Patterns and Trends in Subsistence Fish Harvests, Northwest Alaska, 1994–2004

by

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Weights and measures (metr	ic)	General
centimeter	cm	Alaska Administrat
deciliter	dL	all commonly-acce
gram	g	abbreviations
hectare	ha	
kilogram	kg	
kilometer	km	all commonly-acce
liter	L	professional tit
meter	m	
milliliter	mL	at
millimeter	mm	compass directions
	• • •	east
weights and measures (Engli	isn)	north
cubic feet per second	IT'/S	south
loot	Il col	west
ganon	gai	copyright
mile	111	Composate suffixes.
nautical mile	nmi	Company
	07	Incorporated
pound	0Z lb	Limited
quart	at	District of Columb
vard	vd	et alii (and others)
yard	yu	et cetera (and so fo
Time and temperature		exempli gratia (for
dav	d	Federal Information
degrees Celsius	°Č	id est (that is)
degrees Fahrenheit	°F	latitude or longitud
degrees kelvin	K	monetary symbols
hour	h	months (tables and
minute	min	× •
second	s	registered trademar
		trademark
Physics and chemistry		United States (adje
all atomic symbols		United States of Ar
alternating current	AC	U.S.C.
ampere	А	U.S. state t
calorie	cal	
direct current	DC	
hertz	Hz	Measures (fisherie
horsepower	hp	fork length
hydrogen ion activity (negative	e log of) pH	mideye-to-fork
parts per million	ppm	mideye-to-tail-fork
parts per thousand	ppt, ‰	standard length
volts	V	total length
watts	W	

Alaska Administrative Co	de AAC
all commonly-accepted	
abbreviations	e.g.,
	Mr., Mrs.,
	AM, PM, etc.
all commonly-accepted	
professional titles	e.g., Dr., Ph.D.,
	R.N., etc.
at	a
compass directions:	
east	Е
north	Ν
south	S
west	W
copyright	©
corporate suffixes:	
Company	Co.
Corporation	Corp.
Incorporated	Inc.
Limited	Ltd.
District of Columbia	D.C.
et alii (and others)	et al.
et cetera (and so forth)	etc.
exempli gratia (for examp	le) e.g.
Federal Information Code	FIC
id est (that is)	i.e.
latitude or longitude	lat. or long.
monetary symbols (U.S.)	\$,¢
months (tables and figures	s) first three
let	ters (Jan,,Dec)
registered trademark	®
trademark	TM
United States (adjective)	U.S.
United States of America	(noun) USA
U.S.C. Un	ited States Code
U.S. state two-lett	er abbreviations
	(e.g., AK, WA)
Magguros (ficharias)	

es)

fork length	FL
mideye-to-fork	MEF
mideye-to-tail-fork	METF
standard length	SL
total length	TL

Mathematics, statistics

mannenanco, statistico	
all standard mathematical signs, sym	nbols
and abbreviations	
alternate hypothesis	H_A
base of natural logarithm	e
catch per unit effort 0	CPUE
coefficient of variation	CV
common test statistics (F, t, χ^2	, etc.)
confidence interval	CI
correlation coefficient (multiple)	R
correlation coefficient (simple)	r
covariance	cov
degree (angular)	0
degrees of freedom	df
expected value	Е
greater than	>
greater than or equal to	\geq
harvest per unit effort H	IPUE
less than	<
less than or equal to	\leq
logarithm (natural)	ln
logarithm (base 10)	log
logarithm (specify base) log	32, etc.
minute (angular)	'
not significant	NS
null hypothesis	Ho
percent	%
probability	Р
probability of a type I error (rejection	n of the
null hypothesis when true)	α
probability of a type II error (accepta	ance of
the null hypothesis when false)	β
second (angular)	"
standard deviation	SD
standard error	SE
variance	
population	Var
sample	var

TECHNICAL PAPER NO. 366

PATTERNS AND TRENDS IN SUBSISTENCE FISH HARVESTS, NORTHWEST ALASKA, 1994–2004

by

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ABSTRACT

This project explored patterns and trends in subsistence fish harvests from 1994 through 2004 in 6 Northwest Alaska communities: Ambler, Kiana, Kobuk, Noatak, Noorvik, and Shungnak. The project involved a coordinated analysis of 2 related datasets: a community time series dataset in which each record contained a single year of fish harvest data for a single community, and a household panel dataset in which each record contained a single year of fish harvest data for a single household. The household panel data were supplemented with additional data from 92 selected households acquired during interviews. The strongest trend identified in the analysis was a declining harvest of chum salmon Oncorhynchus keta, -6.9% annually ($r^2=0.402$, P=0.036). Total subsistence fish harvests showed no trend ($r^2=0.045$, P=0.612), because increasing harvests of sheefish Stenodus leucichthys and Dolly Varden Salvelinus malma supplanted chum salmon. Possibly because households were targeting sheefish and Dolly Varden, use of setnets declined during the study period while use of rods and reels increased. Harvests of salmon other than chum salmon increased during the period, although only the trend in pink salmon O. gorbuscha was statistically significant ($r^2 = 0.390$, P=0.040), possibly providing evidence of expanding salmon range. In interviews with 92 selected fishing households, environmental factors, such as "unusual water levels" and "unusual weather," were most frequently named as affecting fishing, and accounted for 34% of reported factors. Personal factors, such as health and age of the household members, accounted for 21%, while financial factors, such as employment and rising costs, accounted for 19% of reported factors. The data described a stable subsistence fishery, not without interannual variation, and not without shifts in species selections, but stable in the sense that residents continued to harvest almost exactly the same amount of fish per person over a decade's time.

Key words: subsistence fishing, chum salmon, *Oncorhynchus keta*, sheefish, *Stenodus leucichthys*, whitefish, *Coregonus* spp., Dolly Varden, *Salvelinus malma*, Ambler, Kiana, Kobuk, Noatak, Noorvik, Shungnak, Kotzebue District, Cape Krusenstern National Monument, Kobuk Valley National Park, Kotzebue Sound, Noatak National Preserve.

1 INTRODUCTION

This project explored patterns and trends in subsistence fish harvests in 6 Northwest Alaska communities: Ambler, Kiana, Kobuk, Noatak, Noorvik, and Shungnak (Figure 1-1). The goal was to identify factors associated with changes in fish harvests in project communities, and to distinguish changes related to social, economic, and environmental factors from changes related to fisheries management. The project relied in part on analyses of previously collected subsistence fish harvest data to explore trends in harvests at the community level and patterns in harvests at the household level. The project also relied on interviews with selected fishing households. Respondents were asked to review and comment on factors affecting their household's and community's subsistence harvests. The results are expected to improve the reliability of predictive modeling regarding the subsistence harvest of fish.

The 6 study communities and their fisheries are similar: small, remote, subsistence-dependent communities with strong *Iñupiaq* traditions organized around extended families. Five study communities—Ambler, Kiana, Kobuk, Noorvik, and Shungnak—are on the Kobuk River, which drains the mostly forested southern slopes of the western Brooks Range. One study community—Noatak—is on the Noatak River, which drains the mostly unforested northern slopes of the western Brooks Range. Both rivers drain into Kotzebue Sound near Kotzebue. There are no local in-river commercial fisheries. For subsistence harvests, residents rely on gillnets, seine nets, and rods and reels.



Figure 1-1.-Map of Northwest Alaska, showing the 6 study communities.

THE RESEARCH PROBLEM

From 1994 through 2004, estimated harvests of Pacific salmon *Oncorhynchus* spp. decreased in each of the 6 project communities. The moving 4-year average of the communities' total salmon harvest declined from 42,987 salmon in 1997 to 25,327 salmon in 2004 (Magdanz et al. 2008). In some communities, declines in harvests of salmon have been mitigated by increases in harvests of other fish, but in other communities this has not occurred. The reasons for these changes in harvests, whether ecological, social, or economic, are not well understood.

LITERATURE AND DATA REVIEW

From 1994 through 2004, many environmental and economic changes were occurring in the study area. Widespread salmon run failures in Western Alaska in the 1990s were blamed on anomalous ocean conditions (Kruse 1998). At the same time, the international market for commercially-caught wild salmon collapsed. From 1993 to 1997, inflation adjusted, exvessel dollar values of salmon in the Arctic–Yukon–Kuskokwim (AYK) region of Alaska were the lowest since 1976 (Buklis 1999). Many rural AYK families use income from small scale commercial salmon fisheries to purchase subsistence equipment and supplies. "Low salmon harvests coupled to depressed prices have created substantial economic and social hardships in the affected communities" Buklis (1999) observed. By 1998, the "severe economic and social hardships" resulting from the depressed salmon fisheries had prompted Alaska's governor to request a federal disaster declaration (Kruse 1998).

Throughout the study period, fuel prices were increasing and by 2008 exceeded \$8.00 per gallon in some Northwest Alaska communities. This limited people's ability to travel to hunt and fish, and increased the costs of imported food, equipment, and supplies. Until the global recession began in 2008, high oil prices increased state oil revenues and employment (Fried and Robinson 2008), while high prices for zinc, gold,

and other metals encouraged mineral exploration and extraction activities in Northwest Alaska, and provided new sources of employment.

Atmospheric warming is producing rapid changes in Alaska's environment (Chapin III et al. 2004; Hassol 2004; Overland and Stabeno 2004). Changes in the Northern Bering Sea "may have profound impacts on Arctic marine mammal and diving seabird populations as well as commercial and subsistence fisheries" (Grebmeier et al. 2006:1463). As an example, northern lakes and rivers have been freezing later and breaking up earlier (Magnuson et al. 2000), which may affect the movements of both animals and people, and disrupt seasonal patterns of subsistence harvesting and processing (Hinzman et al. 2005). Rural families are reporting that these economic and environmental changes are forcing them to reconsider how to spend their limited resources and time: when to go to fish camp and how long to stay; whether to purchase new fuel efficient, 4-cycle outboard motors or continue to use less expensive, 2-cycle motors; whether to take a job in the mining industry, or to rebuild a camp washed away in the spring flood. Environmental and economic changes are also increasing challenges for fishery managers, as it becomes more difficult to predict salmon returns, commercial markets, fishing effort, and fishing harvests.

Given the accumulating impacts of economic and environmental changes in the Northwest Arctic, timeseries analyses of subsistence harvests were an obvious line of inquiry. For the 6 Northwest Arctic communities in this project, the available data may be unique in 2 ways: 1) household subsistence harvest records include not only all 5 of the Pacific salmon species found in Alaska but also 3 other major fish species; and 2) consistent annual household identification codes allow time-series analyses at the household level. Consequently, researchers can explore relationships over time among the subsistence harvests of major fish species—salmon, sheefish, Dolly Varden, and whitefishes *Coregonus* spp.—at the household level.

Prior surveys showed that residents of the 6 Northwest Arctic communities harvested an estimated average of 90,000 fish annually from 1994 through 2004. Converting numbers of fish to estimated pounds of fish using standard ADF&G conversion factors (Appendix Table A-5), fish contributed an estimated average edible weight of almost 400,000 lb to annual subsistence harvests in the 6 study communities: almost half of the total estimated subsistence harvest of all wild foods, by weight. A substantial proportion of fish harvest effort occurred within the boundaries of the Kobuk Valley National Park, the Noatak National Preserve, and the Cape Krusenstern National Monument.

A previous analysis of patterns and trends in salmon harvests for 10 Seward Peninsula communities examined several hypotheses about factors related to salmon harvests (Magdanz et al. 2009). Results were consistent with subsistence harvest patterns observed by other researchers. A relatively small portion of predominantly Alaska Native households typically produced most of the wild foods, by weight, harvested within a given community. These highly productive households typically included multiple working age males, were involved in commercial fishing, and had higher wage incomes. Given these patterns, it was reasonable to assume that in each community there existed a stable core of high harvesting households that took the majority of the salmon year after year. Wolfe was among the first to describe this phenomenon, and coined the term "super-households" (Wolfe 1987).

The analysis of the Norton Sound salmon harvest data suggested that the "super-households" could not be fully understood by analyzing single-year datasets. Norton Sound researchers found that while some high-harvesting households consistently contributed to the community harvest, other households' contributions were unpredictable (Magdanz et al. 2005:61–66). Surprisingly, some households that fished on an intermittent basis were among the highest harvesting households in their communities, in a given year (Magdanz et al. 2005:52–53).

In the Norton Sound project, researchers based their analyses primarily upon the harvest database and attributes of each household collected from other databases or provided by key respondents. While patterns and trends could be observed in the data, explanations for those patterns and trends were speculative (Magdanz et al. 2005:75). Changes in community harvests are the result of changes in

harvests by individuals and families. Fishing families themselves are best able to explain changes in their own fish harvests, which is why this project relied on both household harvest records and on interviews with selected fishing families in the study communities.

RESEARCH QUESTIONS

Based on a review of the literature and data, a series of research questions was developed to further clarify patterns and trends in subsistence harvests of salmon, whitefishes, sheefish, and Dolly Varden in Northwest Alaska. The first set of questions explored trends in fisheries harvests, specifically:

- 1. How did subsistence fish harvests change in the 6 project communities from 1994 through 2004?
- 2. What factors might account for these changes?
- 3. What factors might account for differences observed among the 6 project communities?

A second set of questions explored patterns in fishing harvests:

- 1. Why do some households, and not others, cycle in and out of the fisheries?
- 2. Why do some intermittently fishing households harvest large quantities when they do fish?
- 3. Why are intermittently fishing households more common in some communities?

OBJECTIVES

This project had 6 objectives which addressed the 6 related research questions:

- 1. Compare community and household harvest databases; identify and correct data errors.
- 2. Analyze the community database to identify harvest trends for 4 fish species in 6 communities.
- 3. In 2 communities, work with high school students to review community harvest patterns and trends and work with respondents in selected households to review household harvest patterns and trends.
- 4. In 6 communities, collect household attributes (age of heads of household, changes in health status, deaths, marriages, etc.) from key respondents and through household interviews.
- 5. Summarize data from interviews and add household interview data to the harvest database.
- 6. Analyze the household database to identify correlations between harvests and social, economic, and demographic variables.

2 METHODS

The project design involved a coordinated analysis of 2 related datasets, both of which contained fish harvest reports and estimates previously collected during 11 years of post-season salmon surveys, supplemented with additional data collected during this project. The first dataset was a community time series dataset in which each record contained a single year of fish harvest data for a single community. The second and much larger dataset was a household panel dataset in which each record contained a single year of fish harvest data for a single community. The second and much larger dataset was a household panel dataset in which each record contained a single year of fish harvest data for a single household. Within the household dataset was a balanced panel of households: that is, data were available every year for each household. The household panel data were supplemented with additional data from selected households acquired during interviews conducted by staff from Maniilaq Association and the Alaska Department of Fish and Game (ADF&G), and by high school students in Noatak and Shungnak.

The project was conducted in 3 phases. In the first phase, researchers merged the annual household harvest data sets, compared them with the existing community data set, and corrected errors and omissions. They then identified trends in community harvests. In the second phase, researchers returned to the study communities with the merged household harvest data, the community summary data, and the harvest trends analyses. They shared these results with selected households during a series of face-to-face interviews, and sought explanations for the patterns and trends observed in the data. In the third phase, researchers added data from the household interviews to the household harvest data set, and conducted a final round of analyses.

PROJECT MATERIALS AND INSTRUMENTS

Prior to data collection, researchers developed several project materials and instruments (Appendix B). They created a brochure to explain the project to community councils, to high school staff and students, and to potential respondents. For each potential respondent household, they assembled a 2-page household fishing history summarizing that household's annual reported harvests in numbers and pounds of each species of fish, as well as each community's total estimated harvests during the same period. These histories were used as prompts during household interviews. Researchers developed 2 instruments to collect data during interviews. The first was a 5-page interview protocol used to collect information from fishing households about factors that affected their fishing. The second instrument was a 1-page household data verification and collection sheet. This was used during key respondent interviews to determine which households had a unique identification number across 11 years of data collection, to flag households with multiple identification numbers for correction if possible, and to collect additional information about each household, such as the age of the household head. This process is described in more detail in Data Collection and Reduction below.

SAMPLES

Two samples were used for this project: 1) the annual samples of 191 to 446 households contacted in the original harvest surveys, and 2) a subsample of 92 of households re-interviewed for this project (Table 2-1). To ensure that interviewed households could provide data relevant to changes in harvests, a household was considered for interviews only if it 1) had been surveyed at least 6 times in the 11-year survey period; 2) had actually harvested fish in at least 1 year in the 11-year survey period; and 3) had a consistent household identifier so that a panel dataset could be constructed. In the 6 study communities, 243 households met these eligibility standards (Table 2-1).

		Original harvest survey project (1994–2004)									This p	roject (2007	-2011)			
				Nun	nber c	of hou	sehol	ds sur	veyed	1			Median	N of ho	N of households	
	'94	'95	'96	'97	'98	'99	'00	'01	'02	'03	'04	Total	sample	Eligible ^a	Included	fraction
Core study communities																
Shungnak	52	44	51	47	50	28	34	39	51	33	47	476	84%	33	25	76%
Noatak	68	76	74	75	90	14	61	67	90	103	103	821	84%	68	37	54%
Subtotal	120	120	125	122	140	42	95	106	141	136	150	1,297	84%	101	62	61%
Other study	comn	nuniti	ies													
Ambler	29	68	80	69	73	21	34	0	0	62	60	496	83%	28	9	32%
Kiana	59	76	88	86	88	67	51	66	0	90	77	748	76%	42	9	21%
Kobuk	22	23	22	22	25	13	15	24	0	23	28	217	85%	11	2	18%
Noorvik	64	103	111	114	109	48	42	56	101	135	125	1,008	84%	61	10	16%
Subtotal	174	270	301	291	295	149	142	146	101	310	290	2,469	84%	142	30	21%
Total	294	390	426	413	435	191	237	252	242	446	440	3.766	84%	243	92	38%

Table 2-1.-Survey and interview samples.

a. For the original survey, an "eligible" household was any occupied household in the community. For this project, an "eligible" household was a household that was a) surveyed in at least 6 of the 11 survey years, b) actually harvested fish in at least 1 year, c) had a consistent household identifier, and d) was present in the community in 2008.

Although regional harvest surveys were conducted every year, only 3 of study communities (Noorvik, Noatak, and Shungnak) were surveyed in each of the 11 years from 1994–2004. In 2001, annual salmon surveys were not conducted in Ambler. In 2002, surveys were not conducted in Ambler, Kiana, and Kobuk. In Ambler in 1994 and in Noatak in 1999, fewer than 30 households were surveyed. Division standards require a minimum of 30 households to calculate expanded estimates of harvest. So in those 2 instances, expanded estimates were not calculated. During the study period, ADF&G operated a test fishery in Kiana, and distributed the catch in the community, contributing about one-third of the community's total salmon harvest. These factors influenced the decision not to select Ambler, Kiana, or Kobuk as core study communities.

Research efforts were concentrated in Noatak and Shungnak, because they had been surveyed every year, were on 2 different river systems, and had comparable comprehensive survey data. In these 2 core study communities, the goal was a 50% random sample of eligible households. In the 4 other study communities (Ambler, Kiana, Kobuk, Noorvik), the goal was a 5% random sample of eligible households. As a practical matter, the sample was limited to households still present in the communities in 2008. Sampling goals were achieved in all 6 study communities. In the 2 core study communities, 62 of 101 eligible households (61%) were interviewed. In the 4 other study communities, 30 of 142 eligible households were interviewed (21%).

LIMITATIONS AND ASSUMPTIONS

The surveys included 5 Pacific salmon species: Chinook, chum, coho, sockeye, and pink salmon. In Kobuk River communities, the survey also included sheefish, and in Noatak, Dolly Varden. Beginning in 1997, whitefish were included in every community. Beginning in 2003, Dolly Varden were included in every community. The study communities harvested other fish species that were not documented by the annual salmon survey. In addition, the study communities also relied substantially on caribou, moose, seals, and whales: these harvests were not included in this project. The selection of included fish species was supported by results of comprehensive surveys in Noatak, Kiana, and Shungnak, which indicated that the selected species comprised a majority of the fish harvest in the study communities. The study species comprised 94% of estimated edible weight of the fish harvest (Figure 2-1A) and 47% of the estimated edible weight of the total subsistence harvest (Figure 2-1B).

In the study communities, most salmon, whitefish, sheefish, and Dolly Varden are harvested during months of open water; i.e., from June through September. Salmon harvest surveys usually were conducted in October and November, several months after most harvests occurred. Some fish (especially Dolly Varden in Noatak) were caught after freeze up and some were caught in the months immediately *after* the survey. Very few people in the Kotzebue District recorded their fish harvests on a daily or weekly basis. When reporting summer harvests during fall surveys, virtually all respondents had to rely on memory and provide estimates. Harvests from the previous winter, especially, may not have been reported at all. However, picking nets, cutting fish for drying, hanging fish on drying racks, and storing fish in caches and freezers provide multiple opportunities to count catches, and people did count fish ("we had 14 salmon in our net this morning").

Most households in the study communities produced, processed, and distributed wild foods within familybased networks of cooperating households (Magdanz et al. 2002). Surveys were administered one per household, and harvests were reported at the household level. Efforts to accurately report any given household's harvests may have been confounded by cooperative fishing involving groups of households.



Figure 2-1.-Composition of subsistence harvests.

The household survey method assumed that respondents could remember their households' subsistence harvests from the recent past. To minimize recall problems, surveys were conducted with household heads on the assumption that household heads were most likely to be aware of all household members' activities. The survey method also assumed that respondents were knowledgeable about the quantities of fish harvested by others in their households, and were able to parse harvests by members of their household from harvests by other households in their cooperative fishing groups. Survey forms anticipated cooperative harvests and included instructions and questions to assist respondents in correctly parsing harvests.

In part because of the lag time between harvests and survey reports and in part because harvest quantities could be large, respondents frequently reported harvests in quantities divisible by 5, 10, 25, and 100 (Figure 2-2A). For households reporting 100 or fewer chum salmon in these data sets, harvest quantities divisible by 5 were reported 4 times as often, harvest quantities divisible by 10 were reported 6 times as often, and harvest quantities divisible by 25 were reported 7 times as often as would be expected if quantities were randomly distributed. All other harvest quantities (less than 100 salmon) were reported only 1/10th as often as would be expected. Households harvesting 10 or fewer salmon did not display this heaping pattern. Households harvesting more than 100 salmon typically rounded to the nearest 100 salmon. Especially for whitefish, households that harvest large quantities of fish may report quantities other than individual fish, such as 15-gallon washtubs and 100-lb gunny sacks. The assumption was that while households may not have reported precisely how many fish they harvested, they did report the magnitude of their harvests correctly. Presumably, households that harvested 7 or 12 fish may have reported 10 fish, and households that harvested 623 or 774 fish may have reported 700 fish, but households that harvested 326 fish did not report 75 fish. The observation was that precision declined as harvest quantities increased. The assumptions were that the rounded estimates were valid, and that their precision was adequate for the analyses in this study.

In most small, rural, subsistence-dependent communities in Alaska, approximately 30% of the households harvested 70% of the wild foods (Wolfe 1987, Wolfe et al. 2009). Not only have a few super-households

accounted for a majority of the community harvest, many households have reported zero harvests of individual species, and some have reported no subsistence harvests at all. As an example, 47% of the households surveyed in the study communities from 1994 to 2004 reported harvesting no chum salmon at all. Aside from the zero-harvest reports, the distribution of harvests was log-normal (Figure 2-2B), although heaping was still evident for 10, 25, 50, 75 and 100 fish. The preponderance of zero-harvest households, the heaped responses, and the log-normal distribution of harvests have been typical features of subsistence harvest data from small, rural Alaska communities. These factors, and the relatively small size of the communities, increased the potential for biased samples, so the annual salmon survey project attempted to survey all eligible households in each community. The actual median sample was 84%. In addition, the annual survey project employed a 2-strata design: households that "usually fish" and households that "usually do not fish." A sample biased towards one stratum or the other should not adversely affect community estimates.



Figure 2-2.–Heaping and distribution of reported harvests.

There were minor differences in the annual data collection instruments from 1994 through 2004 (see original instruments in Appendix C). For 2 communities (Noatak 1994 and Shungnak 2002), data used in this project were collected with comprehensive surveys administered in the winter rather than with annual salmon surveys administered in the fall. To assess the comparability of data from the 2 instruments, researchers compared results from 4 comprehensive surveys (Noatak 1994, Shungnak 2002, Kiana 2006, and Noatak 2007) with results from the annual surveys. All the estimates from the comprehensive surveys were within the ranges of annual estimates. For salmon, 2 of 4 comprehensive survey estimates were within 1 standard deviation of the annual survey estimates. For whitefish and sheefish, all the comprehensive survey data were bracketed by comprehensive surveys in 1994 and 2007 (Figure 2-3). Because only 11 years of data were available, adding or removing a single year's estimate usually

affected trend calculations. Adding or removing comprehensive survey estimates did affect the magnitude of trends, but no more so than adding or removing estimates from the annual surveys. Estimates from comprehensive surveys were included in the analyses in this study. The assumption was that estimates from both survey programs were similarly precise and valid.

