence crab harvest areas near Morzhovoi Bay are outside the area affected by Scenario Two (Figures 7-6 and 11-3); hence, impacts to local use of these species would likely be minimal. Furthermore, as described in Chapter VII, the majority of subsistence crab harvests occur during the commercial Tanner crab season; if the Morzhovoi Bay area were detrimentally impacted as a result of construction and operation of an onshore facility, King Cove commercial crab fishermen would likely fish other grounds, thus reducing the impact to

both commercial and subsistence harvest activities. Finally, Pavlof Bay was the only area repeatedly noted as an important crab fishing location for subsistence activities outside the context of commercial fishing. This preferred harvest area for King Crab would not be impacted by the described disruption.

Caribou

The coastal and terrestrial areas surrounding Morzhovoi Bay is important for fall and winter caribou habitat and the Scenario Two disruption could displace caribou using the area. Caribou currently account for nearly one-third (520 pounds) of the average King Cove household's subsistence production. The land surrounding Morzhovoi Bay is. a primary caribou hunting location for King Cove residents. As noted above, use of Morzhovoi Bay for direct subsistence harvest activities is concentrated during the fall and it is at this time of year that the first caribou of the season are taken. If the disruption caused the displacement of caribou from this region, King Cove residents would be forced to use an alternative harvest location for caribou.

Waterfowl

Morzhovoi Bay and the surrounding coastal area is an important staging and nesting area for numerous waterfowl and other marine birds. As with caribou, waterfowl hunting in Morzhovoi Bay is concentrated in the fall. These resources could be disrupted by development of a facility as described in Scenario Two. Although waterfowl provide only six percent of the average King Cove household's harvest of subsistence foods (Table 7-4), they are second only to caribou in terms of King Cove residents' taste preferences. The lagoons of Morzhovoi Bay represent one of the most important waterfowl harvest locations used by King Cove residents.

In order to assess the impacts of an onshore facility in Morzhovoi Bay on King Cove residents' subsistence patterns, the importance of this harvest area and the subsistence species harvested in this area must be determined. Although harvest estimates presented in Table 7-4 are not broken down by harvest area, a measure of this harvest area's overall importance can be determined by analyzing the following factors:

- o Frequency of use of Morzhovoi Bay relative to other areas;
- o Efficiency of resource extraction;
- o Resources that receive focused effort in this area; and
- o Importance of different resources harvested in Morzhovoi Bay to King Cove residents' diet (in terms of contribution to diet and taste preference).

As described previously, Morzhovoi Bay is one of King Cove residents' most frequently used subsistence harvest locations. According to local residents, only Cold Bay is used as frequently as Morzhovoi Bay. While use of Morzhovoi Bay is concentrated during the fall, the region is visited at all times of year for subsistence activities. Local residents' willingness to expend the money and time necessary to make numerous trips to Morzhovoi Bay indicate that the area is an efficient harvest area for King Cove hunters in terms of the quantity and species mix of the resources harvested.

Salmon, crab, waterfowl, and caribou are the resources that receive focused harvest efforts in the Morzhovoi Bay area, However, numerous salmon harvest locations are closer to the community, and both salmon and crab harvests in Morzhovoi Bay occur incidental to the relatively minor commercial harvest activities occurring in the affected area. Therefore, overall impacts to salmon and crab harvests would not be significant. On the other hand, King Cove residents consider the coastal and terrestrial habitat surrounding Morzhovoi Bay as one of their most important caribou and waterfowl hunting areas. Any impacts resulting from the Scenario Two disruption would likely be greatest for these resources.

Figures 7-13 and 7-15 present data on total household subsistence harvest estimates and taste preferences for King Cove residents. Caribou and waterfowl are the first and second most preferred foods and provide the second and fourth largest contribution (respectively) to the total King Cove subsistence harvest. Because use of Morzhovoi Bay is concentrated in the fall when King Cove residents take a majority of the waterfowl harvest and since the Morzhovoi Bay area was repeatedly noted by local residents for its good caribou hunting, the study team assumed that up to 75 percent of the total harvest of these species could be impacted. Hence, as much as 465 pounds of waterfowl and caribou harvest or 28 percent of the average annual household subsistence

harvest could potentially be affected by a Scenario Two disruption. Using an estimated replacement value for subsistence foods of $3.55 per pound (see Chapter VII), the value of the total subsistence harvest could be reduced by as much as $1,650.