Standardization in data collection procedures was important because many different people gathered data. The annual survey data collection was supervised and often conducted by an ADF&G employee. Original survey data were reviewed before data entry by the project manager, and subjected to multiple reviews after data entry and before final publication. An extensive review and correction of the raw harvest data set was one of the objectives (and most time consuming aspects) of this project. In this project, one of the principal investigators was present during, and typically conducted, most of the household interviews.



Figure 2-3.-Comparisons of annual and comprehensive survey estimates, 1994–2007.

These limitations and assumptions were typical of subsistence harvest surveys in Alaska. They were not expected to change significantly over time or from community to community. They were not expected to affect comparisons of data in this study, or comparisons of data from this study with other studies employing similar methods.

Chum salmon, sheefish, Dolly Varden, and whitefish were generally abundant in the Kotzebue District, though not uniformly distributed. Other salmon species were uncommon. The Kobuk River supported "strong" stocks of chum salmon (Banducci et al. 2007) and sheefish (Taube and Wuttig 1998), and smaller stocks of Dolly Varden. The Noatak River supported strong stocks of chum salmon (Banducci et al. 2007), and less numerous stocks of Dolly Varden (deCicco 2001). Stock status of whitefish was unknown, but they were obviously abundant (Georgette and Shiedt 2005). Aerial survey data for Kobuk River salmon 1993–2007 and Noatak River Dolly Varden 1981–1999 showed no substantial trends (Menard and Kent 2010, deCicco 2001). Reflecting generally abundant fish stocks and a long history of

subsistence use, subsistence fishing was open year round without harvest limits. Subsistence fishing regulations did not change during the study period. Therefore, the expectation was that any changes in subsistence harvest patterns and trends would not be related to fish abundance or fishing restrictions, but to social, economic, or environmental factors.

DATA COLLECTION AND REDUCTION

Figure 2-4 illustrates data collection and reduction in schematic form. The harvest data had been collected from 1994 through 2004 during annual salmon surveys, and were stored in a series of 11 annual data files. Each year, the department published the results of the annual surveys as part of a statewide salmon harvest report; the community harvest data set summarized these community-level harvest reports. In the first phase of the project, researchers combined the annual data files into a single household harvest data set with 3,766 household harvest reports. They cleaned and restructured the data, and verified the data by comparing harvest totals from the newly constructed 11-year household harvest data set with the harvest totals previously reported in the statewide reports (Objective 1).

The results of the comparisons are summarized in Appendix Table A-3 to Appendix Table A-8. The household harvest data set agreed with the community harvest data set in 400 of 416 reported harvest comparisons (96%). The 11-year total harvest in the community data set was 752,869 fish, compared with 753,485 fish in the household data set, a difference of 0.06%. In most cases, the differences appear to be the result of adding cases to the household harvest data set, which happens occasionally when households return surveys by mail after the door-to-door surveys have been completed. Surveys returned by mail are sometimes too late to be included in the annual reports. When researchers were confident that differences between the community and household harvest data sets had been corrected or explained, or were not significant, researchers continued with their analyses.

Researchers next analyzed trends in the harvests of each species in each community; the results are summarized in the results section (Objective 2).

In the second phase of the project, researchers visited each project community to verify household identifiers, to gather household characteristics data (which supplemented each household's harvest data), and to conduct interviews with eligible fishing households. To prepare for each community trip, researchers printed 2 summary tables containing the numerical household identifiers (household IDs) and the household names that ADF&G had used in each project community in each year. One table was sorted by household ID and the other table was sorted by the head of household's last name. Researchers also printed summary tables showing the age of every person in the household, grouped by household, according to Alaska permanent fund records from the year 2000. In each community, researchers and 1 (or more) key respondents reviewed both tables to verify that ADF&G's numerical household codes were consistent for each household from year to year. If this review determined that a household had been surveyed under different codes in different years (as would happen if household members left a community for more than 1 year and then returned), the household ID was flagged for correction in the database.



Figure 2-4.-Relationships of data sources and data sets to project objectives.



Figure 2-5.–Noatak students work with fisheries data files (left). Researcher James Magdanz interviews elder Mildred Black during a workshop for Shungnak students (right).

DATA ANALYSIS

In the third phase of the project, researchers used Microsoft ExcelTM to prepare household interview data for analysis, and to prepare quantitative data from the interviews for merging with the Statistical Program for the Social SciencesTM (SPSS) harvest datasets. Researchers then merged the aggregated harvest data set from phase 1 with the household characteristics and interview data sets from phase 2 (Objective 5), using SPSS.

The annual and community harvest data sets contained reported and estimated harvests as numbers of fish. Fish of different sizes—3-pound whitefish, 8-pound salmon, and 16-pound sheefish—required a standard unit for cross-species comparisons. Researchers converted numbers of individual fish to edible pounds of fish using a table of standard conversion factors (Appendix Table A-2). Occasionally harvest reports were provided as volumes of fish rather than numbers of fish; for example, 15-gallon metal washtubs of whitefish. Original harvest reports in unorthodox units (e.g., tubs, sacks) had been converted to numbers of fish in previous analyses (Georgette 1996a, 1996b; Georgette, Caylor, and Tahbone 2003a, 2003b; Georgette, Caylor, and Trigg 2001; Georgette and Koster 2005; Georgette and Utermohle 1997, 1998, 1999, 2000, 2001, Magdanz and Utermohle 1994). Although they were not used in the analyses in this study, conversion factors for unorthodox units are also included in Appendix Table A-2. Footnotes explain the basis for the conversion factors, the sources for the conversion factors, or both the basis and sources for the conversion factors.

SPSS was used to compute, recode, categorize, and transform variables for analysis, and to test for associations between harvests and factors reported as affecting fish harvests. Excel was used for trends analysis, and to prepare the tables and figures for the report. Trends were evaluated with the square of the Pearson product moment correlation coefficient (RSQ function in Excel). Findings were considered significant at the 0.05 level (P<0.05).

3 RESULTS

The results begin with a brief overview of the fishery: the fish caught, the gear used to catch them, and their uses for human consumption and for dog food. The second section discusses harvest trends and explores factors potentially associated with changing harvests. The third section presents analyses of the combined harvest-interview dataset.

Estimated fish harvests in the study communities ranged from 311,104 lb in 2001 to 559,029 lb in 1997. The average total annual harvest of all 8 surveyed fish species was 365,429 lb, or approximately 194.9 edible lb of fish per person per year. Three species comprised virtually all of the reported subsistence fish harvests. As was expected, harvests reflected fish distributions. In Kobuk River communities, chum salmon, sheefish, and whitefish comprised 99% of the reported subsistence fish harvest from 1994 through 2004 (Figure 3-1A). In Noatak, chum salmon, Dolly Varden, and whitefish comprised 97% of the reported subsistence fish harvest (Figure 3-1B). In most years, whitefish harvests were collected for Kobuk River communities, but not usually for Noatak. Conversely, Dolly Varden harvests were collected for Noatak, but not for Kobuk River communities (see Methods).



Figure 3-1.-Composition of fish harvests, Kobuk and Noatak River communities, 1994-2004.

Respondents were asked about the fishing gear used to catch salmon, but were not asked to apportion salmon harvests to any gear other than rod and reel (see surveys in Appendix C). Respondents were not asked about gear for other species. On average each year, 5,642 lb of salmon (3% of all salmon) were caught with rod and reel (Figure 3-2A). The remaining 173,623 lb of salmon (97%) were taken with other gear, primarily set gillnets and seines. There were 2 reports of use of drift gillnets, and no reports of use of dip nets. Fish wheels are not used in Northwest Alaska. Respondents were asked how many salmon they caught specifically for use as dog food (not including spoiled fish and table scraps). About 10% of salmon (by edible weight) were caught specifically for dog food (Figure 3-2B).



Figure 3-2.-Salmon harvests by gear type and salmon uses, 1994–2004.

TRENDS

Table 3-1 summarizes estimated harvests by year (in edible weight) for the 6 study communities. In this table, subtotals include only years when harvest estimates were available for all 6 communities. Totals include all harvests for all communities in all years, even years when estimates were not available for some species or for some communities. Trends were calculated for individual communities and for subtotals, but not for the totals because missing community estimates would affect the trend calculations.

An analysis of annual trends in the combined harvests in all 6 communities showed a modest declining trend in estimated total weight harvested (-2.8% change). However, considerable differences were observed among species and among communities. Estimated salmon harvests decreased by -5.1% annually (Table 3-1). Downward trends in estimated salmon harvests were observed in all communities, and varied from -9.9% annually in Shungnak to -1.0% annually in Noorvik. Estimated sheefish harvests were essentially unchanged over the study period, +0.8% annually, ranging from -1.1% in Kiana to +3.0% in Shungnak. In most years, Dolly Varden harvest data were only collected for Noatak. In Noatak, Dolly Varden harvest estimates trended upwards by +3.8%. Estimated whitefish harvests declined slightly overall, -2.9% annually. In contrast with other species, whitefish trends varied widely among communities. Estimated harvests of whitefishes in Kobuk increased by +30.9% annually (note, however, the limited number of estimates), and decreased by -10.9% in Kiana.

Table 3-1 illustrates not only trends in harvests, but also some limitations of the data sets. Annual harvest estimates for all 6 communities were available in only 5 of 11 years, less than half the study period. To deal with this limitation, researchers adopted 2 approaches. First, researchers focused on Noatak and Shungnak, which had more complete data sets. Second, researchers compared harvests per person rather than total harvests. In years when estimates for Ambler, Kiana, or Kobuk were missing, Noorvik and Shungnak provided reasonable proxies as the 5 Kobuk River communities relied on the same stocks of fish and exhibited similar harvest patterns. Whitefish were not added to the survey until 1997, so calculations of trends for both whitefish and all fish were limited to the years 1997–2004.

Table 3-1.–Trends in fish harvests.

												Percent
	1004	1005	1007	1007	1000	1000	2000	2001	2002	2002	2004	change per
<u> </u>	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	year "
Salmon (est	imated e	lible pou	nds)	00.055	1 10	14.420	25.001			15 100		0 (0)
Ambler	24.440	53,124	52,500	23,055	17,742	14,420	35,081	00 401		15,183	26,577	-9.6%
Kiana	26,668	24,264	7,668	14,923	21,078	14,734	7,081	20,421		12,325	14,489	-5.2%
Kobuk	52,934	25,819	1,661	3,954	7,596	17,456	3,081	22,368		15,024	27,507	-5.1%
Noorvik	77,913	49,723	54,738	132,742	67,660	120,892	75,852	108,191	97,589	53,516	40,370	-1.0%
Shungnak	69,359	23,185	57,105	44,176	35,249	23,882	18,711	28,409	27,453	18,318	26,925	-9.9%
Noatak	31,430	25,632	81,349	34,893	17,501		46,323	14,643	17,678	13,308	31,252	-/.3%
Subtotal		201,747	255,020	253,743	166,825		186,130			127,673	167,121	-5.1%
Total	258,304	201,747	255,020	253,743	166,825	191,384	186,130	194,032	142,720	127,673	167,121	
Sheefish (es	timated e	dible pou	unds)									
Ambler	34,783	22,912	13,590	17,621	10,742	21,511	19,059			8,471	26,437	0.5%
Kiana	9,731	15,836	11,434	14,572	6,525	7,495	7,929	13,681		10,430	11,970	-1.1%
Kobuk	8,899	9,447	5,127	9,276	4,526	6,995	2,546	368		9,042	13,885	1.3%
Noorvik	7,442	40,208	38,324	57,302	18,294	45,983	37,345	18,906	49,132	39,594	31,510	2.4%
Shungnak	15,375	18,230	10,532	12,768	20,905	26,137	9,688	10,796	23,031	23,692	16,826	3.0%
Noatak	1,114						1,399			23	798	
Subtotal ^c	76,230	106,634	79,007	111,539	60,992	108,122	76,567			91,229	100,628	0.8%
Total	77,343	106,634	79,007	111,539	60,992	108,122	77,966	43,752	72,162	91,252	101,426	
Dolly Varde	en (estima	ated edib	le pounds	5)								
Ambler	(050111		re pound	-)						813	337	
Kiana										318	320	
Kobuk										0	66	
Noorvik										940	1,386	
Shungnak									290	321	485	
Noatak	15,305	16,908	18,784	15,718	12,778		10,938	8,917	10,697	18,711	35,498	3.8%
Subtotal	15,305	16,908	18,784	15,718	12,778		10,938	8,917	10,697	18,711	35,498	3.8%
Total ^d	15,305	16,908	18,784	15,718	12,778		10,938	8,917	10,987	21,103	38,092	
Whitefish (a	stimated	adibla n	ounds)									
Ambler	sumateu	euibie p	ounus)	31.610	6 985	58 005	73 748			30 130	11.83/	_1 7%
Kiana				15 9/2	10 895	11 474	18 620	13 651		22 888	11,004	-10.0%
Kahuk				2 082	2 3 4 2	1 8 20	2 630	15,051		10 440	11,222	-10.970
Noorvik				64 811	35 021	64 600	32 804	36 202	47 644	33 968	26 882	_8.9%
Shunanak				27 722	19 160	20 237	14 748	9 9 1 9	45 413	38 212	20,882	5 7%
Noatak	6 077			4 963	9 071	20,237	5 594	4 630	6 131	9 212	17 854	8 4%
Subtotal1	0,077			178 029	83 483	175 969	148 144	1,050	0,151	153 852	99 744	_2 9%
Total	6 077			178 029	83 483	156 334	148 144	64 403	99 188	153,852	99.744	2.770
I Utal	0,077			110,049	05,705	10,004	170,174	07,703	,100	100,002	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	

- continued -

Table 3-1.–Page 2 of 2.

	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	Percent change per vear ^a
Three fish s	pecies (sa	lmon, sh	eefish or	Dolly Va	rden, an	d whitefi	sh, estima	ated edib	le pound	s)		
Ambler	34,783	76,037	66,090	72,285	35,469	94,026	127,889		-	53,784	64,847	2.4%
Kiana	36,399	40,100	19,102	75,437	38,498	33,703	33,630	47,753		45,644	37,681	0.8%
Kobuk	61,833	35,266	6,787	16,212	14,463	26,281	8,257	22,736		43,506	52,527	2.1%
Noorvik	85,355	89,932	93,062	254,855	120,975	231,574	146,002	163,299	194,364	127,077	98,762	2.3%
Shungnak	84,734	41,415	67,638	84,667	75,323	70,256	43,147	49,125	95,897	80,223	64,569	0.5%
Noatak	38,621	25,632	81,349	50,611	30,279		58,660	19,274	23,809	32,041	67,548	-0.8%
Subtotal ^e				554,066	315,006		417,584			382,275	385,934	-2.8%
Total	341,725	308,381	334,027	554,066	315,006	455,839	417,584	302,187	314,070	382,275	385,934	

a. Percentage change calculated by dividing harvest trend by average harvest.

b. Subtotal calculated only when estimated harvests were available for all communities.

c. Subtotal does not include Noatak, where sheefish estimates were not available for most years.

d. Dolly Varden estimates were not available for all communities until 2003.

e. Subtotal includes estimates of sheefish for Kobuk communities, trout for Noatak, and salmon and whitefish for all communities.

In the 6 study communities from 1994 through 2004, the estimated per capita harvests of salmon were declining by about -6.4% annually (Figure 3-3A). Declining salmon harvests were weakly but significantly associated with time ($r^2=0.383$, P=0.043), although the trend was influenced by an outlying high harvest in 1994 and low harvests in 2003 and 2004. Trends in harvests of whitefish (Figure 3-3B), sheefish and Dolly Varden (Figure 3-3C), and all surveyed fish (Figure 3-3D) were not significant. Per capita harvests of all species exhibited considerable interannual variability, as evident in the combined harvest of all 8 species as in the harvests of individual species.

In Noatak, one of the two core study communities, salmon harvests appeared to be declining (Figure 3-4A). The trend was influenced by an outlying high harvest in 1996 and was not significant ($r^2 = 0.225$, P=0.182). Although Noatak was surveyed in 1999, harvest estimates were not calculated because fewer than 30 households were contacted. This left only 7 years of harvest estimates for whitefish (Figure 3-4B). The whitefish harvest trend was also influenced by an outlier high harvest in 2004, and not significant. No trend was evident for Dolly Varden (r^2 =0.002, P=0.921), or for all fish in combination, where absolutely no harvest trend was evident (r^2 =0.000) (Figure 3-4D).

In Shungnak, the other core study community, a weak decline in salmon harvests over time was evident (r^2 =0.338, P=0.061). Outlying whitefish harvests in 2002 and 2003 suggested an increasing trend in whitefish, but in 2004, harvests returned to the levels estimated from 1997 through 2001. Sheefish harvests appeared to be increasing, but the trend was not significant; nor was an apparent increasing trend in all fish combined.

Figure 3-6 summarizes trends in estimated per capita fish harvests (all 8 species combined) in the other 4 study communities. Ambler, Kiana, and Kobuk all had at least one year of missing data. None of the observed trends were statistically significant.



Figure 3-3.-Trends in estimated weight of fish harvests, 6 study communities, 1994–2002.



Figure 3-4.-Trends in estimated weight of fish harvested, Noatak, 1994-2004.



Figure 3-5.–Trends in estimated weight of fish harvested, Shungnak, 1994–2004.



Figure 3-6.–Trends in estimated weight of fish harvested, Ambler, Kiana, Kobuk, and Noorvik, 1994–2004.

Supply and Demand Factors

Two basic factors are likely to influence subsistence harvests: 1) access to abundant fish, and 2) the needs of fishing communities. In other words, both the supply of fish and the demand for fish are expected to influence subsistence harvests. For the study communities, supply did not appear to be a limiting factor. Fish stocks important to Kotzebue District subsistence fisheries were abundant (Scanlon 2009). Chinook, coho, pink, and sockeye salmon appeared to be expanding their range northward in Alaska and into northwestern Canada (Babaluk et al. 2000), thus becoming increasingly available to Kotzebue District fisheries. Declines in chum and Chinook salmon that have affected other areas of western Alaska during the past decade have not been evident in the Kotzebue District. Subsistence fishing was open 365 days a year and subsistence harvests were not limited.

On the supply side, hints of expanding salmon ranges could be found in the estimated per capita subsistence harvests of Chinook, sockeye, coho, and pink salmon, which were increasing by 10% to 32% annually (Figure 3-7). Although per capita amounts were literal handfuls of fish —approximately one-third of one pound of Chinook salmon per person per year, and one-quarter of one pound of sockeye salmon per person per year—all 4 salmon species other than chum salmon displayed increasing trends in estimated per capita subsistence harvests. Presently, only the trend in pink salmon is known to be statistically significant (r^2 = 0.390, P=0.040), and only the volume of coho is nutritionally significant (about one serving per year). The catches were not concentrated in one community or watershed, except that Chinook salmon were rarely caught in the Kobuk River upstream of Ambler. In the 6 communities combined, average annual catches ranged from 18 Chinook and 23 sockeye salmon to 233 pink and 690 coho salmon. As already seen in Figure 3-3, overall salmon harvests were declining, driven by declining harvests of chum salmon. From 1994 through 2004, estimated per capita subsistence harvests of chum salmon declined an average of -6.9% annually (r^2 =0.402, P=0.036).

On the demand side, subsistence harvests may be influenced both by numbers of people and dogs, and by people's choices to eat fish or to feed fish to their dogs. The estimated population of the 6 study communities increased from 2,006 in 1994 to 2,126 in 2004, about 0.9% per year (Figure 3-8A). The estimated total weight of fish harvested for human consumption increased 0.6% per year; only slightly less than the rate of increase in the human population (Figure 3-8B). The available data on dog population from the annual salmon surveys indicated that the dog population in the study communities declined about 9% per year. The harvest for dogs also decreased during the study period by about 21% annually. The declines in both the number of dogs and dog food harvests occurred suddenly, beginning in 1996 and ending in 1998. Before 1997, residents reported almost 1,000 dogs, and harvested approximately 100,000 lb of salmon per year for dog food—approximately 19% to 29% percent of the total salmon harvest. After 1997, residents reported having about 350 dogs, and harvested only about 20,000 lb of salmon per year for dog food of the total salmon harvest. On average, from 1994 through 2004, 10.5% of the salmon harvested were harvested specifically for dog food.

Changes in Gear Selection

The declining harvests of salmon did not seem to be associated with changes in gear selection (Figure 3-9). At the beginning of the study period, twice as many households reported using set gillnets as reported using rods and reels to catch salmon; by the end of the study period, the numbers of households using the same 2 gear types were approximately the same (Figure 3-9C). Nonetheless, harvests by both types of gear declined at almost exactly the same rates: -7.4% per year for set gillnets, and -7.6% per year for rods and reels (Figure 3-9A and Figure 3-9B). For households that harvested salmon, estimated weights harvested with nets and estimated weights harvested with rods and reels were strongly positively correlated (*r*=0.783, P=0.013).



Figure 3-7.-Trends in estimated weight of salmon harvested, 6 study communities, 1994–2004.



Figure 3-8.-Associations among populations, uses, and harvests, 1994–2004.



Figure 3-9.-Salmon harvests and gear selection, 1994–2002.

EXPLANATIONS OF CHANGES

In 2008, researchers returned to each of the 6 study communities with a set of individual household and community fishing histories (Appendix B). The idea was to share the histories with selected households during face-to-face interviews, and seek explanations for patterns and trends observed in the data. Researchers interviewed 92 selected households—62 in the core study communities of Noatak and Shungnak and 30 in the other 4 communities.

Researchers showed respondents their households' own fishing histories and then asked a series of questions, beginning with: "Is this how you remember your household's fish harvests?"Of the 92 households, 9 households' recollections (2 in Noorvik, 3 in Noatak, and 4 in Shungnak) were somewhat different from the data presented in the table and chart. The most common difference reported (shared by 3 households) was in whitefish harvests.One household commented that it harvested most of its whitefishes through the ice in winter; thus whitefish harvests were perhaps not fully captured by a fall survey. One household recalled harvesting salmon that were not evident in its data; 2 households were credited with salmon or sheefish that they did not recall harvesting. Several household's harvests appeared to be the result of his/her son fishing with his brother, who lives in another household. Another respondent said that the number of fish on a household harvest report "mainly depends on who has the boat and motor, and [who] helps out other families with the fall seine for salmon and whitefish." Reported differences usually affected only a single survey species.

Although not all respondents agreed with their harvest records, most did. Of the 92 interviewed households, 78 households (85%) said that harvest survey data agreed with their harvest recall (5 households' responses to this question were missing). Given that 85% of the interviewed households agreed with the records of their harvests, researchers concluded that harvest survey data were of sufficient quality to conduct the planned analyses.

Interviewers next asked respondents to name, without prompting, 3 factors that affected their household's fishing from 1994 through 2004, beginning with the most important factor, then continuing to the second, and third most important factors. After they identified each factor, respondents were asked to describe it, categorize its effect on their harvests (up, down, or no change), and identify the year or years in which their household was affected.

Factors could have positive effects, negative effects, both positive and negative effects, or no effects on harvests. A job, for example, might negatively affect fishing by limiting time available to fish; at the same time, it could positively affect fishing by providing money for equipment and supplies. One factor could affect different households in different ways. For example, one Shungnak respondent observed: "When water is high, we don't get as much. When water is very stable, we get more. If [water] rises, fish go up river from village." However, another Shungnak respondent reported the opposite effect: "When weather is bad, we catch more [because fish previously caught spoil in the rain, and must be replaced with additional fish] ..." she said.

Environmental factors, such as "unusual water levels" or "unusual weather," were named most frequently overall, and most frequently as the single most important factor affecting harvests. Environmental factors, accounted for 34% of the reported factors (Figure 3-10). An Ambler respondent said "August has been rainier and rainier; [we] try to start earlier so we can dry [fish] in July." Another noted that the water had been "too low. There is hardly any river to fish: we have to go down, then up. Some fishing spots dried up. Some lakes drained out. Our camp is eroded-out."



Figure 3-10.-Categories of factors reported as affecting fish harvests.

After environmental factors, personal factors, including health, age, family responsibilities, food preferences (21%), and financial factors (19%) were mentioned most often. By far the most common financial concern was the cost of gasoline, which was mentioned by 29 of 92 households (32%) as one of the three most important factors affecting their harvests. This was exceeded only by the 34 of 92 households (37%) that mentioned water levels, an environmental factor. Various equipment concerns were mentioned by 26 households (28%). Employment concerns were mentioned by only 14 households (15%).

In addition to asking for the 3 most important factors affecting fishing, researchers asked respondents whether their households were affected by each of 19 factors; if so, whether the factor increased harvests, decreased harvests, or had no effect on harvests. Of the 92 interviewed households, 90 responded to these prompted factor questions, and all 90 households reported that their fishing was affected by at least one of the prompted factors. Figure 3-11 summarizes responses to the 19 prompted factors, excluding cases in which the factor had no effect on the household, or no affect on harvests.

—												
Unusual Weather (n=30)	31%		2%									
Unusual Water Levels (n=29)	29%		3%									
Employment (n=26)	26%		2%									
Cost of Store Food (n=24)		3%		23%								
Cost of Gasoline (n=24)	26%		0%									
Condition of Boat/Motor (n=19)	18%		3%									
Availability of Gasoline (n=19)	21%		0%									
Health (n=12)	1	3%	0%									
Availability of Store Food (n=12)		1%	12%									
Availability of Net (n=10)		9%	2%									
Household Size (n=10)		8%	3%									
Age (n=9)		9%	1%									
Number of Fish (n=9)		7%	3%									
Food Preferences (n=5)		3%	2%									
Condition Of Fish (n=5)		5%	0%									
Predators (n=5)		5%	0%									
Contamination (n=4)		4%	0%									
Enforcement(n=1)		1%	0%									
Regulations (n=1)		1%	0%									
50%	50% 40% 30% 20% 10% 0% 10% 20% 30% 40% 50% ■ REPORTED AFFECT: Decreased Harvests ■ REPORTED AFFECT: Increased Harvests											

Figure 3-11.-Percentage of households reporting effects on harvests, by factor.

Of the 19 prompted factors, 17 factors (89%) were cited as having primarily negative impacts on harvests. For example, 31% of interviewed households cited unusual weather for decreasing harvests, while only 2% of households cited unusual weather for increasing harvests. The only 2 factors that were cited primarily for increasing harvests were the cost of store foods (by 23% of households) and the availability of store foods (by 12% of households). In other words, some respondents believed that high food costs and limited food availability resulted in increased subsistence harvests.

An important aspect of the analysis was the linking of interview data with harvest survey data. For the interviewed households, researchers combined harvest survey data with factor responses from the interviews. As a group, the 92 interviewed households harvested an average of about 418 lb of salmon and sheefish each year from 1994 through 2004, 88 lb (27%) more than the 330 lb average harvest reported by all surveyed study community households in the same period. This difference was not unexpected because by design the interview samples did not include non-fishing households and households with fewer than 6 years of fishing data. For both groups, there was a non-significant increasing trend of about 6–7 lb per year, or 2% of the annual average (Table 3-2). In other words, harvests by the interviewed households were predictably greater than harvests by all surveyed households, but harvests by both groups were similarly stable.

	Mean annual harvest per household (edible pounds)	Annual harvest trend, 1994–2004 for households citing factor		
		Δ pounds per household	Percentage of mean harvest	Trend category ^a
Factors most frequently reported as harvest ne	gative ("harvests down")		
Unusual weather				
'Harvests down" (n=23)	519 pounds	+42 pounds	8%	Up
'No change in harvests" (n=66)	333 pounds	+ 3 pounds	1%	Stable
"Harvests up" (n=2)	1,821 pounds	-144 pounds	-8%	Down
Cost of gasoline				
'Harvests down" (n=22)	429 pounds	+2 pounds	1%	Stable
'No change in harvests" (n=69)	417 pounds	+ 7 pounds	2%	Stable
Availability of gasoline				
'Harvests down" (n=19)	431 nounds	+23 nounds	5%	Un
'No change in harvests" (n=72)	415 pounds	+1 pounds	0%	Stable
Fmployment				
'Harvests down" (n=9)	475 nounds	+2 nounds	0%	Stable
'No change in harvests" (n=82)	410 pounds	+7 pounds	2%	Stable
Condition of boat or motor				
'Harvests down" (n=8)	474 nounds	+12 nounds	3%	Stable
'No change in harvests" (n=83)	409 pounds	+6 pounds	1%	Stable
Unusual water levels				
'Harvests down" (n=17)	718 pounds	+31 pounds	4%	Stable
'No change in harvests'' $(n=72)$	339 pounds	+7 pounds	2%	Stable
'Harvests up" (n=2)	816 pounds	-37 pounds	-5%	Stable
Factors most frequently reported as harvest po	sitive ("harvests un")			
Cost of store food	······································			
'Harvests down" (n=2)	148 pounds	-26 pounds	-17%	Down
'No change in harvests" (n=68)	386 pounds	+4 pounds	1%	Stable
'Harvests up" (n=21)	556 pounds	+24 pounds	4%	Stable
Availability of store food				
'Harvests down" (n=1)	227 pounds	-42 pounds	-19%	Down
'No change in harvests" (n=54)	441 pounds	-13 pounds	-3%	Stable
'Harvests up" (n=11)	386 pounds	+44 pounds	11%	Up
Interviewed households (N=92)	418 pounds	+7 pounds	2%	Stable
All surveyed households (median $N=472$)	330 pounds	+6 pounds	2%	Stable

Table 3-2.–Factors reported as affecting fish harvests.

a. Harvests were categorized as "stable" if the annual harvest trend was no more than 5% of the mean annual harvest.

Within the stable overall harvest pattern, it was expected that 1) some households' harvests would be decreasing while other households' harvests would be increasing, 2) interviewed households would be able to identify factors contributing to changes, and 3) factors contributing to changing patterns and trends in harvests could be identified. Researchers were unable to find such associations.

Table 3-2 summarizes 8 factors reported by at least 10% of the interviewed households. These included 6 factors reported as having negative effects on harvests, and 2 factors reported as having positive effects on harvests. For each group of households reporting an effect from a particular factor, researchers compared the mean annual harvests (in edible weights of salmon and sheefish), the annual harvest trend, in pounds and as a percentage of the average annual harvest, and categorized the trend as increasing, stable, or decreasing.

The most commonly reported factor having a negative effect on harvests was unusual weather. Oddly, the 23 households reporting that harvests decreased as a result of unusual weather actually reported modestly increasing harvests during the study period, about 42 lb (8%) more per year. The 66 households reporting no effect or no change had stable harvests during the study period. Indeed, every single group of households that reported that a factor decreased their harvests also reported stable or increasing harvests during the study period. Households reporting a negative effect had higher harvests than other interviewed households, sometimes much higher (such as for "unusual water levels"). The largest negative harvest trends were for factors most frequently identified as positive, such as the cost and availability of store foods. These negative trends were not statistically significant because they were reported by only 2 households, and 1 household, respectively.

4 DISCUSSION AND RECOMMENDATIONS

Salmon—flayed filets of bright red flesh hanging from homemade wooden racks, slowly drying and smoking in cool northern air—are an iconic image of subsistence in Alaska. Often overlooked, though, was the important role other fish played in the subsistence economy. In these study communities—as in most interior rural Alaska communities—fish were central to the subsistence economy. While salmon still occupied a central position in the subsistence economy, analyses of these communities' harvests indicated a diminishing role for salmon and an expanding role for other species.

The data described a stable subsistence fishery, not without interannual variation, and not without shifts in species selections, but stable in the sense that residents continued to harvest almost exactly the same amount of fish per person over a decade's time. With modestly increasing human populations, total fish harvests increased at similarly modest rates.

The strongest trend identified in the analysis was the declining estimated per capita harvest of chum salmon, -6.9% annually (r^2 =0.402, P=0.036). The decline was evident for harvests taken with both subsistence nets and rods and reels. The decline in estimated salmon harvests was not because households switched from more efficient nets to less efficient rods and reels, though they clearly did do that. Residents of the study communities may be increasing their use of rods and reels to catch sheefish and Dolly Varden, and incidently harvesting chum salmon. Sheefish and Dolly Varden readily take a lure, while spawning chum salmon are less likely to do so. That would explain both the increases in sheefish harvests observed among the Kobuk communities, and the increased use of rod and reel for salmon fishing. Sheefish and chum salmon migrate up the Kobuk River at the same time to spawn.

The decreasing dog population and the decreasing amount of salmon fed to dogs coincided with the departure of an Iditarod dog racing family who relied substantially on salmon for dog food, from a study community. This would not account the loss of hundreds of dogs, but interest in dog mushing in the community may have declined somewhat with their departure. Confidential names are no longer associated with the data, so this could not be confirmed.

The inconsistencies among reported factors and reported harvests summarized in Table 3-2 were unexpected. Even with charts and tables showing their own household's stable harvest history on the table before them, households would report declining harvests and name a factor or factors in the perceived decline.

Previous research has found that age of household heads is one of the best predictors of subsistence harvest levels (Wolfe 1987; Wolfe et al. In prep [2009]), but that did not appear to be the case with respect to respondents in this study. Respondents ranked age lower (12 of 19 prompted factors) and mentioned age much less frequently than most of the other factors, including weather, water levels, employment, gasoline costs, and equipment. One possible explanation is that although the effects of age on harvest levels are real and thus observable by Wolfe and others, most respondents have already factored age into their harvest expectations.

Factors notably absent from the interviews are those related to management. Regulations and enforcement were among the 19 prompted factors, but were identified as a factor by only 1 household each. This result was not unexpected in an area without subsistence fishing limits, fishing periods, or closed waters, and only standard statewide restrictions on gear, methods, and means. The one regulatory complaint was about the state's fishing license requirements for rod and reel gear. The state considers rod and reel fishing to be sport fishing, and therefore requires a sport fishing license. Under federal regulations, rod and reel gear is legal subsistence gear, and therefore does not require a license on federal lands and waters for federally qualified subsistence users.

RECOMMENDATIONS

Household level subsistence harvest surveys remain a valuable tool for fisheries management and for understanding the role of fish in local economies. Given that respondents prefer shorter surveys and researchers prefer more data, survey design is a key issue. The original surveys used to gather data for this project were simple and short and—especially important—consistent from year to year. They were similar to annual salmon surveys used in the Kuskokwim, Yukon, and Norton Sound–Port Clarence areas, but unlike most salmon surveys included additional questions about nonsalmon species.

The data gaps in Table 3-1 illustrate how challenging it can be to compile comparable information across groups of communities, years, and species even with a robust harvest monitoring program. Funding was always an issue, as was project staffing. Data were most complete in the final 2 years, 2003 and 2004, after which the project was cancelled. There is now a proposal pending to replicate the effort, at least on a short-term basis.

Aside from administrative continuity, there are several simple ways in which surveys might be improved.

- Annual fish surveys should include key nonsalmon species. Most annual fish surveys include only salmon. Adding 3 additional species to the 5 salmon species on the Northwest Alaska survey form raised the proportion of the documented fish harvest from about 40% (5 salmon species) to an estimated 97% (8 fish species) of the total fish harvest, a huge gain in information at very little cost to respondents or researchers.
- Household surveys should collect harvest by gear type. These surveys asked households how many salmon were caught by rod and reel, but did not collect harvests by other gear type for salmon or by any specific gear type for other species. That closed the door to some useful analyses, especially given proposals to the Alaska Board of Fisheries' decision in 2009 to recognize rod and reel as legal subsistence gear in the Kotzebue District (which were not adopted). Annual fish surveys usually do not collect harvest by gear type; comprehensive surveys usually do. Harvest by gear type could have been an important aspect of these analyses, but was limited by the available data.
- Household surveys should collect both household and dog populations. Historically, dogs have been major consumers of subsistence-caught fish in Alaska. Most salmon surveys ask for the number of
people living in the household, but do not always ask for the number of dogs. The dog question was included in these surveys in most years, but inexplicably, responses were missing from the data files for 1995 and 1996. Then the dog population question was dropped altogether in 2003 and 2004. Consequently, analyses of harvests for dogs also were limited by available data.

- *Household surveys should collect the age of the household head.* Wolfe (2009) and others have shown the age of the household head is an important factor in household harvests. It is easy information to obtain, but rarely included in annual surveys.
- Household surveys should prompt for at least one general factor that affected fishing. The original Northwest Alaska surveys asked "How was subsistence chum salmon fishing for your household this year?" For households that responded "poor," a follow up question asked "Why?" These answers were useful, but obviously could not be used to explain changes in harvests of any species other than chum salmon. The 3-important-factors section of the interview protocol used in this project (Appendix B) provides an alternative approach that requires minimum respondent effort. Instead of asking a leading question about a single species, the question could be: "What was the <u>single most important thing</u> that affected your household's fishing this year?" It could be followed—as it was in the interview protocol—by asking: "Did anything else affect your fishing?" Such questions would widen the response field to include employment status, age, health, economic conditions such as fuel cost, and many other factors. In times of declining harvests are not an explanation; they are merely an indication of a change. That seems obvious, but often is not reflected in the design of annual harvest monitoring surveys.
- *Comprehensive surveys can substitute for annual surveys.* When a comprehensive survey is scheduled for a community normally included in an annual post-season salmon survey project, it is not necessary to conduct both surveys. In this project, comparisons of results from 4 comprehensive surveys with results from annual post-season salmon surveys in the same communities suggested that the 2 methods provided comparable results. This assumes that the design of survey instruments, field methods, and analytical methods are consistent. Magdanz et al. (2010) discusses a program for coordinating research to reduce respondent fatigue and to improve efficiency in research.
- *Consideration should be given to asking a "catch-all" harvest question.* For example: "Did your household harvest any other kind of fish?" Species abundance and distributions in Alaska are changing, sometimes dramatically. Harvest monitoring surveys could anticipate these changes. A review of responses to comprehensive surveys—which include "catch-all" questions—would indicate how much respondent burden would be involved in answering such a question.
- *Consideration should be give to documenting fishing effort.* Harvest levels alone are not complete indicators of fishing conditions. Having to fish several weeks instead of a few days to catch a desired amount of fish is a substantial change. The authors do not have a specific approach to recommend, but encourage exploration in this area.

As agencies and non-profit organizations have gained more experience with harvest monitoring surveys, some of these recommendations are already being implemented. Cross-regional and inter-agency comparisons of methods and results from these efforts would be beneficial.

A big part of this project was to clean and correct a relatively modest data set, a task that seemed neverending. Researchers spent more time reviewing, cleaning, organizing, and merging data than in actual analysis. The issues included changes over time in data storage software and formats, inconsistent data entry practices, and missing variable and value labels. Many of these issues were consequences of constantly evolving data management environments, and were not unique to this data set. Good data management begins long before the first survey is administered. It rests on well designed instruments, on properly trained data collection teams, on adequate field supervision, and on quality control that begins with survey number one. A long-term harvest monitoring program requires robust data management, in which legacy data are given the same attention as the most current information.

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APPENDIX A: TABLES

	Original Harvest Survey Project T									This				
				A	nnual S	ampling	g Resul	ts				1994	-2004	Project
	'94	'95	'96	'97	'98	'99	'00'	'01	'02	'03	'04	Mean	Median	2008
CORE STUDY COMMUN	ITIES													
Shungnak														
Eligible Households ^a	55	53	56	57	56	51	46	46	54	50	56	53	54	33
Contacted	52	44	51	47	50	28	34	39	51	33	47	43	47	25
Sample Fraction	95%	83%	91%	82%	89%	55%	74%	85%	94%	66%	84%	82 %	5 84 %	76 %
Noatak														
Eligible Households ^a	84	92	88	84	97	91	102	96	101	104	105	95	96	68
Contacted	68	76	74	75	90	14	61	67	90	103	103	75	75	37
Sample Fraction	81%	83%	84%	89%	93%	15%	60%	70%	89%	99%	98%	79 %	84 %	54 %
Core Community Subtota	al and a second s													
Eligible Households ^a	139	145	144	141	153	142	148	142	155	154	161	148	145	101
Contacted	120	120	125	122	140	42	95	106	141	136	150	118	122	62
Sample Fraction ⁴	86%	83%	87%	87%	92%	30%	64%	75%	91%	88%	93%	80 %	84 %	61 %
OTHER STUDY COMMU	NITIES													
Ambler ^b														
Eligible Households ^a	74	78	82	83	80	71	70	69	69	67	63	73	71	28
Contacted	29	68	80	69	73	21	34	0	0	62	60	45	60	9
Sample Fraction	39%	87%	98%	83%	91%	30%	49%	0%	0%	93%	95%	62 %	83 %	32 %
Kiana ^c														
Eligible Households ^a	104	101	103	108	102	91	88	87	91	95	87	96	95	42
Contacted	59	76	88	86	88	67	51	66	0	90	77	68	76	9
Sample Fraction	57%	75%	85%	80%	86%	74%	58%	76%	0%	95%	89%	71 %	5 76 %	21 %
Kobuk ^c														
Eligible Households ^a	24	27	24	26	25	23	30	26	30	34	28	27	26	11
Contacted	22	23	22	22	25	13	15	24	0	23	28	20	22	2
Sample Fraction	92%	85%	92%	85%	100%	57%	50%	92%	0%	68%	100%	73 %	5 85 %	18 %
Noorvik														
Eligible Households ^a	122	126	124	124	129	118	112	108	115	138	133	123	124	61
Contacted	64	103	111	114	109	48	42	56	101	135	125	92	103	10
Sample Fraction	52%	82%	90%	92%	84%	41%	38%	52%	88%	98%	94%	75 %	84 %	16 %
Other Community Subtot	al													
Eligible Households ^a	324	332	333	341	336	303	300	290	305	334	311	319	324	142
Contacted	174	270	301	291	295	149	142	146	101	310	290	224	270	30
Sample Fraction ^d	54%	81%	90%	85%	88%	49%	47%	50%	33%	93%	93%	70 %	84 %	21 %
ALL COMMUNITIES														
Eligible Households ^a	463	477	477	482	489	445	448	432	460	488	472	467	472	243
Contacted	294	390	426	413	435	191	237	252	242	446	440	342	390	92
Sample Fraction ^d	63%	82%	89%	86%	89%	43%	53%	58%	53%	91%	93%	73 %	84 %	38 %

Table A-1.-Samples for original annual surveys and for this project.

a. For the original survey, an "eligible" household was any occupied household in the community. For this project, an "eligible" household was a household that was: (a) surveyed in at least 6 of the 11 survey years, (b) actually harvested fish in at least 1 year, (c) had a consistent household identifier, and (d) was present in the community in 2008.

b. Ambler was not surveyed in 2001 and 2002. Number of eligible households is an average of 2000 and 2003.

c. Kiana and Kobuk were not surveyed in 2002. Number of eligible households is an average of 2001 and 2003.

d. Summary mean and median values are based on results in each individual community each year, not on summary values.

	Estimate	d Pounds		Estimated	l Number of	Individual F	ish Per… ^a	
	Per Indivi	idual Fish	Shopping	5-Gallon	Garbage	Gunny	Metal	Garbage
	Round	Edible	(AC) Bag	Bucket	Sack	Sack	Washtub	Can
Salmon ^b								
Chinook Salmon	17.7 lbs.	12.4 lbs.	1	2	3	6	7	11
Chum Salmon	8.5 lbs.	6.0 lbs.	2	4	7	12	15	24
Coho Salmon	7.4 lbs.	5.2 lbs.	2	4	8	14	17	27
Pink Salmon	3.0 lbs.	2.1 lbs.	5	10	20	33	42	67
Sockeye Salmon	7.2 lbs.	5.0 lbs.	2	4	8	14	17	28
Unknown Salmon ^c	8.5 lbs.	6.0 lbs.	2	4	7	12	15	24
Whitefish								
Humpback Whitefish	3.0 lbs.	2.1 lbs.	5	10	20	33	42	67
Round Whitefish	1.0 lbs.	0.7 lbs.	15	30	60	100	125	200
Broad Whitefish	4.5 lbs.	3.2 lbs.	3	7	13	22	28	44
Mixed Whitefish ^d	2.9 lbs.	2.0 lbs.	5	10	21	34	43	69
Unknown Whitefish	2.8 lbs.	1.4 lbs.	5	11	21	35	44	71
Bering Cisco	2.0 lbs.	1.4 lbs.	8	15	30	50	63	100
Least Cisco	0.8 lbs.	0.6 lbs.	19	38	75	125	156	250
Other Fish								
Sheefish ^e	15.91 lbs.	11.14 lbs.	1	2	4	6	8	13
Dolly Varden (Trout)	4.70 lbs.	3.30 lbs.	3	6	13	21	27	43
Saffron Cod (Tomcod) ^f	0.30 lbs.	0.21 lbs.	33	67	150	250	333	500
Arctic Cod (Blue Cod) ^f	0.16 lbs.	0.11 lbs.	64	127	286	477	636	955
Arctic Flounder	1.50 lbs.	1.10 lbs.	10	20	40	67	83	133
Burbot	6.00 lbs.	4.20 lbs.	3	5	10	17	21	33
Northern Pike	4.70 lbs.	3.30 lbs.	3	6	13	21	27	43
Arctic Grayling	1.25 lbs.	0.90 lbs.	12	24	48	80	100	160
Rainbow Smelt	0.20 lbs.	0.14 lbs.	75	150	300	500	625	1000
Pacific Herring	0.26 lbs.	0.18 lbs.	58	115	231	385	481	769
Container Useful Capacit	ies		~2 gal	~4 gal	~10 gal	~15 gal	~15 gal	~25 gal
Container Loaded Weight	ts ^g							
Wet Fish	-		15 lb	30 lb	60 lb	100 lb	125 lb	200 lb
Frozen Fish	-		10 lb	20 lb	45 lb	75 lb	100 lb	150 lb

Table A-2.-Factors used to convert individual fish to edible pounds of fish.

a. Estimated number of individual fish = loaded container weight for wet fish / estimated round weight of individual fish.

b. Salmon weights are based on average weights reported in Kotzebue District commercial fisheries.

c. Unknown salmon are assumed to be mostly chum salmon, the predominant species in Northwest Alaska.

d. Mixed whitefish conversion assumes 95% are humpback whitefish and 5% are round whitefish.

e. Sheefish conversion based on average weights of sheefish caught in the Kobuk River (Alt 1988) and (Taube 1976, 1977, 1978).

f. Estimated number of saffron cod or Arctic cod = loaded container weight frozen fish / estimated round weight of individual fish.

g. Container loaded weights from Georgette and Loon 1993.

		Number of Reported number of fish harvested								
		households	Chinook	Chum	Coho	Pink	Sockeye		Dolly	
	Year	surveyed	salmon	salmon	salmon	salmon	salmon	Sheefish	Varden	Whitefish
Ambler	1994	29	0	6,444	5	0	0	819		
	1995	68	1	7,777	0	1	5	1,791		
	1996	80	1	8,873	6	64	2	1,188		
	1997	69	0	2,337	1	12	4	1,322		12,916
	1998	73	0	2,208	0	2	2	859		3,017
	1999	21	0	590	100	0	0	559		8,170
	2000	34	0	2,620	0	0	0	810		16,193
	2001									
	2002									
	2003	62	9	1,641	45	61	1	703	233	13,207
	2004	60	32	3,338	24	6	3	2,319	102	5,635
Kiana	1994	59	0	1,891	0	10	0	399		
	1995	76	0	4,583	0	5	0	1,131		
	1996	88	5	3,238	10	0	0	842		
	1997	86	0	1,887	116	5	0	1,062		18,171
	1998	88	27	3,196	16	6	0	511		4,864
	1999	67	3	1,490	20	4	0	452		3,535
	2000	51	0	567	65	0	45	412		5,261
	2001	67	0	2,749	0	0	0	987		5,342
	2002									
	2003	90	14	1,864	65	77	0	877	92	10,421
	2004	77	0	2,326	54	40	0	1,050	97	5,344
Kobuk	1994	22	3	5,722	0	0	0	730		
	1995	23	1	2,759	0	0	0	751		
	1996	22	0	1,622	1	0	0	408		
	1997	22	0	629	0	0	0	807		1,380
	1998	25	0	1,031	0	0	0	397		1,115
	1999	13	0	1,438	0	0	0	472		670
	2000	15	0	318	0	0	0	140		805
	2001	24	0	2,640	0	1	1	30		0
	2002			0.60	-	10	0		0	6 4 4 5
	2003	23	1	969	0	12	0	530	0	6,217
	2004	28	3	3,087	6	1	0	1,218	20	5,302
Noatak	1994 ^a	68	3	4,8/2	150	1	0	/9	3,/4/	2,027
	1995	76	0	5,703	100	0	0		4,914	
	1996	74	0	8,996	0	0	1		5,031	
	1997	75	4	4,930	8	0	0		4,372	2,183
	1998	90	5	2,496	0	6	2		3,666	4,048
	1999	14	0	1,616	0	10	0		0	1,375
	2000	61	0	4,456	53	2	l		2,009	1,618
	2001	68	0	1,687	84	0	0		1,933	1,595
	2002	90	0	2,626	10	0	0	2	2,892	2,610
	2003	103	1	2,150	28	17	10	2	5,602	4,343
	2004	103	10	3,997	518	756	12	70	10,757	8,502

Table A-3.-Community samples and reported harvests in original project reports.

- continued -

Table A-1.–Page 2 of 2.