In summary, Morzhovoi Bay is one of King Cove residents' most frequently used subsistence harvest areas. While Morzhovoi Bay is an important harvest area for salmon, crab, waterfowl, and caribou, salmon and crab are available and harvested in numerous locations in addition to the affected area. Caribou and waterfowl harvests are currently concentrated in the Morzhovoi Bay area. If a disruption reduced the resource harvest in this area, the total amount of these preferred subsistence foods available for consumption could be reduced. The extent to which this harvest could be replaced by other species or harvests from alternative locations is discussed below.

Impacts to General Subsistence Hunting Patterns

Throughout this report, the study team has documented the general abundance of the resources harvested for home use by King Cove residents. Even king crab, which has been "commercially extinct" in the region for several years, is present in sufficient numbers to be a viable subsistence resource, If the onshore facility reduced resource abundance and hunter success in Morzhovoi Bay, King Cove residents would be forced to consider other harvest locations to compensate for the reduced efficiency of harvesting in Morzhovoi Bay. In order to address the overall impact of this disruption, four important questions must be answered. First, are there other suitable locations within King Cove's overall subsistence harvest area where resources no longer available in Morzhovoi Bay (particularly caribou and waterfowl] can be harvested? Second, what are the added costs in terms of time, money, and efficiency of using these alternative areas? Third, do these added costs affect one segment of the population more severely than another? Finally, given natural fluctuations in renewable resource populations, what would be the impact of reduced hunting success in Morzhovoi Bay on general subsistence harvest patterns in the future if targeted resources were not available in the same abundance or distribution as they are today?

Despite the abundance of renewable resources in the lower Alaska Peninsula region, the availability of another suitable. hunting location that offers the same characteristics as Morzhovoi Bay is unlikely. For example, King Cove residents have access from the south side of the Alaska Peninsula to the coastal plains on the north side of the peninsula at the head of four different bays: Bechevin, Morzhovoi, Cold, and Pavlof. Access to these coastal plains is essential to efficient and successful waterfowl hunting, a highly preferred resource among King Cove residents. Only in two of these bays, Morzhovoi Bay and Cold Bay, are there also large lagoons with large concentrations of waterfowl and good access to a variety of hunting areas. The level of human activity in and around Cold Bay currently forces King Cove residents to use more distant areas such as Morzhovoi Bay. It is unlikely that Cold Bay could accommodate all the hunting pressure that would be displaced from Morzhovoi Bay.

Furthermore, while some waterfowl hunting does occur in both Pavlof and Bechevin bays, these areas lack access to large lagoon systems and are considerably farther away than either Morzhovoi Bay or Cold Bay (which increases traveling costs). For example, it costs approximately $83 more to travel to Pavlof Bay than Morzhovoi Bay (Table 7-2). If King Cove residents shifted use from Morzhovoi Bay to Pavlof Bay, fuel costs alone could increase by approximately $250 annually. Thus, if the onshore facility in Morzhovoi Bay decreased harvest success in that area, King Cove residents would have to spend more time and money to harvest the same resources by shifting to more distant harvest areas, use less efficient caribou and waterfowl hunting areas, or shift harvest effort to less preferred resources (e.g., cattle or bottomfish). Changing target species, while perhaps an economically viable alternative, would result in use of less desired resources.

Changes in use areas with resultant increases in subsistence harvest costs would have greater impacts on some local residents than on others. Residents who have little disposable income would experience the economic impacts of shifting use from Morzhovoi Bay to more distant harvest areas. These hunters could respond by changing hunting patterns in a number of ways. For example, they could reduce the frequency of hunting trips but still use productive areas such as Pavlof Bay. They could attempt to harvest sufficient quantities of

caribou and waterfowl from nearby (i.e., less expensive) though less efficient harvest areas. Finally, these residents could shift to species available near the community. Although the production costs of species available nearby would be less, the mix of species harvested may be less desirable.