		Nh	her of Reported number of fish harvested								
		households	Chinook	Chum	Coho	Pink	Sockeve		Dolly		
	Year	surveyed	salmon	salmon	salmon	salmon	salmon	Sheefish	Varden	Whitefish	
Noorvik	1994	64	2	8,517	0	0	0	528			
	1995	103	7	13,494	41	30	1	3,052			
	1996	111	31	12,859	243	567	0	3,129			
	1997	114	8	13,284	628	72	74	4,662		28,625	
	1998	109	19	8,685	124	198	0	1,401		14,665	
	1999	48	2	9,027	0	4	0	1,770		14,927	
	2000	42	2	4,375	725	30	0	1,365		6,520	
	2001	56	4	10,228	406	6	0	1,030		9,627	
	2002	101	3	12,542	40	7	8	3,882		20,378	
	2003	135	13	7,690	862	367	1	3,351	275	15,604	
	2004	125	8	5,822	881	428	3	2,764	420	12,801	
Shungnak	1994	52	0	7,982	0	1	0	1,250			
	1995	44	0	4,876	0	0	0	1,361			
	1996	51	0	7,806	0	0	0	836			
	1997	47	2	4,831	0	0	0	961		11,558	
	1998	50	0	4,222	38	0	0	1,650		8,241	
	1999	28	0	1,719	0	0	0	1,055		4,427	
	2000	34	0	2,208	1	0	0	632		5,267	
	2001	42	0	4,055	0	0	0	885		4,425	
	2002 ^a	51	0	3,598	1	33	1	1,908	90	20,424	
	2003	33	0	2,103	2	9	30	1,409	66	13,417	
	2004	47	0	3,620	7	7	0	1,476	102	9,913	

a. Data collected during comprehensive community surveys.

= not surveyed or not included on survey

		Number of			Rep	orted numb	per of fish h	arvested		
		households	Chinook	Chum	Coho	Pink	Sockeye		Dolly	
	Year	surveyed	salmon	salmon	salmon	salmon	salmon	Sheefish	Varden	Whitefish
Ambler	1994	29	0	6,444	5	0	0	819		
	1995	69	1	7,778	0	1	5	1,791		
	1996	81	1	8,873	6	64	2	1,188		
	1997	69	0	2,337	1	12	4	1,322		12,916
	1998	73	0	2,208	0	2	2	859		3,017
	1999	21	0	590	100	0	0	559		8,170
	2000	34	0	2,620	0	0	0	810		16,193
	2001									
	2002					~ .				
	2003	62	9	1,641	45	61	1	703	233	13,207
	2004	60	32	3,338	24	6	3	2,319	102	5,635
Kiana	1994	59	0	1,891	0	10	0	399		
	1995	80	0	4,585	0	5	0	1,141		
	1996	88	5	3,238	10	0	0	842		
	1997	86	0	1,887	116	5	0	1,062		18,171
	1998	88	27	3,196	16	6	0	511		4,864
	1999	67	3	1,490	20	4	0	452		3,535
	2000	51	0	567	65	0	45	412		5,261
	2001	67	0	2,749	0	0	0	987		5,342
	2002									
	2003	90	14	1,864	65	77	0	877	92	10,421
	2004	76	0	2,326	54	40	0	1,050	97	5,344
Kobuk	1994	22	3	5,722	0	0	0	730		
	1995	23	1	2,759	0	0	0	751		
	1996	22	0	1,622	1	0	0	408		
	1997	22	0	629	0	0	0	807		1,380
	1998	25	0	1,031	0	0	0	397		1,115
	1999	13	0	1,438	0	0	0	472		670
	2000	15	0	318	0	0	0	140		805
	2001	24	0	2,640	0	1	1	30		0
	2002				-					
	2003	23	1	969	0	12	0	530	0	6,217
	2004	28	3	3,087	6	1	0	1,218	20	5,302
Noatak	1994 ^a	68	4	4,820	150	0	0	79	3,754	2,343
	1995	77	0	5,704	100	0	0		5,014	
	1996	74	0	8,996	0	0	1		5,031	
	1997	75	4	4,930	8	0	0		4,372	2,183
	1998	90	5	2,496	0	6	2		3,666	4,048
	1999	14	0	1,616	0	10	0	100	0	1,375
	2000	61	0	4,465	53	2	1	75	2,009	1,618
	2001	68	0	1,687	84	0	0		1,933	1,595
	2002	90	0	2,626	10	0	0		2,892	2,610
	2003	103	1	2,150	28	17	10	2	5,602	4,343
	2004	103	10	3,997	518	756	12	70	10,757	8,502

Table A-4.-Community samples and reported harvests in this project's data set.

- continued -

Table A-4.–Page 2 of 2.

		Number of			Rep	orted num	per of fish h	arvested		
		households	Chinook	Chum	Coho	Pink	Sockeye		Dolly	
	Year	surveyed	salmon	salmon	salmon	salmon	salmon	Sheefish	Varden	Whitefish
Noorvik	1994	64	2	8,517	0	0	0	528		
	1995	104	7	13,494	41	30	1	3,052		
	1996	111	31	12,859	243	567	0	3,129		
	1997	115	8	13,284	628	72	74	4,662		28,625
	1998	109	19	8,685	124	198	0	1,401		14,665
	1999	48	2	9,027	0	4	0	1,770		14,927
	2000	42	2	4,375	725	30	0	1,365		6,520
	2001	56	4	10,228	406	6	0	1,030		9,627
	2002	101	3	12,542	40	7	8	3,882		20,378
	2003	135	13	7,690	862	367	1	3,351	275	15,604
	2004	125	8	5,822	881	428	3	2,764	420	12,801
Shungnak	1994	52	0	7,982	0	1	0	1,250		
c	1995	45	0	4,877	0	0	0	1,371		
	1996	51	0	7,806	0	0	0	836		
	1997	47	2	4,831	0	0	0	961		11,558
	1998	50	0	4,222	38	0	0	1,650		8,241
	1999	28	0	1,719	0	0	0	1,055		4,427
	2000	34	0	2,208	1	0	0	632		5,267
	2001	42	0	4,055	0	0	0	885		4,425
	2002 ^a	51	0	3,598	1	33	0	1,908	83	20,424
	2003	33	0	2,103	2	9	30	1,409	66	13,417
	2004	47	0	3,620	7	7	0	1,476	147	9,913

a. Data collected during comprehensive community surveys.

= not surveyed or not included on survey

			Difference	s between	original re	eported ha	rvests and t	his project's	data set ^a	
		Households	Chinook	Chum	Coho	Pink	Sockeye		Dolly	
	Year	Surveyed	salmon	salmon	salmon	salmon	salmon	Sheefish	Varden	Whitefish
Ambler	1994	-	-	-	-	-	-	-		
	1995	1	-	1	-	-	-	-		
	1996	1	-	-	-	-	-	-		
	1997	-	-	-	-	-	-	-		-
	1998	-	-	-	-	-	-	-		-
	1999	-	-	-	-	-	-	-		-
	2000	-	-	-	-	-	-	-		-
	2001									
	2002									
	2003	-	-	-	-	-	-	-	-	-
	2004	-	-	-	-	-	-	-	-	-
Kiana	1994	-	-	-	-	-	-	-		
	1995	4	-	2	-	-	-	10		
	1996	-	-	-	-	-	-	-		
	1997	-	-	-	-	-	-	-		-
	1998	-	-	-	-	-	-	-		-
	1999	-	-	-	-	-	-	-		-
	2000	-	-	-	-	-	-	-		-
	2001	-	-	-	-	-	-	-		-
	2002									
	2003	-	-	-	-	-	-	-	-	-
	2004	(1)	-	-	-	-	-	-	-	-
Kobuk	1994	-	-	-	-	-	-	-		
	1995	-	-	-	-	-	-	-		
	1996	-	-	-	-	-	-	-		
	1997	-	-	-	-	-	-	-		-
	1998	-	-	-	-	-	-	-		-
	1999	-	-	-	-	-	-	-		-
	2000	-	-	-	-	-	-	-		-
	2001	-	-	-	-	-	-	-		-
	2002									
	2003	-	-	-	-	-	-	-	-	-
	2004	-	-	-	-	-	-	-	-	-
Noatak	1994	-	1	(52)	-	(1)	-	-	7	316
	1995	1	-	1	-	-	-		100	
	1996	-	-	-	-	-	-		-	
	1997	-	-	-	-	-	-		-	-
	1998	-	-	-	-	-	-		-	-
	1999	-	-	-	-	-	-		-	-
	2000	-	-	9	-	-	-		-	-
	2001	-	-	-	-	-	-		-	-
	2002	-	-	-	-	-	-		-	-
	2003	-	-	-	-	-	-	-	-	-
	2004	-	-	-	-	-	-	-	-	-

Table A-5.-Summary of review of samples and reported harvests.

- continued -

			Difference	s between	original re	eported has	rvests and the	his project's	data set ^a	
	Year	Households Surveyed	Chinook salmon	Chum salmon	Coho salmon	Pink salmon	Sockeye salmon	Sheefish	Dolly Varden	Whitefish
Noorvik	1994	-	-	-	-	-	-	-		
	1995	1	-	-	-	-	-	-		
	1996	-	-	-	-	-	-	-		
	1997	1	-	-	-	-	-	-		-
	1998	-	-	-	-	-	-	-		-
	1999	-	-	-	-	-	-	-		-
	2000	-	-	-	-	-	-	-		-
	2001	-	-	-	-	-	-	-		-
	2002	-	-	-	-	-	-	-		-
	2003	-	-	-	-	-	-	-	-	-
	2004	-	-	-	-	-	-	-	-	-
Shungnak	1994	-	-	-	-	-	-	-		
	1995	1	-	1	-	-	-	10		
	1996	-	-	-	-	-	-	-		
	1997	-	-	-	-	-	-	-		-
	1998	-	-	-	-	-	-	-		-
	1999	-	-	-	-	-	-	-		-
	2000	-	-	-	-	-	-	-		-
	2001	-	-	-	-	-	-	-		-
	2002	-	-	-	-	-	(1)	-	(7)	-
	2003	-	-	-	-	-	-	-	-	-
	2004	-	-	-	-	-	-	-	45	-

Table A-5.–Page 2 of 2.

a. "-" indicates no difference

= not surveyed or not included on survey

		Number of			Estir	nated num	ber of fish l	narvested		
		households in	Chinook	Chum	Coho	Pink	Sockeye		Dolly	
	Year	community	salmon	salmon	salmon	salmon	salmon	Sheefish	Varden	Whitefish
Ambler	1994	74	0	6,444	5	0	0			
	1995	78	1	8,558	0	1	5	1,980		
	1996	82	1	9,062	6	65	2	1,215		
	1997	83	0	2,713	1	14	5	1,546		15,052
	1998	80	0	2,432	0	2	2	942		3,326
	1999	71	0	590	100	0	0	559		8,170
	2000	70	0	5,009	0	0	0	1,672		35,118
	2001									
	2002									
	2003	67	9	1,719	48	64	1	743	246	14,348
	2004	63	33	3,446	25	6	3	2,416	106	5,868
Kiana	1994	104	0	4,060	0	22	0	854		
	1995	101	0	5,985	0	7	0	1,480		
	1996	103	6	5,935	12	0	0	1,003		
	1997	108	0	3,064	138	6	0	1,278		21,877
	1998	102	29	3,414	17	6	0	572		5,188
	1999	91	5	3,788	33	7	0	657		5,464
	2000	88	0	2,876	107	0	74	1,385		8,867
	2001	87	0	5,379	0	0	0	1,200		7,118
	2002		1.5	2 0 1 0	(0	0.0	0	015	0.6	10.000
	2003	95	15	3,010	68	80	0	915	96	10,899
	2004	8/	3	3,896	61	45	0	1,840	11/	6,041
Kobuk	1994	24	3	6,369 2,050	0	0	0	/81		
	1995	27	1	2,939	0	0	0	027 450		
	1996	24	0	620	1	0	0	430 814		1 420
	1997	26	0	1 021	0	0	0	014 207		1,420
	1998	25	0	1,051	0	0	0	597 614		1,113 871
	2000	25	0	318	0	0	0	140		805
	2000	30	0	2 8/3	0	1	1	32		0
	2001	20	0	2,045	U	1	1	52		U
	2002	34	2	1 4 5 3	0	18	0	793	0	9 257
	2003	28	3	3 087	6	10	0	1 218	20	5 302
Noatak	100/	84	4	5 771	185	0	0	98	4 629	- ,
INOatak	1995	92	0	6 3 5 9	111	0	0 0	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	5 762	
	1996	88	ů 0	10 091	0	0 0	1		5 692	
	1997	84	ů 4	5 309	9	0 0	0		4 763	2,363
	1998	97	5	2.614	0	6	2		3.872	4.320
	1999	91	0	1.616	0	10	0		-,	1.375
	2000	102	0	7,293	87	3	2	123	3.315	2,664
	2001	96	0	2,326	116	0	0		2,702	2,443
	2002	101	0	2,937	11	0	0		3,242	2,919
	2003	104	1	2,177	28	17	10	2	5,670	4,387
	2004	105	10	3,997	518	756	12	72	10,914	8,510

Table A-6.–Community populations and estimated harvests in original project reports.

- continued -

Table	A-6.	-Page	2	of	2.
			_	~ -	

		Number of			Estin	nated num	ber of fish ł	narvested		
	Voor	households in	Chinook	Chum	Coho	Pink	Sockeye	Shoofish	Dolly Varden	Whitefish
NT	1004	122	Saimon	10 640	Saimon	Saimon	Saimon	Sheefish	varuen	wintensii
NOOTVIK	1994	122	2	10,049	0	24	0	2 5 2 9		
	1995	126	8	15,485	4/	34	1	3,538		
	1996	124	38	13,611	256	597	0	3,362		
	1997	124	9	14,323	677	78	80	5,048		30,938
	1998	129	21	9,845	140	224	0	1,605		16,677
	1999	118	4	17,843	0	8	0	4,034		30,809
	2000	112	5	10,391	1,722	71	0	3,276		15,621
	2001	108	6	16,444	652	10	0	1,658		14,711
	2002	115	3	13,943	44	8	9	4,310		22,688
	2003	138	13	7,982	895	381	1	3,473	285	16,175
	2004	133	8	6,025	912	443	3	2,873	435	13,287
Shungnak	1994	55	0	8,611	0	1	0	1,349		
C C	1995	53	0	5,880	0	0	0	1,641		
	1996	56	0	8,649	0	0	0	924		
	1997	57	2	5,513	0	0	0	1,120		13,201
	1998	56	0	4,676	42	0	0	1,834		9,128
	1999	51	0	3,868	0	0	0	2,293		9,637
	2000	46	0	2,944	1	0	0	850		7,023
	2001	46	0	4,310	0	0	0	947		6,705
	2002	54	0	3,810	1	35	1	2,020	95	21,625
	2003	50	0	2,860	3	23	41	1,886	88	18,175
	2004	56	0	4,186	8	8	0	1,745	106	11,493

a. Data collected during comprehensive community surveys.

= not surveyed or not included on survey

		Number of			Estin	nated numl	ber of fish h	arvested		
		households in	Chinook	Chum	Coho	Pink	Sockeye		Dolly	
	Year	community	salmon	salmon	salmon	salmon	salmon	Sheefish	Varden	Whitefish
Ambler	1994	74	0	17,758	9	0	0	3,051		
	1995	78	1	8,649	0	1	6	2,010		
	1996	82	1	8,875	6	64	2	1,192		
	1997	83	0	2,713	1	14	5	1,546		15,052
	1998	80	0	2,432	0	2	2	942		3,326
	1999	71	0	1,952	330	0	0	1,887		27,664
	2000	70	0	5,009	0	0	0	1,672		35,118
	2001									70
	2002									70
	2003	67	9	1,719	48	64	1	743	246	14,348
	2004	60	32	3,338	24	6	3	2,319	102	5,635
Kiana	1994	104	0	4,060	0	22	0	854		
	1995	101	0	5,593	0	6	0	1,389		
	1996	103	6	3,882	12	0	0	1,003		
	1997	108	0	2,246	138	6	0	1,278		21,877
	1998	102	29	3,414	17	6	0	572		5,188
	1999	91	5	2,415	33	7	0	657		5,464
	2000	88	0	944	107	0	74	695		8,867
	2001	87	0	3,343	0	0	0	1,200		6,500
	2002	0.5		1 0 2 5	(0)	0.0	0			8/
	2003	95	15	1,937	68	80	0	915	96	10,899
	2004	76	0	2,326	54	40	0	1,050	97	5,344
Kobuk	1994	24	3	6,369	0	0	0	781		
	1995	27	1	2,935	0	0	0	829		
	1996	24	0	1,819	l	0	0	450		1.400
	1997	26	0	629	0	0	0	814		1,420
	1998	25	0	1,031	0	0	0	397		1,115
	1999	23	0	1,869	0	0	0	614		8/1
	2000	30	0	498	0	0	0	223		1,252
	2001	26	0	2,843	0	1	1	32		26
	2002	24	2	1 452	0	10	0	702	0	0.257
	2005	24 28	2	1,435	0	10	0	1 210	20	9,237 5,202
Maatala	10048	28	5	5.054	195	1	0	1,210	4 (29	2,904
Noatak	1994	84 29	5	5,954	185	0	0	98	4,038	2,894
	1995	08	0	3,430 10,001	115	0	0		5,124	
	1990	00 0 <i>1</i>	0	5 200	0	0	1		3,092	2 262
	1997	84 07	4	5,509 2,614	9	0	0		4,703	2,303
	1998	97	5	2,014 10.074	0	0	2	600	3,872	4,320
	2000	91	0	7 200	0 07	08	0	122	2 215	9,550
	2000 2001	102	0	1,309	0/ 116	5 0	2	123	3,313 2,702	2,004 2,205
	2001	90 101	0	2,320	110	0	0		2,702	2,203
	2002	101	1	2,931 2 177	11	17	10	2	5,242	2,919 1 207
	2003	104	10	2,1//	20 519	1/ 756	10	∠ 70	5,070 10 757	4,301
	2004	103	10	3,997	518	/30	12	/0	10,/3/	8,302

Table A-7.-Community populations and estimated harvests in this project's data sets.

- continued -

Table A-7.–Page 2 of 2.

		Number of			Estin	nated num	ber of fish h	arvested		
		households in	Chinook	Chum	Coho	Pink	Sockeye		Dolly	
	Year	community	salmon	salmon	salmon	salmon	salmon	Sheefish	Varden	Whitefish
Noorvik	1994	122	2	10,649	0	0	0	653		
	1995	126	8	15,161	46	33	1	3,527		
	1996	124	38	13,611	256	597	0	3,362		
	1997	124	9	14,322	677	78	80	5,027		30,862
	1998	129	21	9,845	140	224	0	1,605		16,677
	1999	118	4	17,843	0	8	0	4,034		30,809
	2000	112	5	10,391	1,722	71	0	3,276		15,621
	2001	108	6	16,444	652	10	0	1,658		17,239
	2002	115	3	13,943	44	8	9	4,310		22,688
	2003	138	13	7,982	895	381	1	3,473	285	16,175
	2004	125	8	5,822	881	428	3	2,764	420	12,801
Shungnak	1994	55	0	8,611	0	1	0	1,349		
-	1995	53	0	5,676	0	0	0	1,599		
	1996	56	0	8,649	0	0	0	924		
	1997	57	2	5,513	0	0	0	1,120		13,201
	1998	56	0	4,676	42	0	0	1,834		9,128
	1999	51	0	3,868	0	0	0	2,293		9,637
	2000	46	0	2,944	1	0	0	850		7,023
	2001	46	0	4,310	0	0	0	947		4,724
	2002 ^a	54	0	3,810	1	35	0	2,020	88	21,625
	2003	50	0	2,860	3	23	41	2,078	97	18,196
	2004	47	0	3,620	7	7	0	1,476	147	9,913

a. Data collected during comprehensive community surveys.

= not surveyed or not included on survey

			Differences	between of	riginal esti	mated ha	rvests and	project data	a set ^a	
		Households in	Chinook	Chum	Coho	Pink	Sockeye		Dolly	
	Year	Community	salmon	salmon	salmon	salmon	salmon	Sheefish	Varden	Whitefish
Ambler	1994	-				no	ot expanded	1		
	1995	-	-	91	-	-	1	30		
	1996	-	-	(187)	-	(1)	-	(23)		
	1997	-	-	-	-	-	-	-		-
	1998	-	-	-	-	-	-	-		-
	1999	-	-	1,362	230	-	-	1,328		19,494
	2000	-	-	-	-	-	-	-		-
	2001					nc	ot surveyed			
	2002					nc	ot surveyed			
	2003	-	-	-	-	-	-	-	-	-
	2004	(3)	(1)	(108)	(1)	-	-	(97)	(4)	(233)
Kiana	1994	-	-	-	-	-	-	-		
	1995	-	-	(392)	-	(1)	-	(91)		
	1996	-	-	-	-	-	-	-		
	1997	-	-	-	-	-	-	-		-
	1998	-	-	630	-	-	-	-		-
	1999	-	-	-	-	-	-	-		-
	2000	-	-	-	-	-	-	(690)		-
	2001	-	-	-	-	-	-	-		(618)
	2002									
	2003	-	-	-	-	-	-	-	-	-
	2004	(11)	-	(303)	(7)	(5)	-	(790)	(20)	(697)
Kobuk	1994	-	-	-	-	-	-	-		
	1995	-	-	(24)	-	-	-	2		
	1996	-	-	-	-	-	-	-		
	1997	-	-	-	-	-	-	-		-
	1998	-	-	-	-	-	-	-		-
	1999	-	-	-	-	-	-	-		-
	2000	-	-	180	-	-	-	83		44 /
	2001	-	-	-	-	-	-	-		-
	2002					nc	surveyed	1		
	2003	-	-	-	-	-	-	-	-	-
	2004	-	-	102	-	-	-	-	-	-
Noatak	1994	-	1	183	-	-	-	-	9	2,894
	1995	(24)	-	(929)	2	-	-		(638)	
	1996	-	-	-	-	-	-		-	
	1997	-	-	-	-	-	-		-	-
	1998	-	-	-	-	-	-	1	-	-
	1999	-				no	ot expanded	1		
	2000	-	-	16	-	-	-		-	-
	2001	-	-	-	-	-	-		-	(238)
	2002	-	-	-	-	-	-		-	-
	2003	-	-	-	-	-	-	-	-	-
	2004	(2)	-	-	-	-	-	(2)	(157)	(8)

Table A-8.-Summary of review of populations and estimated harvests.

- continued -

			Differences	between of	riginal esti	mated ha	rvests and	project data	set ^a	
	Year	Households in Community	Chinook salmon	Chum salmon	Coho salmon	Pink salmon	Sockeye salmon	Sheefish	Dolly Varden	Whitefish
Noorvik	1994	-	-	-	-	-	-	653		
	1995	-	-	(324)	(1)	(1)	-	(11)		
	1996	-	-	-	-	-	-	-		
	1997	-	-	(1)	-	-	-	(21)		(76)
	1998	-	-	-	-	-	-	-		-
	1999	-	-	-	-	-	-	-		-
	2000	-	-	-	-	-	-	-		-
	2001	-	-	-	-	-	-	-		2,528
	2002	-	-	-	-	-	-	-		-
	2003	-	-	-	-	-	-	-	-	-
	2004	(8)	-	(203)	(31)	(15)	-	(109)	(15)	(486)
Shungnak	1994	-	-	-	-	-	-	-		
	1995	-	-	(204)	-	-	-	(42)		
	1996	-	-	-	-	-	-	-		
	1997	-	-	-	-	-	-	-		-
	1998	-	-	-	-	-	-	-		-
	1999	-	-	-	-	-	-	-		-
	2000	-	-	-	-	-	-	-		-
	2001	-	-	-	-	-	-	-		(1,981)
	2002	-	-	-	-	-	(1)	-	(7)	-
	2003	-	-	-	-	-	-	192	9	21
	2004	(9)	-	(566)	(1)	(1)	-	(269)	41	(1,580)

Table A-8.–Page 2 of 2.

a. "-" indicates no difference

= not surveyed or not included on survey

APPENDIX B: PROJECT MATERIALS

A Study of Change in Ambler Kiana Kobuk Noatak Noatak Noorvik Shungnak

From 1994 through 2004, Maniilaq Association, the Alaska Department of Fish and Game, and the National Park Service conducted salmon harvest surveys every year in six northwest Alaska communities: Ambler, Kiana, Kobuk, Noatak, Noorvik, and Shungnak.

During that time, salmon harvests declined in all six communities. But harvests of other fish (like whitefish) increased in some communities, sometimes making up for declines in salmon. In other communities, harvests of all fish declined. In all six communities combined, total fish harvests showed no significant trend up or down.

During that same time, many things changed. Summers grew warmer and freeze-up came later. More people found work and earned more money. But food prices increased by 25%, while gas and oil prices more than doubled.

Maniilaq Association and ADF&G would like to better understand patterns and trends in subsistence fish harvests in the Northwest Arctic Borough. With funding from the U.S. Fish and Wildlife Service, they are exploring community harvests of salmon, trout, whitefish, and sheefish from 1994 through 2004.

In two communities – Noatak and Shungnak – researchers plan to work with high school science teachers and students to review their communities' harvests and explore reasons that harvests might have changed.

At the risk of stating the obvious, changes in community harvests reflect changes in harvests by individuals and families. In an unusual feature of the study, researchers and students will invite selected fishing households

Continued on back page ...



100,000 90,000 80,000 70,000 60,000 50,000 40,000 30,000 20,000 10,000 0 1994 2004

Noatak

From 1994 to 2004, salmon harvests in Noatak declined from about 45,000 pounds in 1994 to about 25,000 in 2004 (*above*). But harvests of trout and whitefish increased. The estimated total harvest did not change significantly between 1994 and 2004. About half the fish harvested (*below*) were salmon, about one third were trout, and about one fifth were whitefish with a few sheefish.



Kiana

In Kiana, harvests of all three major fish species – salmon, whitefish, and sheefish – declined by 3% to 4% per year. But, as in Noorvik, an unusually large whitefish harvest in 1998 may make the decline seem greater than it really was. From 1999 to 2003, harvests increased. Salmon were the largest part of the subsistence fish harvest (*below*), 47%. There was no survey in 2002.



Estimated Pounds of Salmon Whitefish Sheefish & Trout

100,000

90,000

80,000

70,000

60,000

50,000

40,000

30,000

20.000

10,000

0

1994

Noorvik



Ambler

Ambler's fish harvests were lower than their neighbors, suggesting greater reliance on other species like caribou. Harvests varied a lot from year to year; especially in 2000 when more than 35,000 pounds of whitefish were harvested. But there was no significant trend in the total fish harvest. Partly because of the high harvest in 2000, whitefish made up 78% of the total fish harvest in Ambler.





70,000 60,000 50,000 40,000 30,000 20.000 10,000 0 2004

100,000

Shungnak

Like Noatak, Shungnak has seen a remarkable decline in salmon harvests, from about 50,000 in 1994 to about 25,000 in 2004. But whitefish and sheefish harvests increased even faster than salmon harvests declined, so the overall fish harvest (in pounds) has increased. Understanding such changes is one of our goals. Salmon and whitefish each made up 42% of the total fish harvest.

Kobuk The smallest community in the region had, as would be

expected, the smallest harvests. But recent harvests in Kobuk have been much higher than harvests in the mid 1990s. As in Shungnak, salmon harvests were declining, but whitefish harvests were increasing. In 2003 and 2004, Kobuk residents harvested almost 10 times as many whitefish as they did 10 years ago.





Estimated Total Fish Harvests in Six Communities, by Species and by Year



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to participate in the analysis by reviewing their own households'11-year harvests and providing explanations for their own fishing histories.

There are many reasons fish harvests may change. Most obviously, people may catch more fish when there are more fish to catch. But weather, water levels, work, and people's age and health can also affect fish harvests.

Survey data show that older people's households harvest more fish than younger people's households. On one hand, households that work may have enough money to fish, but not enough time. On the other hand, households that do not work may have enough time to fish, but not enough money.

We believe there are two good ways to better understand the challenges subsistence users face. First, we need to gather information about subsistence harvests, as the salmon surveys have done. Second, we need to share our data with subsistence users and listen to what they say.

We look forward to working with our communities, and our students, in this study.

This study is funded by the U.S. Fish and Wildlife Service, Office of Subsistence Management, Fisheries Resource Monitoring Program Study No. 07-151 under contract number 701817C285.



Appendix B-2.-Household fishing history.

Appendix B-2–Page 2 of 2.



Appendix B-3.-Interview protocol.

NTERVIEW ATTERNS & TREN SHUNGNAK (312)	V PRO	TOCOL BSISTENCE FIS	SHING					HOUSE INTERVI INTER INTER	HOLD ID EW DATE VIEWER 1 VIEWER 2 ART TIME	
how respondent the busehold's fish hai	ir househol rvests fron	ld's fishing charl n 1994 to 2004	, and exp Then I'd	lain if ned like to ta	essary. 7 alk with y	Then say You abou	. I'd like t your ho	you to re ousehold	TOP TIME eview yo 's fishing	our g
this how you reme Do you have any o	ember you comments?	r household's	fish harv	ests?			NO	YES (circle one)	IDK	
Write down comments above										
If this is NOT how	you remem	nber your harve	sts, in w h	ich year	s do you	rememb	er highei	r or lowe	r harves	ts d
[1994	1995 1996	1997	1998	1999	2000	2001	2002	2003	1
SAL MON2	11 1		ні	HL	HL	ні	ΗL	HL	HL	
SALWON 1										-
WHITEFISH?	HL	HL HL	HL	HL	HL	HL	ΗL	ΗL	ΗL	
SAEMONY WHITEFISH? SHEEFISH? TROUT?	H L H L H L Circle "H" or "L" In hk back on " bur fishing.	H L H L H L H L H L H L H L H L your household Let's start with t	H L H L H L 's fishing	H L H L AWK. history be	H L H L H L	H L H L H L 994 and 2	H L H L H L	H L H L H L	H L H L H L	abo
would like you to thir ings that affected you make the SINGL Briefly describe factor above. How did that affect	H L H L H L Carde "H" or "L" in Nk back on " Dur fishing. LE MOST IN	H L H L H L H L H L H L each different year. Leav your household Let's start with 1 MPORTANT TH	H L H L H L s other years BU 's fishing the MOST	H L H L H L ANK history be IMPOR	H L H L H L	H L H L H L 994 and 2 ng.	HL HL HL	H L H L H L between	H L H L ask you	abc
would like you to thir ings that affected you make the SINGL Briefly describe factor above	H L H L H L Carde H or 1." in Nk back on " Dur fishing. E MOST IN t your fishir	H L H L H L H L H L H L acc different year Leave your household Let's start with the MPORTANT TH	H L H L H L softher years BL 's fishing the MOST	H L H L H L ANK history be	H L H L H L Etween 19 FANT thir	н с н с н с 994 and 2 1g.	н L н L 004. I am	H L H L H L between	H L H L ask you	abc
would like you to thir ings that affected you that was the SINGL Briefly describe factor above.	H L H L H L Crole H or "." in hk back on ' bur fishing.	H L H L H L H L H L H L each different year Leav your household Let's start with 1 MPORTANT TH	H L H L H L softher years BU is fishing the MOST	H L H L H L ANK history be	H L H L H L	н L H L H L 994 and 2 gg.	н L н L 004. I am	H L H L n going to between	H L H L ask you	abo
SALMONY SHEEFISH? SHEEFISH? TROUT? would like you to thir ings that affected yo fhat was the SINGL Briefly describe factor above. How did that affect	H L H L H L H L H L H L H L H H L H H V H Crole "H" or "L" in the back on " bour fishing.	H L H L H L H L H L H L H L H L Your household Let's start with 1	H L H L H L s other years BU 's fishing the MOST	H L H L H L ANK history be	H L H L H L Stween 19 TANT thin your hor	H L H L H L H L H L B94 and 2 Ig.	HL HL HL	H L H L n going to	H L H L ask you	abo
SALMONY WHITEFISH? SHEEFISH? TROUT? would like you to thir ings that affected yo fhat was the SINGL Briefly describe factor above. How did that affect	H L H L H L H L Note H or L" in A back on the back of	H L H L H L H L H L H L H L H L H L H L H L H L H L H L H L H L H L H L H L H L H L H L each different year Leaw your household Let's start with 1	H L H L H L s other years BU 's fishing the MOST	H L H L H L history be IMPOR	H L H L H L Stween 19 ANT thir	H L H L H L 2994 and 2 g.	H L H L 004. I arr	H L H L a going to between	н L н L ask you	
Monthanne and a second described and a s	H L H L H L Crole H or T." In. Ak back on ' bour fishing. E MOST IN t your fishir	H L H L H L H L H L H L H L H L each different year Leave your household Let's start with 1 MPORTANT TH	H L H L H L softher years BU is fishing the MOST	H L H L H L ANK history be	H L H L H L Stween 15	H L H L H L 394 and 2 ig.	HL HL HL 004. Iam	H L H L n going to	H L H L ask you	
Monthanne Monthanne Merrichten Merrichten	H L H L H L H L K back on bur fishing. E MOST IN t your fishir	H L H L H L H L H L H L each difformit year Leaw your household Let's start with 1	H L H L H L sother years Bt 's fishing the MOST	H L H L H L ANK history be	H L H L H L Stween 19 FANT thir your hor	H L H L H L H L gg. usehold's	H L H L H L 004. I am	H L H L n going to	H L H L ask you	
Write down comments above.	H L H L H L H L Crole "H" or "L" in the back on fishing. E MOST IN t your fishir	H L H L H L H L H L H L each different year Leave your household Let's start with 1 MPORTANT TH ng?	H L H L H L softher years BU 's fishing the MOST	H L H L H L ANK history be	H L H L H L Stween 15	H L H L H L B94 and 2 ig.	H L H L H I 004. I am	H L H L n going to	H L H L ask you	
White down comments above. In which years cide	H L H L H L Crole H or T." in. Ak back on ' bour fishing. E MOST IN t your fishir	H L H L H L H L H L H L H L H L each different year Leavest and the second different year Leavest and the second different year your household Let's start with 1	H L H L H L softher years BL 's fishing the MOST IING that	H L H L H L ANK history be IMPOR	H L H L H L Stween 15 FANT thir your ho	H L H L H L 394 and 2 g. usehold's	H L H L H I 0004. I arr	H L H L n going to between	H L H L ask you	
Withe down comments above. In which years did Did that cause you	H L H L H L H L H L Crede H or L" in . Nour fishing. E MOST IN t your fishir t your fishir t your fishir t your fishir t your fishir	H L H L H L H L H L H L H L H L H L H L each different year Lear Start with 1 MPORTANT TH Image: Composition of the start with 1 ng? Image: Composition of the start with 1 your fishing? Image: Composition of the start with 1 your fishing? Image: Composition of the start with 1 Journ fishing? Image: Composition of the start with 1	H L H L H L softher years BB 's fishing the MOST UNG that	H L H L H L ANK history be IMPOR IMPOR affected	H L H L H L Stween 19 FANT thir your ho	н L н L 994 and 2 1g. usehold's	н L н L н I s fishing est? 2001	H L H L n going to between	H L H L I H L ask you 1994 ar	
SALMONY SALMONY WHITEFISH? SHEEFISH? TROUT? would like you to thir ings that affected yo fat was the SINGL Briefly describe factor above. How did that affect Write down comments above. In which years did Did that cause you IDK U D	H L H L H L H L H L H L H L H L	H L H L H L H L H L H L H L H L H L H L H L H L H L H L H L H L Your household Let's start with 1	H L H L H L softher years BB 's fishing the MOST UNG that UNG that	H L H L H L ANK history be IMPOR IMPOR affected	H L H L H L Stween 19 FANT thir your how	н L н L 994 and 2 1g. usehold's usehold's 2000 U D	н L н L о004. I arr s fishing s fishing est? 2001 U D	H L H L D going to between	н L н L аsk you 1994 ar	
White down comments above. In which years did Did that cause you	H L H L H L H L H L H L H L H L	H L H L H L H L H L H L H L H L H L H L H L H L H L H L H L H L H L H L Your household Let's start with 1	H L H L H L Solver years BU Solver years BU So	H L H L H L ANK history be import affected	H L H L H L Stween 11 FANT thir your hor your hor 1999 U D NC ?	your harv 2000 U D NC ?	н L н L н L s fishing s f	H L H L D going to between	H L H L I H L 1994 ar 1994 ar 2003 U D NC ?	

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-ISHING F	ACTOR	RS 2 & 3	3							HOUSE	HOLD ID	
id anything)	else affec	t your fis	hing?						NO	YES (circle one)	IDK	
YES what	was the		OST IMP	ORTAN		that affe	ected vo	ur HH's f	ishina k	etween '	1994 an	d 200
	mus the					that are	loted yo	ur 111 5 1	i sining k	Jetheen	1004 411	
Briefly describe for	actor above hat affect	your fis	hina?									
	nat aneci	your its	anng:									
Vizite down oc	nante abovo											
In which y	ears did th	nat affect	your fish	ning?								
Did that ca	ause your	harvest t	o go UP,	to go DC	DWN, or	did it not	change	your harv	est?			
	IDK	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	200
	11 5	11 5	11 5	11 5		11 5						
	UD NC?	U D NC ?	UD NC?	UD NC?	UD NC?	UD NC?	U D NC ?	NC ?	NC ?	NC ?	NC ?	NC
	UD NC?	UD NC?	UD NC? was affected, c	UD NC?	UD NC?	UD NC?	UD NC? No Change ?	NC ?	NC ?	NC ?	NC ?	NC
	UD NC?	UD NC?	UD NC? was affected, c	UD NC?	UD NC? ct. U=UP E	UD NC?	UD NC? No Change ?	UD NC?	NC ?	NC ?	NC ?	NC
d anything	U D NC ? For each year in else affec	UD NC? which fishing v	UD NC? was affected, c	UD NC?	UD NC?	U D NC ?	UD NC? No Change ?	UD NC?	NO	YES	IDK	NC
d anything	U D NC ? For each year in else affec	UD NC? which fishing v ot your fis	U D NC ? was affected, c hing? OST IMP			UD NC?	U D NC ? No Change ?	UD NC?	NC ?	YES (circle one)	IDK	d 200
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id anything YES, what Briefly describe for How did t	U D NC ? For each year in else affect was the actor above hat affect	UD NC? which fishing v et your fis NEXT MC	U D NC ? was affected, c whing? OST IMP	U D NC ?	U D NC ? at U=UP D	U D NC ?	U D NC ? No Change ?	U D NC ? = 7 dan't know	NO	YES (clicke one)	IDK	d 2004
id anything YES, what Briefly describe fr How did t	U D NC ? For each year in else affect was the actor above hat affect	U D NC ? which fishing v ot your fis NEXT MC	U D NC ? was affected, o hing? OST IMP	U D NC ?	U D NC ? at U=UP D	U D NC ? D=Down NC=	U D NC ?	U D NC ?	NO ?	YES (circle one)	IDK 1994 and	d 2004
id anything YES, what Briefly describe fr How did t	U D NC ? For each year in else affect was the actor above hat affect	UD NC? which fishing v st your fis NEXT MC	U D NC ? was affected, o hing? OST IMP	U D NC ?	U D NC ? at U=UP L	U D NC ?	UD NC?	ur HH's f	NO ishing t	YES (circle one)	IDK	d 2004
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id anything YES, what Briefly describe for How did t	U D NC ? For each year in else affect was the actor above hat affect	UDNC?	U D NC ? was affected, o hing? OST IMP	U D NC ?	U D NC ? at U=UP L	UD NC?	No Change ?	ur HH's f	NO ishing t	YES (circle one)	IDK 1994 an	d 200
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id anything YES, what Briefly describe fr How did t	U D NC ? For each year in else affect was the actor above hat affect	UDNC? which fishing v	U D NC ? was affected, of hing? OST IMP	U D NC ? PORTANI	U D NC ? ct U=UP C	UD NC? DeDown NC=	V D NC ? No Change ?	ur HH's f	NO ishing t	YES (circle one)	IDK 1994 and	d 200
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d anything YES, what Briefly describe fr How did t	U D NC ? For each year in else affect was the actor above hat affect	UDNC? which fishing v the your fis NEXT MC your fis your fis	U D NC ? was affected, o bhing? OST IMP shing? your fish o go UP,	UDNC?		UD NC? that affe	change	ur HH's f	NO ishing t	YES (circle one)	IDK 1994 and	
id anything YES, what Briefly describe fr How did t	U D NC ? For each year in else affect was the actor above hat affect	UDNC? which fishing v the your fis NEXT MC your fis your fis your fis	U D NC ? was affected, o DST IMP shing? shing? your fish o go UP, 1995	U D NC ? arcle ONE affe	U D NC ? at U=UP L T THING	U D NC ? DeDown NC=	change 1 ho Change 2 change 2 change 2 change 2 change 2 1990	your harv	est?	YES (circle one) petween	IDK 1994 and 2003	
id anything YES, what Briefly describe fr How did t	U D NC ? For each year in else affect actor above hat affect hat affect nents above ears did th ause your IDK U D NC ?	U D NC ? which fishing v tryour fis NEXT MC tryour fis your fis your fis your fis tryour	U D NC ? was affected, o DST IMP shing? shing? shing? your fish o go UP, 1995 U D NC ?	U D NC ? ORTANI ORTANI ORTANI ORTANI ORTANI	U D NC ? at U=UP D T THING	U D NC ? b=Down NC= that affe	v D No Change ? ected you change ?	your harv 2000 U D V V V V V V V V V V V V V V V V V V V	est? 2001 U D NC ?	YES (circle one) petween	IDK 1994 and 2003 U D NC ?	
d anything YES, what Briefly describe fr How did t	U D NC ? For each year in else affect actor above hat affect nents above ears did th ause your IDK U D NC ?	UDNC? which fishing v tyour fis NEXT MC tyour fis tyour	U D NC ? was affected, o hing? OST IMP hing? Shing? Shing? U D NC ? was affected, o	U D NC ? wrote ONE affer ORTANI	U D NC ? at U=UP D T THING	U D NC ? Down NC= that affe did it not 1998 U D NC ? DOWN NC=	change ?	your harv 2000 U D NC ?	est? 2001 U D NC ?	YES (circle one) petween	IDK 1994 and 2003 U D NC ?	
id anything YES, what Briefly describe fr How did t	U D NC ? For each year in else affect actor above hat affect ments above ears did th ause your IDK U D NC ? For each year in	UDNC? which fishing v the your fis NEXT MC tyour fis tyour fis your fis up the second second type type the second second second type type type type type type type type	U D NC ? was affected, o o ST IMP shing? OST IMP shing? your fish o go UP, 1995 U D NC ? was affected, o	U D NC ? VORTANI ORTANI	U D NC ? at U=UP L THING	UDNC?	Change ? No Change ? Acted you change ? 1999 U D NC ? No Change ?	your harv 2000 U D NC ?	est? 2001 U D NC ?	YES (circle one) petween	2003 UDK 2003 UD NC ?	

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OTHER FISHING FACTORS		HOUSEHOLD ID
I am going to read a list of things that	at we thought	might have affected your household's subsistence fish harvests. I wo
like to know which of these things, if	any, affected	l your household. Labout already, we'll SKID it
		about alleady, we'll SKIP II.
		If YES, in what year or years did this affect your household?
	Vour	or did it NOT CHANGE your baryest?
	Fishina?	(Circle U. D. NC. or ? in the affected years only. Leave other years blank.)
	(circle)	IDK 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 20
Environmental Factors	S=SKIP	U=UP p D=Down NC=No Change ? = "I don't know"
unusual weather	NYS	U D U
unusual water levels	NYS	
the number	NYS	
the condition	NYS	
ot fish the taking of fish	NYS	
by predators (bears, seals) contamination	NVe	NC ? NC ? <th< td=""></th<>
of land or water		
Financial Factors	S=SKIP	U=UP D=Down NC=No Change ? = "I don't know"
the condition	NYS	
the availability		
of a net	NYS	
the cost	NYS	U D U D U D U D U D U D U D U D U D U D
the availability	NYS	U D U D U D U D U D U D U D U D U D U D
the cost of	NYS	
the availability	NYS	
Household Factors	S=SKIP	U=UP D=Down NC=No Chance ? = "I don't know"
the number		
of people in your household	NYS	
of people in your household	NYS	
the health	NYS	
the food preferences		
of people in your household	NYS	NC ?
Regulatory Factors	S=SKIP	U=UP D=Down NC=Nc Change ? = "I don't know"
Fish and Game regulations	NYS	U D U
the game warden	NYS	U D U
Employment	S=SKIP	U=UP D=Down NC=No Change ? = "I don't know"
working at a job	NYS	U D U

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Shungnak's S	SALMON harves	ts SEEM to I	pe going DOV	/N. Does it see	m to YOU that	t		10 110	anng.	
Shungnak's s Why do yo	almon harvests ou think that is h	are going u appening?	p, down, or n	ot changing?		U	D (circle	NC one)	IDK	
White down comm Shungnak's V Shungnak's v Why do yo	ents above VHITEFISH harv vhitefish harves ou think that is h	ests SEEM t ts are going appening?	o be going U up, down, or	P Does it seem not changing?	to YOU that	U	D (circle)	NC	IDK	
White down comm Shungnak's S Shungnak's s Why do yo	ents above SHEEFISH harves sheefish harvest bu think that is l	ests SEEM to s are going nappening?	be going UP up, down, or	Does it seem t not changing?	to YOU that	U	D (circle	NC	IDK	
White down comm	ents above									
Write down comm	ents above on, what was the I and 2004?	SINGLE MC	DST IMPORT	NT THING that	t affected Shu	ngnak'	s fish	ing		
White down comm	ents above on, what was the and 2004?	SINGLE MC	DST IMPORTA	NT THING that	t affected Shu	ngnak'	s fish	ing		
White down comm In your opinic between 1994 Write down comm In your opinic between 1994	ents above on, what was the and 2004? ents above on, what was the and 2004?	≥ SINGLE MO	DST IMPORTA	NT THING that	t affected Shu ffected Shunç	ngnak' jnak's f	s fishi	ing g		
White down comm	ents above on, what was the and 2004? ents above on, what was the and 2004?	≥ SINGLE MC	DST IMPORT/	NT THING that	t affected Shu	ngnak' jnak's f	s fishi	j j		
White down comm In your opinic between 1994 White down comm In your opinic between 1994 White down comm In your opinic between 1994	ents above on, what was the and 2004? ents above on, what was the and 2004? ents above on, what was the and 2004?		DST IMPORTA T IMPORTAN	T THING that a	ffected Shung	ngnak' jnak's f	s fish	ing 9 9		

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would like to know a few things about your	house	hold, a	nd ther	ו we w	ill be d	lone.		A	JUSENC		
Between 1994 and 2004, was the head of (If the household head changed, circle "H	your h EAD C	iouseh CHANG	old a (ED" ar	COUP nd ask	L E, a S the ne	SINGL xt ques	E WON stion)	/IAN,o	r a SIN	GLEI	MAN
			COL	IPLE	SIN WO	GLE MAN	SIN M.	GLE AN 8 0.718)	HE CHAN	AD IGED	
▼ If your household head changed betwe	en 19	94 and	2004,	when	and he	ow did	l it cha	nge?			
	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	200
It was a COUPLE in these years	С	С	С	С	С	С	С	С	С	С	С
It was a SINGLE WOMAN in these years	W	W	W	W	W	W	W	W	W	W	W
It was a SINGLE MAN in these years	Μ	М	М	М	М	М	М	M	М	М	M
	(circle on)	y one in ea	ch year)								
Between 1994 and 2004, was your house If YES, in which years	hold o	ccupie	d by a	certif	ied tea	acher?	2000	NO	YES	IDK 2003	200
There was a TEACHER in these years	T	Т	T	T	Т	T	T	T	T	T	T
In what year was that person who was the olde In what year was that person born? If head changed, what year was the sec year of birth of household head	cond (1994	third, f	ourth 1996) hea 1997	d born 1998	1999	2000	2001	2002	2003	200
In what year was that person who was the olde In what year was that person born? If head changed, what year was the sec year of birth of household head	cond (1994 (Enter yes	third, f 1995 ar of birth of	ourth. 1996) hea 1997 94. IF HEA	d born 1998 D CHANG	1999 ED, enter y	2000 rear of birth	2001	2002 ad in year o	2003 (change.)	200
In what year was that person who was the olde In what year was that person born? If head changed, what year was the sec year of birth of household head Do you have any comments or questions	cond (i 1994 (Enter yes	third, f	ourth. 1996 Thead in 19) hea 1997 94. JF HEA	d born 1998 D CHANG	1999	2000 rear of birth	2001	2002 ad in year o	2003 f change.)	200
In what year was that person who was the olde In what year was that person born? If head changed, what year was the sec year of birth of household head Do you have any comments or questions	cond (1994	third, f 1995	ourth 1996 head in 19) hea 1997 94. IF HEA	d born 1998 D CHANG	1999 ED, enter j	2000 vear of birth	2001	2002 ad in year o	2003 (change.)	200
In what year was that person who was the olde In what year was that person born? If head changed, what year was the sec year of birth of household head Do you have any comments or questions	cond (1994 (Enter yes ?	third, f	ourth 1996 head in 19) hea 1997 94. IF HEA	d born 1998 D CHANG	1999	2000 vear of birth	2001	2002 ad in year o	2003 f change.)	200
In what year was that person who was the olde In what year was that person born? If head changed, what year was the sec year of birth of household head Do you have any comments or questions	cond (1994 (Enter yea	third, f	ourth 1996) hea 1997 94. IF HEA	d born 1998 D CHANG	1999	2000 vear of birth	2001	2002 ad in year o	2003 (change.)	200
In what year was that person who was the olde In what year was that person born? If head changed, what year was the sec year of birth of household head Do you have any comments or questions	cond (1 1994 (Enter yea	third, f 1995	ourth 1996 / head in 19) hea 1997 94. IF HEA	d born 1998 D CHANG	2004. 1999	2000 rear of birth	2001	2002 ad in year o	2003 (change.)	200
In what year was that person who was the older In what year was that person born? If head changed, what year was the sec year of birth of household head Do you have any comments or questions	cond (1 1994 (Enter yes	third, f 1995	ourth 1996 head in 19) hear 1997 94. IF HEA	d born 1998 D CHANG	ED, enter)	2000 veer of birth	2001	2002 ad in year o	2003	
In what year was that person who was the olde In what year was that person born? If head changed, what year was the sec year of birth of household head Do you have any comments or questions	cond (1994	third, f 1995	ourth 1996) hea 1997 94. IF HEA	d born 1998 D CHANG	ED, enter (2000	2001	2002 ad in year o	2003	
In what year was that person who was the older In what year was that person born? If head changed, what year was the sec year of birth of household head Do you have any comments or questions	cond (1 1994 (Enter yes ?	third, f 1995	ourth 1996) hea 1997 94. IF HEA	d born 1998 D CHANG	ED, enter 3	2000	2001	2002 ad in year o	2003	
In what year was that person who was the olde In what year was that person born? If head changed, what year was the sec year of birth of household head Do you have any comments or questions	cond (1994) (Enter yes ?	third, f 1995 ar of birth ou	ourth 1996 head in 19) hear 1997 94. IF HEA	d born 1998 D CHANG	1999 1999 ED, enter y	2000 veer of birth	2001	2002 ad in year o	2003	
In what year was that person who was the olde In what year was that person born? If head changed, what year was the sec year of birth of household head Do you have any comments or questions	cond († 1994 (Enter yee ?	third, f 1995	ourth 1996) hea 1997 94. IF HEA	d born 1998 D CHANG	ED, enter (2000	2001	2002 ad in year o	2003	
In what year was that person who was the older In what year was that person born? If head changed, what year was the sec year of birth of household head Do you have any comments or questions	cond (1994 1994 (Enter year)	third, f 1995	ourth 1996) hea 1997 94. IF HEA	d born 1998 D CHANG	1999 1999 ED, enter y	2000	2001	2002 ad in year o	2003	

Appendix B-4.–Data collection and verification sheet.