Finally, natural fluctuation in population size or distribution of important subsistence resources would likely have similar impacts to those just described: decreased harvest efficiency or changes in target species. Caribou populations are currently very high in this region, but are also characterized by dramatic population fluctuations. If caribou populations were to decline and King Cove residents' desire to harvest caribou remained high, caribou hunting would require more time, money, and effort.

In conclusion, the development of an onshore facility in Morzhovoi Bay would likely alter current King Cove subsistence hunting patterns, primarily for caribou and waterfowl and secondarily for salmon, crab, and bottomfish. For most of these resources (i.e., salmon, crab, bottomfish), currently underused areas could accommodate increased harvest pressure, However, equivalent locations for caribou and waterfowl hunting are not available to King Cove residents. Use of alternative areas for harvesting these resources would result in more time and money expended. Under current economic conditions, these added costs would likely be absorbed by most King Cove hunters and use would likely shift to more distant hunting locations. If reduced harvest success in Morzhovoi Bay coincided with decreased earnings from the commercial fisheries, a larger segment of the population would likely change their subsistence patterns to focus on more efficient and abundant species or to less costly harvest locations. Finally, the general abundance of marine alternatives in close proximity to the community would always allow for substantial amounts of renewable resources to be harvested. However, these resources are less preferred than either caribou or waterfowl, the species that would be impacted most severely by a Morzhovoi Bay facility.

Impacts to Associated Sociocultural Structures

While most of the sociocultural impacts of Scenario One are expected to stem from significant income losses, such losses are not a major factor in this

scenario. Rather, under the circumstances of the Morzhovoi Bay harvest disruption projected above, most of the sociocultural impacts likely would occur in the social organization of subsistence harvest activities and in political responses to the disruption since commercial fishing impacts are expected to be minimal. This analysis is limited to the effects stemming directly from a renewable resource harvest disruption. Other impacts, both adverse and positive, may be caused by oil-related facilities development (e.g., increased employment, tax and/or lease revenues to local governments or land owners). However, analysis of these effects was beyond the scope of this study.

Political Organization

In response to the declining resource availability imposed by this disruption, the City of King Cove, the King Cove Corporation, the Fish and Game Advisory Committee, and the AECRSA. may all lobby on behalf of King Cove residents in an effort to resolve the subsistence harvesting problem faced by residents. Level of involvement by each of these organizations will vary depending upon their attitudes toward and/or involvement in the Morzhovoi Bay facility. For example, the corporation may profit from the facility through a land lease, and thus take a softer stance toward the facility than AECRSA, a regulatory entity concerned with protection of coastal resources. The nature of their involvement would also vary according to the type of influence each organization has with the appropriate seats of power. Ultimately, however, most of these organizations are made up of the same people: residents of King Cove who harvest foods from Morzhovoi Bay.

As described under the Scenario One impacts, this harvest disruption will place more pressure on community leaders to find creative solutions to problems stemming from the disruption. Those residents showing leadership in coping with this problem are likely to be granted power (e.g., though election or appointment to public office) by the community to work on solving the problem. The boards and councils of the above organizations (city, corporation, Fish and Game Advisory Committee, and AECRSA) are the probable platforms for such individuals to address the issue of a harvest disruption in Morzhovoi Bay.

Social Organization

As' Chapter VII established, subsistence harvest outings do not follow strict patterns of- social organization. Groups of friends appeared to be as likely to conduct a subsistence outing as groups of relatives. However, this observation was made during a period of resource abundance. It is expected that the loss of Morzhovoi Bay as an important harvest area will increase the demands made on alternative areas, resulting in increased competition for resources. This competition is likely to cause more concern for ensuring that one's family obtains adequate subsistence resources. Consequently, the organization of subsistence outings is likely to be determined predominantly along kinship lines as men in the community focus on the family priority.

Similarly, relatives likely would collaborate more in pooling their resources to make their outings as efficient as possible. Sharing costs and equipment are means by which relatives may work together to obtain resources efficiently for their households.

With regard to sharing the harvest, the study team anticipates that surplus harvests (such as those described earlier in which a hunter or fishermen leaves excess product on the dock for anyone to take) will occur with less frequency. The generally increased hardship imposed by the assumed disruption may mean that a household would be less likely to have surpluses. Even if a group returns from an outing wit% an unusually large amount of one species, the shortage of other species resulting from the disruption may cause the harvesters to keep the entire harvest or distribute a portion of it among relatives, particularly among those relatives lacking a subsistence harvester in the household. Similarly, King Cove residents will be less inclined to send subsistence foods to their relatives in other communities (a common practice at present) as they will have less surplus harvest to share.