Kotzebue Sound Patterns & Trends					c	Comm	unity		SHUN	JGNA	K
				Inte	rview	er's Ir	nitials				
Source of this data?		(circle	anal	I	МЕМЕ	ER O	F	KE١	RES	PONE	2
Source of this data?		(0108	e onej	тні	S HOL	JSEH	OLD	(⊢	IH ID		_
1. Was this household surveyed under di	fferent l	Ds?						(oirol			,
If YES, list the original survey numbers for EACH Y	EAR.							(circi	e onej	TEO	,
Leave corrected number blank for now.											
	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	۶Ţ
1a. Original Survey Number HH	ID										T
1b. Corrected HH Number? HH	ID										T
1c. Merge with another household HH	ID										1
2. Did this household first appear in the		ETED	100/								
2. Did uns nousenoid mist appear in ule s	urvey A	FIER	1994	ſ				(circl	e one)	YES	;
Enter data in the first year they were surveyed Lea	m: ve.ofber.ve	are blar									
Enter data in the first year they were surveyed. Lea		1 1005	/h. 11006	1007	1000	1000	2000	12001	2002	2002	T
2a Apothor III I haro? Brovieve III I	1994	1990	1990	1997	1990	1999	2000	12001	2002	2003	4
2a. Another HH here? Previous HH			<u> </u>	<u> </u>	<u> </u>	<u> </u>		<u> </u>	<u> </u>	—	╉
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20. Had HH members lived here before 1,										<u> </u>	1
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Enter data in the first year they were gone. That is	the first ve	ar they v	vere Ni)T surv	eved I	eave of	her ve	ars blan	k		
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APPENDIX C: ORIGINAL ANNUAL SURVEYS

Appendix C-1.–Original annual surveys.

	1994 KOTZEBUE	SOUND / KORUK RIVER ARE	HHID#
PO	ST-SEASON SUBSISTENCE * (Questions marked with an	SALMON HOUSEHOLD HARV asterisk are asked of all households interview	/EST SURVEY ved)
Community:		Household Head Name:	
Survey Date:	, 1994	Name of Person Interviewed:	
Interviewer:		Household P.O. Box:	
*1. Does this househo	old <u>usually</u> subsistence fish for	salmon? No Yes	
*2. Did this househol	d catch salmon for subsistenc	e use this year? No Y (go to 3)	(go to 5)
HOUSEHOLD DIDN	T SUBSISTENCE FISH FO	R SALMON (Household did not help ha	rvest/catch salmon)
3. Did this househol	d help another household pro	cess ("put up") salmon? No	(go to # 10) Yes
If Ye	es, who? Name/HHID		
4. Please estimate h	ow many salmon and sheefish	you kept for <u>your</u> household use.	
CHUN	A OTHER SALMON	SUFFEISU Cap't actin	note
(Go to Question 10)	M OTHER SALMON		
HOUSEHOLD SUBS	ISTENCE FISHED FOR SAL	MON	
5. Did other househ	olds <u>fish</u> with you? No	Yes	
	(go to 7)	(If Yes, Name/HHID)
6. Please estimate h	ow many salmon and sheefish	all households together caught.	(Ask about salmon already eaten,
irozen, given to oth	CHUM OT	HER SALMON SHEEFISH	Can't estimate
7. Please estimate h	ow many salmon and sheefish	were caught for your household	o niv .
	CHUM OTH	IER SALMONSHEEFISH	Can't estimate
(Go to Question 8)			
FISHING GEAR (For	subsistence fishing households only)		
8. What type(s) of fi Drift ne	ishing gear was used for catch	ing subsistence salmon this year?	
		Other (Identify)	
9. What mesh size(s) do you use for catching salm	on?	(inches)
COMMERCIAL FIS	HING		
COMMERCIAL FIS *10. Does this house If yes, where	HING 10ld commercial fish for salmo ?	on? No (go to 14) Yes	
COMMERCIAL FIS *10. Does this house If yes, where 11. Were all of the sa processed for sub	HING 10ld commercial fish for salmo ? Imon caught when commercia 1sistence? All were sold	on? No (go to 14) Yes al fishing sold or were some broug (go to 14) Some were used for s	sht home to eat or ubsistence
COMMERCIAL FIS *10. Does this house If yes, where 11. Were all of the sa processed for sub 12. How many comm	HING hold commercial fish for salmo ? ilmon caught when commercia isistence? All were sold iercially caught salmon were u	on? No (go to 14) Yes l fishing sold or were some broug (go to 14) Some were used for s used for subsistence? CHUM	ght home to eat or ubsistence KINGS

Appendix C-1.–Page 2 of 36.

	HHID#
1994 KOT POST-SEASON SUBSIS * (Questions mark	[ZEBUE SOUND / KOBUK RIVER AREA STENCE SALMON HOUSEHOLD HARVEST SURVEY ked with an asterisk are asked of all households interviewed)
Community:	Household Head Name:
Survey Date:	Name of Person Interviewed:
Interviewer:	Household P.O. Box:
*1. Does this household <u>usually</u> subsistence	ee fish for salmon? No Yes
*2. Did this household catch salmon for si	ubsistence use this year? No Yes (go to 3) (go to 5)
HOUSEHOLD DIDN'T SUBSISTENCE I	TSH FOR SALMON (Household did not help harvest/catch salmon)
3 Did this household help spother house	hald process ("put up") salmon? No (a to #10) Yes
3. Did this nousenoid help another nouse	(go to # 10) Yes
If Yes, who? Name/HHID	
4. Please estimate how many salmon and	l sheefish you kept for <u>vour</u> household use.
CHUM OTHER SAL	MON SHEEFISH Can't estimate
(Go to Question 10)	
HOUSEHOLD SUBSISTENCE FISHED	FOR SALMON
5. Did other households <u>fish</u> with you?	No Yes
	(go to 7) (If Yes, Name/HHID)
6. Please estimate how many salmon and	sheefish all households together caught. (Ask about salmon already eaten,
frozen, given to other households, and dog food CHUM	d) OTHER SALMON SHEEFISH Can't estimate
7 Bloose estimate how many solmon and	
7. Prease estimate now many samon and CHUM	OTHER SALMON SHEEFISH Can't estimate
(Go to Question 8)	
FISHING GEAR (For subsistence fishing househo	olds only)
8. What type(s) of fishing gear was used	for catching subsistence salmon this year?
Dhit het, Set het	, Seine, Odeand-reel, Other (Identify)
9 What mesh size(s) do you use for catel	hing salmon? (inches)
3. What mesh size(s) do you use for calc	
COMMERCIAL FISHING *10. Does this household commercial fish	for salmon? No (go to 14) Yes
If yes, where ?	
11. Were all of the salmon caught when co	ommercial fishing sold or were some brought home to eat or
processed for subsistence? All were s	old (go to 14) Some were used for subsistence
	and the set of the set
12. How many commercially caught salme	on were used for subsistence? CHUM KINGS

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	РО	ST-SEASON S	1995 KOTZEBU SUBSISTENCE S	JE SOUND / KO SALMON HOUS	DBUK RIVER SEHOLD HAR	VEST SURV	/EY
		* Ques	tions marked with an a	sterisk are asked of a	ll households intervi	ewed	
Сс	mmunity:			Household	d Head Name: _		
Su	vey Date:			Name of H	Person Interview	ed:	
Int	erviewer:			Household	1 P.O. Box:		
				*Househo	old Size		2 Ma
				If no, whe	re were you livi	ng?	? INO I CS
*1	Did your househ	old catch salmo	on for subsistence	e use this year?	No	Yes	
*2	Does your house	nold <u>usually</u> su	bsistence fish for	salmon? No	Yes	_	
TT		NDC					
T.T.	SHING HOUSEIN	51105					
3.	Please estimate ho with others). Inc	w many salmor ude salmon you	n your household a 1 caught and gave	caught for subsist away or lost to sj	ence use this ye poilage.	ar (your share	e of the catch if fishing
	CHUM ("DOGS")	CHINOOK ("KINGS")	Pink ("humpies")	Sockeye ("reds")	COHO("SILVERS")	UNKNOWN SPE	CIES
4.	How much of you	r salmon catch	did you give to oth	her families this y	vear? (circle)		
	None (0%)	Some (1 -25%)	About hai (26 - 50%)	LF Most (51 -75%)	ALI (75 -99%	MOST ALL 6)	All (100%)
5.	What type(s) of fi	shing gear did y	our household use	e for catching sub	sistence salmor	this year?	
	Dr	IFT NET	Set net	Seine	Rod-an	D-REEL	
	Отн	ER (IDENTIFY)					_
	Did your househo	ld catch salmon	for dog food? ly backbones/head	ds/guts/scraps/spo	oiled fish	(Go to #12)	Yes
6.	No (3010//12) 01		1 10.14	dogs.)	Unknown Spe	CIES
6. 7.	No (How many salmon Сним ("dogs")	n? (Do not inclu CHINOOK ("KINGS")	ude fish lost to spo PINK ("HUMPIES")	Sockeye ("REDS")	Соно ("silvers")		
6. 7. 8.	No (How many salmon CHUM ("DOGS") Were the salmon of	n? (Do not inclu CHINOOK ("KINGS") caught for dog f	ude fish lost to spo PINK ("HUMPIES") `ood included in th	Sockeye ("REDS")	Coho ("silvers") already gave me	? No	Yes
6. 7. 8.	No (How many salmon CHUM ("pogs") Were the salmon of How many dogs of	n? (Do not inclu CHINOOK ("KINGS") caught for dog f oes your housel	ude fish lost to spo <u>PINK</u> ("HUMPEES") rood included in th hold have?	Sockeye Sockeye ("Reds")	Cоно ("silvers") already gave me	? No	Yes

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	POST-SEASON SUBSISTENCE SALMON HOUSEHOLD HARVEST SURVEY (CON'T)
NOI	N-FISHING HOUSEHOLDS (Household did not help harvest/catch salmon)
10.	Did your household help another household process ("put up") salmon? No(Go to #12) Yes
11.	Please estimate how many salmon you kept for your household only.
	CHUM CHINOOK PINK SOCKEYE COHO UNKNOWN SPECIES ("DOGS") ("KINGS") ("HUMPTES") ("REDS") ("SILVERS")
	(Go to #12)
COI *12.	MMERCIAL FISHING Did your household commercial fish for salmon this year? No (Go to #16) Yes If ves, where?
13.	Were all of the salmon you caught when commercial fishing sold or were some brought home to eat or processed for subsistence? All sold (Go to #16) Some used for subsistence
14.	How many commercially caught salmon did your household use for subsistence? <u>CHUMCHINOOKPINKSOCKEYECOHO</u> UNKNOWN SPECIES ("DOGS")("KINGS")("HUMPTES")("REDS")("SILVERS")
15	Are these solution included in the estimates you cheesely some $m = 2$. No
15.	Are mose samon included in the estimates you aready gave me? No i es
SHF *16.	CEFISH FISHING Did your household catch sheefish for subsistence use this year? No(Go to #18) Yes
17.	Please estimate how many sheefish your household caught for subsistence use this year (your share of the catch if fishing with others). Include sheefish you caught and gave away or lost to spoilage.
*18.	Were your household's subsistence salmon needs met this year? No Yes(Go to #19) If no, why not? Yes(Go to #19) Yes(Go to #19)
*19.	Do you have any suggestions or comments?

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					HHID#
	1 POST-SEASON S	1995 KOTZEBUH SUBSISTENCE S.	E SOUND / NOA ALMON HOUS	TAK RIVER EHOLD HARVEST SUI	RVEY
	* Ques	tions marked with an as	terisk are asked of all	households interviewed	
Community:			Household	Head Name:	
Survey Date:			Name of Pe	erson Interviewed:	
Interviewer:			Household	P.O. Box:	
			*Househol	d Size	
			Was housel	hold in community last ye	ar? NoYes
			If no, where	e were you living?	
*1. Did vour hou	sehold catch salmo	on for subsistence	use this year?	No Yes	
*2 Dece years he	usebold usually au	haistan as fish for	alman9 Na		
² . Does your no	usenoid <u>usually</u> su	DSISTENCE LISH FOR	saimon? No	Y es	
FISHING HOUS	EHOLDS				
3. Please estimat	e how many salmor	n vour household c	aught for subsiste	d1 ' 1	are of the catch if fishi
with athema)	a new many summer	i jour nouseneru e		ence lise this year (volir sh	
with others).	Include salmon you	a caught and gave a	way or lost to sp	oilage.	are of the catch if fishi
with others).	Include salmon you	a caught and gave a	aught for subsiste	oilage.	
CHUM("DOGS")	CHINOOK("KINGS")	l caught and gave a	Sockeye ("REDS")	nce use this year (your sha oilage. Coho Unknown S ("silvers")	PECIES
CHUM("DOGS")	Include salmon you CHINOOK ("KINGS")	a caught and gave a	Sockeye ("REDS")	nce use this year (your sha oilage. Соно Unknown S ("silvers")	PECIES
CHUM("DOGS") 4. How much of	Include salmon you CHINOOK ("KINGS") your salmon catch	u caught and gave a PINK ("HUMPIES") did you give to oth	Sockeye ("REDS") er families this ye	nce use this year (your sha oilage. Coho Unknown S ("silvers")	PECIES
 CHUM("'DOGS") How much of NONE 	Include salmon you CHINOOK ("KINGS") your salmon catch SOME	u caught and gave a PINK ("HUMPIES") did you give to oth ABOUT HAL	aught for subsiste way or lost to sp Sockeye ("REDS") er families this ye F MOST	nce use this year (your sha oilage. Coho Unknown S ("silvers") ear? (circle) Almost All	PECIES
 CHUM ("DOOS") 4. How much of NONE (0%) 	Include salmon you CHINOOK ("KINGS") your salmon catch o SOME (1 -25%)	u caught and gave a PINK ("HUMPIES") did you give to oth ABOUT HAL (26 - 50%)	Sockeye ("REDS") er families this ye F(51 -75%)	Coho Use this year (your sha Coho Unknown S ("silvers") ear? (circle) Almost All (75 -99%)	ALL (100%)
 CHUM	Include salmon you CHINOOK ("KINGS") your salmon catch SOME (1 -25%) of fishing gear did y	u caught and gave a PINK ("HUMPIES") did you give to oth ABOUT HAL (26 - 50%) your bousebold use	SOCKEYE ("REDS") er families this ye F MOST (51 -75%)	COHO ("SILVERS") COHO ("SILVERS") COHO ("SILVERS") COHO (SILVERS") (SILVERS) (S	ALL (100%)
 CHUM_("DOOS") 4. How much of NONE (0%) 5. What type(s) 	Include salmon you <u>CHINOOK</u> ("KINGS") your salmon catch SOME (1 -25%) of fishing gear did y	u caught and gave a PINK ("HUMPIES") did you give to oth ABOUT HAL (26 - 50%) your household use	Sockeye ("REDS") er families this ye F MOST (51 -75%) for catching subs	nce use this year (your sha oilage. Соно Unknown S ("silvers") ear? (circle) ALMOST ALL (75 -99%) sistence salmon this year?	ALL (100%)
 CHUM ("DOGS") 4. How much of NONE (0%) 5. What type(s) 	Include salmon you <u>CHINOOK</u> ("KINGS") your salmon catch SOME (1 -25%) of fishing gear did y DRIFT NET	u caught and gave a PINK ("HUMPIES") did you give to oth ABOUT HAL (26 - 50%) rour household use SET NET	aught for subsiste away or lost to sp Sockeye er families this ye F Most (51 -75%) for catching subs SEINE	COHOUNKNOWN S ("SILVERS") ear? (circle) ALMOST ALL (75 -99%) sistence salmon this year? ROD-AND-REEL	ALL (100%)
 CHUM ("DOOS") 4. How much of NONE (0%) 5. What type(s) 	Include salmon you CHINOOK ("KINGS") your salmon catch SOME (1 -25%) of fishing gear did y DRIFT NET	u caught and gave a PINK ("HUMPIES") did you give to oth ABOUT HAL (26 - 50%) your household use SET NET	Sockeye ("REDS") er families this ye F MOST (51 -75%) for catching subs SEINE	Coho UNKNOWN S ("SILVERS") Coho UNKNOWN S ("SILVERS") Corder ALMOST ALL (75 -99%) Sistence salmon this year? ROD-AND-REEL	ALL (100%)
 4. How much of None (0%) 5. What type(s) 	Include salmon you CHINOOK ("KINGS") your salmon catch SOME (1 -25%) of fishing gear did y DRIFT NET DTHER (IDENTIFY)	u caught and gave a PINK ("HUMPIES") did you give to oth ABOUT HAL! (26 - 50%) Your household use SET NET	aught for subsiste away or lost to sp Sockeye ("REDS") er families this ye for families this ye (51 -75%) for catching subs SEINE	COHOUNKNOWN S ("SILVERS") COHOUNKNOWN S ("SILVERS") CALMOST ALL (75 -99%) Sistence salmon this year? ROD-AND-REEL	ALL (100%)
 4. How much of NONE (0%) 5. What type(s) 6. Did your hous 	Include salmon you <u>CHINOOK</u> ("KINGS") your salmon catch SOME (1 -25%) of fishing gear did y DRIFT NET DTHER (IDENTIFY) sehold catch salmon	a caught and gave a PINK ("HUMPIES") did you give to oth ABOUT HALI (26 - 50%) Your household use SET NET for dog food?	aught for subsiste away or lost to spi Sockeye er families this ye F Most (51 -75%) for catching subs SEINE	nce use this year (your sha oilage. Coho UNKNOWN S ("SILVERS") ear? (circle) ALMOST ALL (75 -99%) sistence salm on this year? ROD-AND-REEL	ALL (100%)
 CHUM_("DOOS") 4. How much of NONE (0%) 5. What type(s) 6. Did your hous No 	Include salmon you <u>CHINOOK</u> ("KINGS") your salmon catch SOME (1 -25%) of fishing gear did y DRIFT NET DTHER (IDENTIFY) sehold catch salmon (Go to #12) On	a caught and gave a PINK ("HUMPIES") did you give to oth ABOUT HAL2 (26 - 50%) rour household use SET NET for dog food? dy backbones/head	Sockeye Sockeye er families this ye F Most (51 -75%) for catching subs SEINE s/guts/scraps/spoi	iled fish (Go to #12)	ALL (100%)
 CHUM ("DOOS") 4. How much of NONE (0%) 5. What type(s) 6. Did your hous No 7. How many sa 	Include salmon you CHINOOK ("KINGS") your salmon catch (SOME (1 -25%) of fishing gear did y DRIFT NET DTHER (IDENTIFY) schold catch salmon (Go to #12) On Imon? (Do not inclu	u caught and gave a PINK ("HUMPIES") did you give to oth ABOUT HALI (26 - 50%) rour household use SET NET for dog food? ly backbones/head ude fish lost to spoi	Sockeye sockeye er families this ye F Most (51 -75%) for catching subs SEINE s/guts/scraps/spoi	iled fish (Go to #12) ogs.)	ALL (100%)
 CHUM ("DOOS") 4. How much of NONE (0%) 5. What type(s) 6. Did your hous No 7. How many sa CHUM ("DOOS") 	Include salmon you <u>CHINOOK</u> ("KINGS") your salmon catch (SOME (1 -25%) of fishing gear did y DRIFT NET DTHER (IDENTIFY) Schold catch salmon (Go to #12) On lmon? (Do not inclu <u>CHINOOR</u>	u caught and gave a PINK ("HUMPIES") did you give to oth ABOUT HAL! (26 - 50%) rour household use SET NET for dog food? ly backbones/head ude fish lost to spoi PINK ("HUMPIES")	Sockeye Sockeye ("REDS") er families this ye F (51 -75%) for catching subs SEINE s/guts/scraps/spoi ilage and fed to de Sockeye	ince use this year (your sha oilage. Coho UNKNOWN S ("SILVERS") ear? (circle) ALMOST ALL (75 -99%) sistence salm on this year? ROD-AND-REEL iled fish (Go to #12) ogs.) COHO UNKNOWN S	ALL (100%) PECIES
 CHUM ("DOGS") 4. How much of NONE (0%) 5. What type(s) 6. Did your hous No 7. How many sa CHUM ("DOGS") 	Include salmon you CHINOOK ("KINGS") your salmon catch o SOME (1 -25%) of fishing gear did y DRIFT NET DRIFT NET OTHER (IDENTIFY) schold catch salmon (Go to #12) On Imon? (Do not inclu CHINOOK ("KINGS")	u caught and gave a PINK ("HUMPIES") did you give to oth ABOUT HAL (26 - 50%) Your household use SET NET for dog food? dy backbones/head ude fish lost to spoi PINK ("HUMPIES")	s/guts/scraps/spoi sockeye ("REDS") er families this ye f (51 -75%) for catching subs SEINE s/guts/scraps/spoi ilage and fed to do Sockeye ("REDS")	nce use this year (your sha oilage. Coho UNKNOWN S ("SILVERS") ear? (circle) ALMOST ALL (75 -99%) sistence salmon this year? ROD-AND-REEL iled fish (Go to #12; ogs.) Coho UNKNOWN S ("SILVERS")	ALL (100%) Yes
 CHUM ("DOOS") 4. How much of NONE (0%) 5. What type(s) 6. Did your hous No 7. How many sa CHUM ("DOOS") 8. Were the salm 	Include salmon you <u>CHINOOK</u> ("KINGS") your salmon catch (SOME (1 -25%) of fishing gear did y DRIFT NET DTHER (IDENTIFY) schold catch salmon (Go to #12) On lmon? (Do not inclu <u>CHINOOK</u> ("KINGS") ton caught for dog f	a caught and gave a PINK ("HUMPIES") did you give to oth ABOUT HALI (26 - 50%) rour household use SET NET for dog food? dy backbones/head ude fish lost to spoi PINK ("HUMPIES") Cood included in the	s/guts/scraps/spoi sockeye ("REDS") er families this ye f MOST (51 -75%) for catching subs SEINE s/guts/scraps/spoi ilage and fed to de Sockeye ("REDS") e estimates you al	ince use this year (your sha oilage. COHOUNKNOWN S ("SILVERS") CoHO(Go to #12) iled fish(Go to #12) cogs.) COHOUNKNOWN S ("SILVERS") ready gave me? No	ALL (100%) PECIES Yes
 CHUM_("DOOS") 4. How much of NONE (0%) 5. What type(s) 5. What type(s) 6. Did your hous No 7. How many sa CHUM_("DOOS") 8. Were the salm of U 	Include salmon you CHINOOK ("KINGS") your salmon catch (SOME (1 -25%) of fishing gear did y DRIFT NET DTHER (IDENTIFY) schold catch salmon (Go to #12) On lmon? (Do not inclu CHINOOK ("KINGS") ton caught for dog f	a caught and gave a PINK ("HUMPIES") did you give to oth ABOUT HAL! (26 - 50%) rour household use SET NET for dog food? ly backbones/head ude fish lost to spoi PINK ("HUMPIES") Food included in the hold here 2	Sockeye sockeye er families this ye F Most (51 -75%) for catching subs SEINE s/guts/scraps/spoi ilage and fed to de Sockeye ("REDS") e estimates you al	ince use this year (your sha oilage. COHOUNKNOWN S ("SILVERS") Ear? (circle) ALMOST ALL (75 -99%) sistence salm on this year? ROD-AND-REEL iled fish (Go to #12) ogs.) COHOUNKNOWN S ("SILVERS") UNKNOWN S	ALL (100%) (100%
 CHUM_("DOOS") 4. How much of NONE (0%) 5. What type(s) 5. What type(s) 6. Did your hous No 7. How many sa CHUM_("DOOS") 8. Were the salm 9. How many do 	Include salmon you <u>CHINOOK</u> ("KINGS") your salmon catch SOME (1 -25%) of fishing gear did y DRIFT NET DTHER (IDENTIFY) schold catch salmon (Go to #12) On lmon? (Do not inclu <u>CHINOOK</u> ("KINGS") toon caught for dog fi gs does your housel	a caught and gave a PINK ("HUMPIES") did you give to oth ABOUT HAL! (26 - 50%) rour household use SET NET for dog food? ly backbones/head lde fish lost to spoi PINK ("HUMPIES") Cood included in the hold have?	Sockeye sockeye er families this ye F MOST (51 -75%) for catching subs SEINE s/guts/scraps/spoi ilage and fed to de Sockeye e estimates you al	ince use this year (your sha oilage. COHOUNKNOWN S ("SILVERS") Ear? (circle) ALMOST ALL (75 -99%) sistence salmon this year? ROD-AND-REEL iled fish (Go to #12) ogs.) COHOUNKNOWN S ("SILVERS") ready gave me? No	ALL (100%) Yes PECIES
 CHUM ("DOOS") 4. How much of NONE (0%) 5. What type(s) 5. What type(s) 6. Did your hous No 7. How many sa CHUM ("DOOS") 8. Were the salm 9. How many do 	Include salmon you <u>CHINOOK</u> ("KINGS") your salmon catch o SOME (1 -25%) of fishing gear did y DRIFT NET DTHER (IDENTIFY) schold catch salmon (Go to #12) On lmon? (Do not inclu <u>CHINOOK</u> ("KINGS") toon caught for dog for gs does your housel	u caught and gave a PINK ("HUMPIES") did you give to oth ABOUT HAL! (26 - 50%) rour household use SET NET for dog food? ly backbones/head ude fish lost to spoi PINK ("HUMPIES") cood included in the hold have?	Sockeye sockeye er families this ye F MOST (51 -75%) for catching subs SEINE s/guts/scraps/spoi ilage and fed to do Sockeye ("REDS") e estimates you al	ince use this year (your sha oilage. COHO UNKNOWN S ("SILVERS") UNKNOWN S ALMOST ALL (75 -99%) sistence salmon this year? ROD-AND-REEL iled fish (Go to #12) ogs.) COHO UNKNOWN S ("SILVERS") Teady gave me? No	ALL (100%) PECIES Yes

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NO	
10	
10.	Did your household help another household process ("put up") salmon? No(Go to #12) Y es
11.	Please estimate how many salmon you kept for your household only.
	CHUM CHINOOK PINK SOCKEYE COHO UNKNOWN SPECIES ("DOGS") ("KINGS") ("HUMPIES") ("REDS") ("SILVERS")
	(Go to #12)
CO *12	MMERCIAL FISHING . Did your household commercial fish for salmon this year? No (Go to #16) Yes If yes, where?
13.	Were all of the salmon you caught when commercial fishing sold or were some brought home to eat or processed for subsistence? All sold(Go to #16) Some used for subsistence
14.	How many commercially caught salmon did your household use for subsistence? CHUM CHNOOK PINK SOCKEYE COHO UNKNOWN SPECIES ("DOGS") ("KINGS") ("HUMPIES") ("REDS") ("SILVERS")
15.	Are those salmon included in the estimates you already gave me? No Yes
TR *16	OUT/CHAR FISHING . Did vour household catch trout (char) for subsistence use this year? No (Go to #18) Yes
17.	Please estimate how many trout (char) your household caught for subsistence use this year (your share of the catch if
	fishing with others). Include trout you caught and gave away or lost to spoilage.
*18	. Were your household's subsistence salmon needs met this year? No Yes(Go to #19) If no, why not?
*19	. Do you have any suggestions or comments?

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	COMM. ID# HHID#
SUBSIST	1996 KOTZEBUE SOUND / KOBUK RIVER FENCE SALMON HOUSEHOLD HARVEST SURVEY
* Ques	stions marked with an asterisk are asked of all households interviewed
Community:	Household Head Name:
Survey Date:	Household P.O. Box:
Interviewer:	*Household Size
	Was household in community last year? NoYes If no, where were you living?
*1. Did your household catch salme	on for subsistence use or with a rod-and-reel this year? No Yes
*2. Does your household usually su	ibsistence fish for salmon? No Yes
FISHING HOUSEHOLDS	
Please estimate how many salmor share of the catch if fishing with one	n your household caught for subsistence use or with a rod-and-reel this year (your others). Include salmon you caught and gave away or lost to spoilage.
CHUM CHINOOK ("DOGS") ("KINGS")	PINK Sockeye Coho Unknown Salmon ("Humpies") ("Reds") ("Silvers")
4. How much of your salmon catch	did you give to other families this year? (circle)
NONE SOME (0%) (1 -25%)	About Half Most Almost All All (26 - 50%) (51 - 75%) (75 - 99%) (100%)
5. What type(s) of fishing gear did y	your household use for catching subsistence salmon this year?
Set net	Drift net
SEINE	OTHER (IDENTIFY)
How many salmon c	- did your household catch and keep with rod-and-reel this year?
CHUM CHI ("DOGS") ("KI	NOOK PINK SCREYE COHO INGS") ("HUMPIES") ("REDS") ("SILVERS")
 How was subsistence salmon fish SALMON (Сним) :Very good 	ning for your household this year? AVERAGEPOOR IFPOOR, WHY?
 Did your household catch salmon No (Go to #13) On 	n for dog food? nly backbones/heads/guts/scraps/spoiled fish (Go to #13) Yes
8. How many salmon did your house	whold catch for dog food? (Do not include fish lost to spoilage and fed to dogs.)
CHUM CHINOOK	PINK SOCKEYE COHO UNKNOWN SALMON ("REDS") ("SILVERS")
(DOGS) (KINGS)	
9. Were the salmon caught for dog f	food included in the estimates you already gave me? No Yes

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NO	N-FISHING HOUSEHOLDS (Household did not harvest/catch salmon)
11.	Did your household help another household cut or hang salmon or process it some other way? No(Go to #13)
12.	Did you receive salmon in exchange for your help? Yes No If yes, please estimate how many salmon you received for your household.
	CHUM CHINOOK PINK SOCKEYE COHO UNKNOWN SALMON ("DOGS") ("KINGS") ("HUMPIES") ("REDS") ("SILVERS") (Go to
#13)	
15. 16. SHI * 17 . 18.	How many commercially caught which commercial holding sold of were some crought nome to cat of processed for subsistence? How many commercially caught salmon did your household use for subsistence? CHUMCHENOOKPINKSOCKEYECOHOUNKNOWN SALMON ("bods") ("KINGS") ("HUMPIES") SOCKEYECOHOUNKNOWN SALMON Are those salmon included in the estimates you already gave me? No (Go to #20) Yes Did your household catch sheefish for subsistence use this year? No (Go to #20) Yes Please estimate how many sheefish your household caught for subsistence use this year (your share of the catch if fishing with others). Include sheefish you caught and gave away or lost to spoilage How was sheefish fishing this year? No Mow was sheefish fishing this year? No property and property
	Very goodAveragePoor If poor, why?
*20	. In your opinion, what could Fish and Game do to make subsistence salmon fishing better? . Do you have any other suggestions or comments?

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		COMM. ID#
	1996 KOTZEB	BUE SOUND / NOATAK RIVER
	SUBSISTENCE SALMO	
	" Questions marked with an	an asterisk are asked of all nouseholds interviewed
Community:		Household Head Name:
Survey Date: Interviewer:		*Household Size
		Was household in community last year? NoYes If no, where were you living?
*1. Did your househo	old catch salmon for subsisten	nce use or with a rod-and-reel this year? No Yes
*2. Does your househ	nold usually subsistence fish fo	for salmon? No Yes
FISHING HOUSEHO	OLDS	
3. Please estimate ho share of the catch i	w many salmon your household if fishing with others). Include	ld caught for subsistence use or with a rod-and-reel this year (your le salmon you caught and gave away or lost to spoilage.
CHUM (("DOGS") (CHINOOK PINK ("KINGS") ("HUMPIES")	Sockeye Coho Unknown Salmon ("reds") ("silvers")
4. How much of your	r salmon catch did you give to c	other families this year? (circle)
None (0%)	Some About H. (1 -25%) (26 - 50%)	HALF MOST ALMOST ALL ALL (51 -75%) (75 -99%) (100%)
5. What type(s) of fis	shing gear did your household u	use for catching subsistence salmon this year?
S	SET NET	DRIFT NET
Rod-an	D-REEL	OTHER (IDENTIFY)
Ноw Сни ("Do	many salmon did your househo M CHINOOK PIN OGS") ("KINGS") ("H	iold catch and keep with rod-and-reel this year? INK Sockeye Соно 'HUMPIES'') ("REDS'') ("SILVERS")
	nce salmon fishing for your hou :	busehold this year? Poor IF POOR, WHY?
6. How was subsister SALMON (CHUM)		
 How was subsister SALMON (CHUM) Did your househol No (Go t 	ld catch salmon for dog food? to #13) Only backbones/head	ds/guts/scraps/spoiled fish (Go to #13) Yes (Go to #8)
 How was subsister SALMON (CHUM) Did your househol No (Go t How many salmon CHUM ("Dogs") (ld catch salmon for dog food? to #13) Only backbones/head 1 did your household catch for d <u>CHINOOK</u> <u>PINK</u> ("HUMPTES")	ds/guts/scraps/spoiled fish (Go to #13) Yes (Go to #8) dog food? (Do not include fish lost to spoilage and fed to dogs.) SOCKEYE COHO UNKNOWN SALMON ("REDS") ("SILVERS")
 How was subsister SALMON (CHUM) Did your househol No (Go t How many salmon CHUM ("bogs") (Were the salmon c 	ld catch salmon for dog food? to #13) Only backbones/head n did your household catch for c <u>CHINOOK</u> <u>PINK</u> ("HUMPTES") :aught for dog food included in	ds/guts/scraps/spoiled fish (Go to #13) Yes (Go to #8) dog food? (Do not include fish lost to spoilage and fed to dogs.) Sockeye Coho UNKNOWN SALMON ("REDS") ("SILVERS") VNKNOWN SALMON n the estimates you already gave me? No Yes

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NON-I	FISHING F	HOUSEHOLDS	(Household did not ha	rvest/catch salmon)		
11. Di	d your hous	ehold help anoth	er household cut or	r hang salmon	or process it some	other way? No_	(Go to #13)
12. Di	d you receiv	ve salmon in excl	ange for your help	o? Yes	No	Yes_	
]	f yes, please	e estimate how m	any salmon you re	ceived for you	r household.		
Сн ("1	UM DOGS")	Chinook ("kings")	Pink ("humpies")	Sockeye ("reds")	Coho ("silvers")	UNKNOWN SALMO	DN
#13)							(Go to
CO10		FIGURNO					
*13. E	id your ho	usehold commer	cial fish for salmo If yes, where?	on this year?	No (Go t	o#17) Yes_	
14. W pre	ere all of the	e salmon you cau subsistence?	ght when commerc All sold	cial fishing solo (Go to #17)	l or were some br Some used for sub	ought home to eat	or
15. Но	w many cor	mmercially caugh	nt salmon did your	household use	for subsistence?	** ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	
Сн ("1	UM)OGS")	("KINGS")	PINK ("HUMPIES")	SOCKEYE ("REDS")	Coho ("silvers")	UNKNOWN SALMC	DN
16. Ai	e those salm	on included in th	ne estimates you al	ready gave me	? No	Yes	
TROU *17. E	T/CHAR F Did your hou	ISHING usehold catch tr	out (char) for sub	sistence use th	nis vear? N	[0 (Go to #20)	Yes
18 Pl	ease estimat	e how many trou	t (char) vour house	bold caught fo	r subsistence use	this year (your she	are of the catch if
fis	hing with ot	thers). Include tr	out you caught and	l gave away or	lost to spoilage		
19. Ho	ow was trout	t fishing this year	·?				
		RY GOOD	AVERAGEF	'OOR IF POOR	, WHY?		
*20 Tr	vour opini	ion what could	Fish and Came do	ta make subs	sistence salmon f	ishing hetter?	
20.11	ryour opin	ion, what could		to make sub.	nstenet sumon i	isining better :	
* 21 . E)o you have	any other sugge	estions or comme	nts?			

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	Сомм. ID# ннггж
	KOBUK RIVER AREA
19	997 SUBSISTENCE SALMON HOUSEHOLD HARVEST SURVEY
	* Questions marked with an asterisk are asked of all households interviewed
Committee	II
Community:	Household Head Name:
Interviewer:	Was household in community last year? No Yes
	If no, where were you living?
	Household P.O. Box (if new):
*1. Did your household c	catch salmon for subsistence use or with a rod-and-reel this year?
	No Yes
*2. Does your household	usually subsistence fish for salmon? No Yes
FISHING HOUSEHOLD	DS ("Yes" to #1)
 Please estimate how m 	nany salmon your household caught for subsistence use or with a rod-and-reel this year (your sha
of the catch if fishing w others process fish.	with others). Include salmon you gave away, ate fresh, lost to spoilage, or obtained from helping
CHUMCHING ("DOGS") ("KING	OOK PINK SOCKEYE COHO UNKNOWN SALMON GGS") ("HUMPIES") ("REDS") ("SILVERS")
4. What type(s) of fishing	g gear did your household use for catching subsistence salmon this year?
 What type(s) of fishing SET GILL N ROD-AND-RE 	g gear did your household use for catching subsistence salmon this year? NET EEL Drift GILL NET
 What type(s) of fishing SET GILL N ROD-AND-RE 4a. How many salmon 	g gear did your household use for catching subsistence salmon this year? NET SEINE EEL DRIFT GILL NET n did your household catch and keep with rod-and-reel this year?
 What type(s) of fishing SET GILL N ROD-AND-RE 4a. How many salmon CHUM ("Dogs") 	g gear did your household use for catching subsistence salmon this year? NET
 4. What type(s) of fishing SET GILL N ROD-AND-RE 4a. How many salmon CHUM ("DOGS") 	g gear did your household use for catching subsistence salmon this year? NET
 What type(s) of fishing SET GILL N ROD-AND-RE 4a. How many salmon CHUM ("DOGS") 5. Did your household give 	g gear did your household use for catching subsistence salmon this year? NET SEINE EEL DRIFT GILL NET n did your household catch and keep with rod-and-reel this year? CHINOOK CHINOOK PINK G'("KINGS") ("HUMPIES") Sockeye COHO ("sulvers") ("SULVERS") ive salmon to other households this year? No Yes
 What type(s) of fishing SET GILL N ROD-AND-RE 4a. How many salmon CHUM ("DOGS") Did your household giv How was subsistence c 	g gear did your household use for catching subsistence salmon this year? NET
 What type(s) of fishing SET GILL N ROD-AND-RE 4a. How many salmon CHUM ("DOOS") Did your household giv Did your household giv How was subsistence of VERY good 	g gear did your household use for catching subsistence salmon this year? NET SEINE EEL DRIFT GILL NET n did your household catch and keep with rod-and-reel this year? CHNOOK CHNNOK PINK SOCKEYE COHO ("KINGS") ("HUMPIES") ive salmon to other households this year? No Yes Chum salmon fishing for your household this year? AVERAGE POOR
 What type(s) of fishing SET GILL N ROD-AND-RE 4a. How many salmon CHUM ("DOGS") Did your household give How was subsistence c VERY goop Did your household ca 	g gear did your household use for catching subsistence salmon this year? NET
 What type(s) of fishing SET GILL N ROD-AND-RE 4a. How many salmon <u>CHUM</u> ("DOGS") Did your household giv How was subsistence c VERY GOOD Did your household ca No (Go to #13) 	g gear did your household use for catching subsistence salmon this year? NET
 What type(s) of fishing SET GILL N ROD-AND-RE 4a. How many salmon <u>CHUM</u> ("DOOS") Did your household giv How was subsistence c 	g gear did your household use for catching subsistence salmon this year? NET
 What type(s) of fishing SET GILL N ROD-AND-RE 4a. How many salmon CHUM ("DOGS") Did your household giv How was subsistence c VERY GOOD Did your household ca No (Go to #13) How many salmon did CHUM CHUMC CHINOC 	g gear did your household use for catching subsistence salmon this year? NET
 What type(s) of fishing SET GILL N ROD-AND-RE 4a. How many salmon <u>CHUM</u> ("DOGS") Did your household giv How was subsistence of <u>VERY GOOD</u> Did your household ca No (Go to #13) How many salmon did <u>CHUM</u> ("KINGG") 	g gear did your household use for catching subsistence salmon this year? NET
 What type(s) of fishing SET GILL N ROD-AND-RE 4a. How many salmon <u>CHUM</u> ("DOGS") Did your household giv How was subsistence c VERY GOOD Did your household ca No (Go to #13) How many salmon did <u>CHUM</u> CHINOC ("DOGS") ("KINGS Were these salmon inc. 	g gear did your household use for catching subsistence salmon this year? NET
 What type(s) of fishing SET GILL N ROD-AND-RE 4a. How many salmon CHUM ("DOGS") Did your household giv How was subsistence c VERY GOOD Did your household ca No (Go to #13) How many salmon did CHUM ("KINGS") Were these salmon inc How many dogs does y 	g gear did your household use for catching subsistence salmon this year? NET
 What type(s) of fishing SET GILL N ROD-AND-RE 4a. How many salmon <u>CHUM</u> ("DOGS") Did your household giv How was subsistence of 	g gear did your household use for catching subsistence salmon this year? NET

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		1997 SUBSIST	ENCE SALMON	HOUSEHOLI	HARVEST SUR	VEY (CON'T)	
NO	-FISHING H	OUSEHOLDS	("No" to #1)				
11.	Did vour house	hold help anothe	er household fish, o	cut or hang salm	on, or process it so	me other way? No	(Go to #1
						Yes	
12.	Did you receive	e salmon in exch	ange for your help	? No	Yes wsehold (Do not	include fish from a Få	PG test net
	CHUM	CHINOOK	PINK	Sockeye	Соно	UNKNOWN SALMON_	
	("DOGS")	("KINGS")	("HUMPIES")	("REDS")	("SILVERS")		(Go to #
							(00 10 11
CO	AMERCIAL H	FISHING					
*13.	Did your hou	sehold commer	cially fish for salm If yes, wh	non this year? here?	No (Go to	#17) Yes	
14.	Were all of the subsistence?	salmon you cauş All sold	ght when commerc (Go to #17)	ial fishing sold Some used f	or were some broug or subsistence	ght home to eat or pro-	cessed for
15.	How many com	mercially caugh	t salmon did your	household use f	or subsistence?		
	Chum ("dogs")	Chinook ("kings")	PINK ("HUMPIES")	Sockeye ("reds")	Coho ("silvers")	UNKNOWN SALMON	
16.	Were these salr	non included in	the estimates you a	lready gave me	? No	Yes	
SHI	EFISH AND	WHITEFISH F	ISHING				
*17.	Did your hou	sehold catch sh	eefish or whitefisl	h for subsistenc	e use this year?	No(Go to #19)	Yes
18.	Please estimate	how many shee	fish and white fish	your household	caught for subsiste	nce use this year (you	share of t
	catch if fishing	with others). In	clude fish you cau	ght and gave aw V	ay, ate fresh, lost to Vhitterish	o spoilage, or fed to do	ogs.
				v	· III IE215II		
*19.	Do you have :	any suggestions	or concerns abou	ıt subsistence fi	shing?		
					_		