In general, the social organization of subsistence harvests and distribution are likely to be guided more strictly by an increased priority on providing for one's family in contrast to the presently casual organization of subsistence activities. This response likely would be even more acute in a poor fishing year when reduced cash incomes would impede a household's ability to finance

subsistence outings to areas more distant than Morzhovoi Bay; purchasing groceries would also be more difficult under financial constraints, and the number of households using food stamps would increase. Thus, a cash poor year would aggravate the problems associated with a subsistence harvest disruption and intensify family collaborative efforts toward the most efficient use of resources.

As has been discussed in Chapter IX and in the Scenario One impacts, King Cove residents' attitudes toward non-locals are likely to become more negative during a period of resource decline. Residents are protective of surrounding commercial and subsistence resources and the lifestyle they have based upon these harvests. Thus, residents' attitudes toward non-locals are expected to become more negative during this disruption. This shift in attitude would be directed primarily toward those non-locals whose presence in the area is linked to the harvest of resources in short supply.

Belief Systems

Finally, faced with shortages of preferred subsistence resources as well as more difficult harvesting conditions (e.g., longer travel and higher costs for subsistence outings), King Cove residents' value of those. resources is likely to increase. The importance placed upon subsistence activities may increase as well in response to concern that lowered harvests would force residents to pay higher costs (i.e., in travel to more distant subsistence areas or in store purchases) to consume less preferred foods.

CONCLUSION

In conclusion, King Cove residents' high degree of dependence on the commercial and subsistence harvest of renewable resources makes the community and its residents vulnerable to a renewable resource harvest disruption. Considering the ongoing and anticipated offshore and onshore resource development activities planned for the area, disruptions to King Cove's renewable resource base are not inconceivable. The effects analysis presented in this report suggests that the impacts of a commercial harvest disruption likely would be

more severe than a subsistence harvest disruption due primarily to lost fishing and seafood processing income and the subsequent effects of this income reduction throughout the economic and sociocultural systems of the community.

Harvest effort for the commercial fisheries is currently concentrated both temporally and, in many instances, spatially. Although this concentration of fishing effort reduces the overall likelihood of a disruption by limiting the number of locations and times of year that impacts could occur, short-term or localized disruptions in critical locations or times of year may cause significant community-wide impacts. As the majority of the cash entering the community is tied directly (e.g., crew and captain shares) or indirectly (e.g., processing sector and city tax revenues) to the commercial fisheries, any disruption may have significant and far-reaching impacts to local residents." In addition, decreased commercial fishing income would affect King Cove residents' ability to acquire and maintain the equipment necessary to actively engage in many subsistence activities.

Disruption to King Cove residents current subsistence practices would likely cause less significant impacts than a commercial resource harvest disruption. Although effort is sometimes concentrated in specific locations during certain times of year (e.g., Morzhovoi Bay in the fall), King Cove residents harvest subsistence resources throughout the year and over a large area. The large subsistence harvest area used by King Cove residents and "the current practice of harvesting subsistence resources throughout the year increase the possibility of a subsistence disruption. However, due to the general abundance of numerous resources throughout the year and the availability of alternative harvest locations, no realistic disruption scenario could permanently impact the entire area used by King Cove residents. Harvest disruptions could change King Cove residents' subsistence harvest patterns, costs associated with subsistence harvests, and the overall species mix, but would not necessarily change the total quantity of subsistence foods harvested.

If a disruption were to occur that simultaneously impacted both the commercial fishing and the coastal and terrestrial resource use areas, serious and long-term impacts could be expected in the community. However, King Cove residents

have experienced and survived a number of past harvest disruptions caused by natural fluctuations in resource abundance, over-harvest of commercial resources, and changes in markets. Review of these past disruptions demonstrates that King Cove residents are resilient to disruptions and have adapated in the past to maintain a viable lifestyle. As in the past, future adaptations would likely involve new strategies to extract resources from the marine environment, the traditional economic mainstay of King Cove.

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