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HILLS NOATAK RIVER AREA 1997 SUBSISTENCE SALMON HOUSEHOLD HARVEST SURVEY * Questions marked with an asterisk are asked of all households interviewed Community:		Comm. ID#
1997 SUBSISTENCE SALMON HOUSEHOLD HARVEST SURVEY * Questions marked with an asterisk are asked of all households interviewed Community:		HHID# NOATAK RIVER AREA
*Questions marked with an asterisk are asked of all households interviewed Community:		1997 SUBSISTENCE SALMON HOUSEHOLD HARVEST SURVEY
Community:		* Ouestions marked with an asterisk are asked of all households interviewed
Community:		
Survey Date: *Household Size Interviewer: Was household in community last year? NoYes_ If no, where were you living?	Community:	Household Head Name:
Interviewer: Was household in community last year? NoYes_ If no, where were you living? *1. Did your household catch salmon for subsistence use or with a rod-and-reel this year? NoYes	Survey Date:	*Household Size
*1. Did your household catch salmon for subsistence use or with a rod-and-reel this year? NoYes *2. Does your household usually subsistence fish for salmon? NoYes FISHING HOUSEHOLDS ("Yes" to#1) 3. Please estimate how many salmon your household caught for subsistence use or with a rod-and-reel this year (you of the catch if fishing with others). Include salmon you gave away, ate fresh, lost to spoilage, or obtained from h others process fish. CHEMONE	Interviewer:	Was household in community last year? NoYes
*1. Did your household catch salmon for subsistence use or with a rod-and-reel this year? NoYes		If no, where were you living?
*1. Did your household catch salmon for subsistence use or with a rod-and-reel this year? No Yes *2. Does your household usually subsistence fish for salmon? No Yes FISHING HOUSEHOLDS ("Yes" to#1) 3. Please estimate how many salmon your household caught for subsistence use or with a rod-and-reel this year (you of the catch if fishing with others). Include salmon you gave away, ate fresh, lost to spoilage, or obtained from h others process fish. CHUM CHNOOK PINK SOCKEYE COHO ("DOGS") CHNOOK PINK SOCKEYE COHO ("DOGS") CHNOOK PINK SOCKEYE COHO ("DOGS") CHNOOK PINK SOCKEYE COHO 4. What type(s) of fishing gear did your household use for catching subsistence salmon this year? SET GILL NET SEINE RDD-AND-REEL DRIFT GILL NET CHUM CHUM CHNOKK ("DOGS") CHNOKS PINK SOCKEYE COHO 4a. How many salmon did your household catch and keep with rod-and-reel this year? CHUM CHUM ("DOGS") CHNOKS PINK SOCKEYE COHO 5. Did your household give salmon to other households this year? Yes		
 *1. Did your household catch salmon for subsistence use or with a rod-and-reel this year? No Yes *2. Does your household usually subsistence fish for salmon? No Yes FISHING HOUSEHOLDS ("Yes" to#1) 3. Please estimate how many salmon your household caught for subsistence use or with a rod-and-reel this year (you of the catch if fishing with others). Include salmon you gave away, ate fresh, lost to spoilage, or obtained from h others process fish. CHUM CHINOOK PINK SOCKEYE COHO UNKNOWN SALMON 4. What type(s) of fishing gear did your household use for catching subsistence salmon this year? SET GILL NET SEINE A. How many salmon did your household catch and keep with rod-and-reel this year? CHUM CHINOOK PINK SOCKEYE COHO ("SLIVERS") 5. Did your household give salmon to other households this year? COHO Yes 6. How was subsistence chum salmon fishing for your household this year? (Go to #13) Only backbones/heads/guts/scraps/spoiled fish (Go to #13) Yes (Go to #80) 8. How many salmon did your household catch for dog food? (Do not include fish lost to spoilage and fed to dogs.) CHUMON (TREDS") (TREDS") (TREDS") UNKNOWN SALMON (Go to #13) Yes (Go to #30) Yes		
NOYes	*1. Did your house	ehold catch salmon for subsistence use or with a rod-and-reel this year?
 *2. Does your household <u>usually</u> subsistence fish for salmon? No Yes		NO Yes
FISHING HOUSEHOLDS ("Yes" to #1) 3. Please estimate how many salmon your household caught for subsistence use or with a rod-and-reel this year (you of the catch if fishing with others). Include salmon you gave away, ate fresh, lost to spoilage, or obtained from h others process fish. CHUM	*2. Does your hous	sehold <u>usually</u> subsistence fish for salmon? No Yes
FISHING HOUSEHOLDS ("Yes" to #1) 3. Please estimate how many salmon your household caught for subsistence use or with a rod-and-reel this year (you of the catch if fishing with others). Include salmon you gave away, ate fresh, lost to spoilage, or obtained from h others process fish. CHUMCHINOOKPINKSOCKEYECOHOUNENOWN SALMON ("Dods") ("KINGS") ("KINGS") ("HUMPIES") SET GILL NET SEINE ROD-AND-REEL DRIFT GILL NET 4a. How many salmon did your household catch and keep with rod-and-reel this year? CHUMCHINOKPINK SOCKEYECOHO ("DOGS") ("KINGS") ("HUMPIES") SOCKEYE 4a. How many salmon did your household catch and keep with rod-and-reel this year? CHUMCHINOKPINK SOCKEYECOHO ("DOGS") ("KINGS") PINK 5. Did your household give salmon to other households this year? No VERY GOODAVERAGEPOOR IF POOR, WHY?		
 3. Please estimate how many salmon your household caught for subsistence use or with a rod-and-reel this year (you of the catch if fishing with others). Include salmon you gave away, ate fresh, lost to spoilage, or obtained from h others process fish. CHUM	FISHING HOUSE	HOLDS ("Yes" to #1)
CHUM CHINOOK PINK SOCKEYE COHO UNKNOWN SALMON 4. What type(s) of fishing gear did your household use for catching subsistence salmon this year? SET GILL NET SET GILL NET DRIFT GILL NET 4. How many salmon did your household catch and keep with rod-and-reel this year? CHOM CHINOOK PINK 4a. How many salmon did your household catch and keep with rod-and-reel this year? COHO COHO CHINOOK PINK 5. Did your household give salmon to other households this year? No Yes	3. Please estimate of the catch if fi others process f	how many salmon your household caught for subsistence use or with a rod-and-reel this year (your sh ishing with others). Include salmon you gave away, ate fresh, lost to spoilage, or obtained from helpi fish.
 4. What type(s) of fishing gear did your household use for catching subsistence salmon this year? SET GILL NET	CHUM	CHINOOK PINK SOCKEYE COHO UNKNOWN SALMON
SET GILL NET	(DOGS)	("KINGS") ("HUMPIES") ("REDS") ("SILVERS")
 4a. How many salmon did your household catch and keep with rod-and-reel this year? 4a. How many salmon did your household catch and keep with rod-and-reel this year? CHUM	 What type(s) of t 	("KINGS") ("HUMPIES") ("REDS") ("SILVERS") fishing gear did your household use for catching subsistence salmon this year?
It is indify selline and your household early indified and heep which dearly the indify selline and your. CHUM_("DOGS") CHINOOK_("KINGS") PINK_SOCKEYE COHO 5. Did your household give salmon to other households this year? No Yes 6. How was subsistence chum salmon fishing for your household this year? Very GOOD Average Poor IF poor, why? 7. Did your household catch salmon for dog food? (Using salmon for dog food is allowed by regulations.) No (Go to #13) No (Go to #13) Only backbones/heads/guts/scraps/spoiled fish (Go to #13) Yes (Go to #8) 8. How many salmon did your household catch for dog food? (Do not include fish lost to spoilage and fed to dogs.) CHUM CHINOOK PINK SOCKEYE COHO UNKNOWN SALMON	4. What type(s) of the SET	("KINGS") ("HUMPIES") ("REDS") ("SILVERS") fishing gear did your household use for catching subsistence salmon this year? T GILL NET
 ("DOGS") ("KINGS") ("HUMPLES") ("REDS") ("SILVERS") 5. Did your household give salmon to other households this year? No Yes 6. How was subsistence chum salmon fishing for your household this year? 6. How was subsistence chum salmon fishing for your household this year? 7. Did your household catch salmon for dog food? (Using salmon for dog food is allowed by regulations.) No (Go to #13) Only backbones/heads/guts/scraps/spoiled fish (Go to #13) Yes (Go to #8) 8. How many salmon did your household catch for dog food? (Do not include fish lost to spoilage and fed to dogs.) CHUM CHINOOK PINK SOCKEYE COHO UNKNOWN SALMON 	4. What type(s) of the set of the	("KINGS") ("HUMPIES") ("REDS") ("SILVERS") fishing gear did your household use for catching subsistence salmon this year? T GILL NET SEINE AND-REEL DRIFT GILL NET salmon did your household catch and keep with rod-and-reel this year?
 Did your household give salmon to other households this year? No Yes How was subsistence chum salmon fishing for your household this year? VERY GOODAVERAGEPOOR IF POOR, WHY? Did your household catch salmon for dog food? (Using salmon for dog food is allowed by regulations.) No (Go to #13) Only backbones/heads/guts/scraps/spoiled fish (Go to #13) Yes (Go to #8) How many salmon did your household catch for dog food? (Do not include fish lost to spoilage and fed to dogs.) CHUM CHINOOK PINK SockEYE COHO UNKNOWN SALMON 	4. What type(s) of f SET ROD 4a. How many Сним	(*KRds*) (*HUMPLES*) (*REDS*) (*SILVERS*) fishing gear did your household use for catching subsistence salmon this year? T GILL NET
 6. How was subsistence chum salmon fishing for your household this year? 	 4. What type(s) of 1 SET ROD 4a. How many CHUM_ ("DOGS") 	("KINGS") ("HUMPLES") ("REDS") ("SILVERS") 'fishing gear did your household use for catching subsistence salmon this year? T GILL NET
 Did your household catch salmon for dog food? (Using salmon for dog food is allowed by regulations.) No(Go to #13) Only backbones/heads/guts/scraps/spoiled fish(Go to #13) Yes(Go to #8) How many salmon did your household catch for dog food? (Do not include fish lost to spoilage and fed to dogs.) CHUM("boos") CHINOOK PINK SOCKEYE COHO UNKNOWN SALMON 	 4. What type(s) of 1 SET ROD 4a. How many CHUM ("DOGS") 5. Did your housel 	("KINGS") ("HUMPLES") ("REDS") ("SILVERS") 'fishing gear did your household use for catching subsistence salmon this year? T GILL NET
8. How many salmon did your household catch for dog food? (Do not include fish lost to spoilage and fed to dogs.) CHUM	 What type(s) of the set of the	(*KNds') (*HUMPLES') (*REDS') (*SILVERS') 'fishing gear did your household use for catching subsistence salmon this year? T GILL NET SEINE -AND-REEL DRIFT GILL NET 'salmon did your household catch and keep with rod-and-reel this year? 'salmon did your household catch and keep with rod-and-reel this year? 'salmon did your household catch and keep with rod-and-reel this year? 'salmon did your household catch and keep with rod-and-reel this year? 'salmon to other households this year? 'stence chum salmon to other households this year? 'stence chum salmon fishing for your household this year? 'sop Average Poor IF poor, why?
	 4. What type(s) of f SET ROD 4a. How many ("DOGS") 5. Did your housel 6. How was subsis VERY GOO 7. Did your housel No (G 	(*KNds') (*HUMPLES') (*REDS') (*SILVERS') 'fishing gear did your household use for catching subsistence salmon this year? T GILL NET SEINE -AND-REEL DRIFT GILL NET 'salmon did your household catch and keep with rod-and-reel this year? 'salmon did your household catch and keep with rod-and-reel this year? 'salmon did your household catch and keep with rod-and-reel this year? 'salmon to other households this year? '("KINGS") ("HUMPLES") ("REDS") 'stence chum salmon to other households this year? OD
9. Were these salmon included in the estimates you already gave me? No Yes	 4. What type(s) of 1 SET ROD 4a. How many ("DOGS") 5. Did your housel 6. How was subsis VERY GOO 7. Did your housel No(G 8. How many salm CHUM("DOGS") 	(*KNds') (*HUMPLES') (*REDS') (*REDS') 'fishing gear did your household use for catching subsistence salmon this year? T GILL NET SEINE ·AND-REEL DRIFT GILL NET 'salmon did your household catch and keep with rod-and-reel this year? 'salmon did your household catch and keep with rod-and-reel this year? 'salmon did your household catch and keep with rod-and-reel this year? 'salmon to other households this year? 'o'' ("KINGS") ''HUMPTES'') ''REDS'') ''Salmon to other households this year? 'ob
10. How many dogs does your household have? (Go to #1	 What type(s) of t SET ROD 4a. How many CHUM ("DOGS") 5. Did your housel 6. How was subsis VERY GOO 7. Did your housel No (G 8. How many salm CHUM ("DOGS") 9. Were these salm 	(*RNds') (*RDS') (*REDS') (*REDS') "fishing gear did your household use for catching subsistence salmon this year? T GILL NET SEINE -AND-REEL DRIFT GILL NET 'salmon did your household catch and keep with rod-and-reel this year? 'salmon did your household catch and keep with rod-and-reel this year? 'salmon did your household catch and keep with rod-and-reel this year? 'salmon to other households this year? 'o'' ("KINGS") ("HUMPIES") 'stence chum salmon to other households this year? No Yes obd
	 What type(s) of t SET ROD 4a. How many CHUM ("DOGS") Did your housel How was subsis VERY GOO Did your housel No (G How many salm CHUM ("DOGS") Were these salm How many dogs 	(*RNds') (*RDS') (*RDS') (*RDS') (*RNds') (*RDS') (*RDS') (*RDS') 'fishing gear did your household use for catching subsistence salmon this year? T GILL NET

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	1997	SUBSISTEN	ICE SALMON	HOUSEHOLI) HARVEST SUP	(VEY (CON'T)	
NO	-FISHING HOUSE	HOLDS ("N	No" to #1)				
11.	Did your household h	elp another h	ousehold fish, c	ut or hang salm	on, or process it so	ome other way? N	0(Go to #1
12.	Did you receive salm	on in exchang	ge for your help?	? No	Yes	10	
	If yes, please estimat	e how many :	salmon you rece	ived for your h	ousehold. (Do not	include fish from	a F&G test net
	CHUM CHI ("DOGS") ("KI	100K NGS")	PINK ("HUMPIES")	Sockeye ("reds")	Соно ("silvers")	UNKNOWN SAL	(Go to #13)
CO	IMERCIAL FISHI	NG					
*13.	Did your household	l commercia	lly fish for salm If yes, whe	on this year? ere?	No (Go t	0#17) Yes	
14.	Were all of the salmo subsistence?	n you caught All sold	when commerci _ (Go to #17)	ial fishing sold Some used f	or were some brou for subsistence	ght home to eat or —	processed for
15.	How many commerci Сним Сни ("dogs") ("ки	ally caught sa 100k NGS")	almon did your h PINK ("HUMPIES")	nousehold use f Sockeye ("REDS")	or subsistence? Соно ("silvers")	_ Unknown Salm	ON
16.	Were these salmon in	cluded in the	estimates you a	lready gave me	? No	Yes	_
TR(OUT (CHAR) AND V Did your boussbak	VHITEFISH Leatch trout	I FISHING or whitefish fo	r cubeistorco i	ise this year? No	(Ca ta #10)	Vac
18.	Please estimate how r catch if fishing with o TRO	nany trout an others). Inclu	d whitefish your de fish you caug	household cau thand gave aw	ght for subsistence ray, ate fresh, lost t WHITEFISH	use this year (you o spoilage, or fed	ir share of the to dogs.
*19.	Do you have any su	ggestions or	concerns abou	t subsistence f	ishing?		

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			COMMUNITY ID#
	KOBUK RIV	ER AREA	HHIL#
1	1998 SUBSISTENCE SALMON HO	USEHOLD HARVEST SU	RVEY
	* Questions marked with an asterisk are	asked of all households interviewed	1
Community:	H	ousehold Head Name:	
Survey Date:		Household Size	last year? No Ves
	If	no, where were you living?	
	Н	ousehold P.O. Box (if new):	
*1. Did vour household a	catch salmon for subsistence use or	with a rod-and-reel this ve	ar?
		NoYes	
*2. Does your household	d <u>usually</u> subsistence fish for salmon	? No Yes	
FISHING HOUSEHOLI	DS ("Ves" to #1)		
3 Please estimate how n	many salmon your household caught fo	r subsistence use or with a r	od-and-reel this year (your sha
of the catch if fishing others process fish.	; with others). Include salmon you gav	ve away, ate fresh, lost to spo	bilage, or obtained from helping
CHUM CHIN ("DOGS") ("KE	NOOK PINK SOCKI INGS") ("HUMPIES") ("RED	EYE COHO S") ("SILVERS")	UNKNOWN SALMON
	a again did waxan harrachald waa fan aata'		_
4. What type(s) of fishing	ig gear and your nousehold use for calc.	hing subsistence salmon this	year?
 What type(s) of fishing SET GILL 	LNET	hing subsistence salmon this	year?
 What type(s) of fishing SET GLI ROD-AND- 	REEL DRIF	hing subsistence salmon this SEINE T GILL NET	year?
 What type(s) of fishing SET GILI ROD-AND- 4a. How many salmo Сним 	I NET DRIF	hing subsistence salmon this SEINE T GILL NET with rod-and-reel this year? SOCKEYE COI	io
 What type(s) of fishing SET GEL ROD-AND- 4a. How many salmo Сним_ ("DOGS") 	g gear and your nousenoid use for catched and source and the second seco	hing subsistence salmon this SEINE T GILL NET with rod-and-reel this year? SOCKEYE Coi ("REDS") ("SI	io
 What type(s) of fishing SET GEU ROD-AND- 4a. How many salmo ("DOGS") 5. Did your household g 	g gear and your nousehold use for catched and sour nousehold catch and keep v CHNOOK PINK ("KINGS") ("HUMPLES") give salmon to other households this ye	hing subsistence salmon this SEINE T GILL NET with rod-and-reel this year? SOCKEYE Coi ("REDS") ("si ar? No	year? 10 1vers") Yes
 What type(s) of fishing SET GEL ROD-AND- 4a. How many salmon ("DOGS") 5. Did your household g 6. How was subsistence VERY GOOD 	g gear and your nousehold use for each -REEL DRIF on did your household catch and keep v CHINOOK PINK ("KINGS") ("HUMPLES") give salmon to other households this yee chum salmon fishing for your househo AVERAGEPOOR IF	hing subsistence salmon this SEINE T GILL NET with rod-and-reel this year? SOCKEYE Coi ("REDS") ("si ar? No bld this year? POOR, wHY?	year? 10 Ivers") Yes
 What type(s) of fishing SET GEL ROD-AND- 4a. How many salmo <u>CHUM</u> ("DOGS") Did your household g How was subsistence <u>VERY GOOD</u> Did your household c: NO (Go to #13) 	g gear and your nousenoid use for each and your nousenoid use for each and keep v	hing subsistence salmon this SEINE T GILL NET with rod-and-reel this year? SOCKEYE Con ("REDS") ("si ar? No poor, why? non for dog food is allowed s/spoiled fish (Go to #13	year? 10 IVERS") Yes by regulations.)) Yes(Go to #8)
 What type(s) of fishing SET GEL ROD-AND- 4a. How many salmo <u>CHUM</u> ("DOGS") Did your household g How was subsistence <u>VERY GOOD</u> Did your household cr No (Go to #11) How many salmon dia <u>CHUM</u> ("KING") 	g gear and your household use for each and your household catch and keep von the salmon for the salmon fishing for your households this yee and the salmon for dog food? (Using salma) Only backbones/heads/guts/scrap d your household catch for dog food? (Osk	hing subsistence salmon this SEINE T GILL NET with rod-and-reel this year? SOCKEYE Col ("REDS") ("SI ar? No poor, wHY? poor, wHY? non for dog food is allowed s/spoiled fish (Go to #13 (Do not include fish lost to s COHO U	to LVERS") Yes by regulations.)) Yes(Go to #8) poilage and fed to dogs.) JNKNOWN SALMON
 What type(s) of fishing SET GEL ROD-AND- 4a. How many salmo <u>CHUM</u> ("DOGS") Did your household g How was subsistence <u>VERY GOOD</u> Did your household cr No (Go to #11) How many salmon dia <u>CHUM</u> ("KING") Were these salmon income 	g gear did your household use for each LLNET DREEL Drift CHINOOK PINK POOR Drift Court AverAge POOR IF Catch salmon for dog food? (Using salt 3) Only backbones/heads/guts/scrap d your household catch for dog food? (Ook	hing subsistence salmon this SEINE T GILL NET with rod-and-reel this year? SOCKEYE Con ("REDS") ("si ar? No poor, why? poor, why? non for dog food is allowed s/spoiled fish (Go to #13 (Do not include fish lost to s s Coho to ("SILVERS") to s	to LVERS") Yes by regulations.)) Yes(Go to #8) poilage and fed to dogs.) JNKNOWN SALMON
 What type(s) of fishing SET GEL ROD-AND- 4a. How many salmo <u>CHUM</u> ("DOGS") Did your household g How was subsistence VERY GOOD Did your household ca No (Go to #12) How many salmon dia <u>CHUM</u> <u>CHING</u> ("DOGS") ("KING Were these salmon incomendation in	g gear did your household use for each LL NET DRIF -REEL DRIF on did your household catch and keep v CHINOOK PINK ("KINGS") ("HUMPIES") give salmon to other households this yee chum salmon fishing for your householAVERAGEPooR IF catch salmon for dog food? (Using salf 3) Only backbones/heads/guts/scrap d your household catch for dog food? (OKNORSOCKEYT igs") ("HUMPIES") ("REDS") icluded in the estimates you already ga ; your household have?	hing subsistence salmon this SEINE T GILL NET vith rod-and-reel this year? SOCKEYE Con ("REDS") ("si ar? No bld this year? POOR, WHY? poor, wHY? non for dog food is allowed s/spoiled fish (Go to #13 (Do not include fish lost to s s COHO U ("SILVERS") U ve me? No Yes	io LVERS") Yes by regulations.)) Yes(Go to #8) poilage and fed to dogs.) JNKNOWN SALMON (Go to #13)

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		1998 SUBSIST	ENCE SALMON	HOUSEHOLI) HARVEST SUR	VEY (CON'T)	
NO	N FISHING F	IOUSEHOLDS	("No" to #1)				
11						1 0.07	
11.	Did your hous	enold help anothe	r household fish, d	cut or hang salm	on, or process it so	me other way? No(Go Yes	to #1
12.	Did you receiv	ve salmon in exch	ange for your help	9? No	Yes		
	If yes, please	estimate how mar	ny salmon you rec	eived for your h	ousehold. (Do not	include fish from a F&G test	net.
	("DOGS")	("KINGS")	PINK ("HUMPIES")	("REDS")	("SILVERS")	UNKNOWN SALMON	
						(Go	o to #:
CO	MMERCIAL	FISHING					
*13.	Did your hou	usehold commer	cially fish for salr	non this year?	No (Go to	#17) Yes	
			If yes, wh	nere?			
14.	Were all of the subsistence?	e salmon you caug All sold	ght when commerce (Go to #17)	cial fishing sold Some used f	or were some broug or subsistence	ght home to eat or processed	for
15.	How many cor	mmercially caugh	t salmon did your	household use f	or subsistence?		
	CHUM ("DOGS")	CHINOOK ("KINGS")	PINK ("HUMPIES")	SOCKEYE ("REDS")	("SILVERS")	UNKNOWN SALMON	
16.	Were these sal	mon included in t	he estimates you a	already gave me	? No	Yes	
SHF	CEFISH AND	WHITEFISH F	ISHING				
*17.	Did your ho	usehold catch sh	eefish or whitefis	h for subsistend	e use this year?	No(Go to #19) Yes	
18.	Please estimate catch if fishing	e how many sheet g with others). In	fish and whitefish clude fish you cau	your household ght and gave aw	caught for subsister ay, ate fresh, lost to	nce use this year (your share o spoilage, or fed to dogs.	of t
		SHEEFISH		I	VHITEFISH		
*19.	Do you have	any suggestions	or concerns abou	ut subsistence fi	shing?		

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	Community ID#
	HHLL年 NOATAK RIVER AREA
1	1998 SUBSISTENCE SALMON HOUSEHOLD HARVEST SURVEY
1	1776 SUBSISTENCE SALMON HOUSEHOLD HARVEST SURVET
	* Questions marked with an asterisk are asked of all households interviewed
Community:	Household Head Name:
Survey Date:	*Household Size
Interviewer:	Was household in community last year? NoYes
	If no, where were you living?
	Household P.O. Box (if new):
*1. Did your household o	catch salmon for subsistence use or with a rod-and-reel this year?
·	No Yes
*2. Does your household	l <u>usually</u> subsistence fish for salmon? No Yes
FISHING HOUSEHOLD	OS ("Yes" to #1)
 Please estimate how m of the catch if fishing others process fish. 	nany salmon your household caught for subsistence use or with a rod-and-reel this year (your sh with others). Include salmon you gave away, ate fresh, lost to spoilage, or obtained from helpi
CHUMCHIN ("DOGS") ("KIN	NOOK PINK SOCKEYE COHO UNKNOWN SALMON NGS") ("HUMPIES") ("REDS") ("SILVERS")
4. What type(s) of fishing	g gear did your household use for catching subsistence salmon this year?
 What type(s) of fishing SET GIL 	g gear did your household use for catching subsistence salmon this year?
 What type(s) of fishing SET GILI ROD-AND- 	g gear did your household use for catching subsistence salmon this year? LNET SEINE -REEL DRIFT GILL NET
 What type(s) of fishing SET GILI ROD-AND- 4a. How many salmoi 	g gear did your household use for catching subsistence salmon this year? LNET SEINE DRIFT GILL NET n did your household catch and keep with rod-and-reel this year?
 What type(s) of fishing SET GILI ROD-AND- 4a. How many salmoi CHUM ("DOGS") 	g gear did your household use for catching subsistence salmon this year? L NET
 What type(s) of fishing SET GLL ROD-AND- 4a. How many salmon CHUM ("DOGS") 	g gear did your household use for catching subsistence salmon this year? L NET SEINE -REEL DRIFT GILL NET on did your household catch and keep with rod-and-reel this year? CHINOOK PINK ("KINGS") ("HUMPIES")
 What type(s) of fishing SET GLI ROD-AND- 4a. How many salmon <u>Сним</u> ("DOGS") Did your household gi 	g gear did your household use for catching subsistence salmon this year? L NET -REEL DRIFT GILL NET n did your household catch and keep with rod-and-reel this year? CHINOOK PINK SOCKEYE COHO ("KINGS") ("HUMPLES") ("REDS") ("SILVERS") give salmon to other households this year? No Yes
 What type(s) of fishing SET GILL ROD-AND- 4a. How many salmon CHUM ("DOGS") Did your household gi How was subsistence 	g gear did your household use for catching subsistence salmon this year? L NET
 What type(s) of fishing SET GILI ROD-AND- 4a. How many salmon <u>CHUM</u> ("DOGS") Did your household gi How was subsistence <u>VERY GOOD</u> 	g gear did your household use for catching subsistence salmon this year? LNET
 What type(s) of fishing SET GLI ROD-AND- 4a. How many salmon <u>Сним</u>("bogs") Did your household gi How was subsistence of VERY good 	g gear did your household use for catching subsistence salmon this year? L NET
 What type(s) of fishing SET GILI ROD-AND- 4a. How many salmon <u>CHUM</u> ("DOGS") Did your household gi How was subsistence of <u>VERY GOD</u> Did your household ca No. (Casta #1) 	g gear did your household use for catching subsistence salmon this year? LNET
 What type(s) of fishing SET GILI ROD-AND- 4a. How many salmon <u>CHUM</u> ("DOOS") Did your household gi How was subsistence of <u>VERY GOOD</u> Did your household ca <u>No</u> (Go to #13) 	g gear did your household use for catching subsistence salmon this year? LNET
 What type(s) of fishing SET GILI ROD-AND- 4a. How many salmon <u>CHUM</u> ("DOGS") Did your household gi How was subsistence of <u>VERY GOOD</u> Did your household ca No <u>(Go to #13</u>) How many salmon did 	g gear did your household use for catching subsistence salmon this year? LNET
 What type(s) of fishing SET GILI ROD-AND- How many salmon CHUM Did your household gi How was subsistence of VERY GOOD Did your household ca No (Go to #13 How many salmon did CHUM CHINO ("DOGS") ("KING") 	g gear did your household use for catching subsistence salmon this year? LNET
 What type(s) of fishing SET GILI ROD-AND- 4a. How many salmon <u>CHUM</u> ("DOGS") Did your household gi How was subsistence of <u>VERY GOOD</u> Did your household ca <u>No</u> (Go to #13 How many salmon did <u>CHUM</u> <u>CHINO</u> ("DOGS") <u>CHINO</u> Wornsthe of the same of the sa	g gear did your household use for catching subsistence salmon this year? LNET
 What type(s) of fishing SET GILI ROD-AND- 4a. How many salmon <u>CHUM</u> ("DOGS") Did your household gi How was subsistence <u>VERY GOOD</u> Did your household ca No <u>(Go to #13</u>) How many salmon did <u>CHUM</u> ("DOGS") ("KINC 9. Were these salmon income (CHUM) ("DOGS") (CHUM) 	g gear did your household use for catching subsistence salmon this year? LNET
 What type(s) of fishing SET GILI ROD-AND- 4a. How many salmon <u>CHUM</u> ("DOGS") Did your household gi How was subsistence of <u>VERY GOOD</u> Did your household ca No (Go to #13 How many salmon did <u>CHUM</u> CHING ("DOGS") CHING Were these salmon inco 10. How many dogs does 	g gear did your household use for catching subsistence salmon this year? LNET

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DN-FISHING HOUSEHOLDS ("No" to #1) . Did your household help another household fish, cut or hang salmon, or process it some other way? NoYes . Did your receive salmon in exchange for your help? No Yes . Did you receive salmon in exchange for your help? No Yes . If yes, please estimate how many salmon you received for your household. (Do not include fish from a F&G CHUM CHINOOK PDNK SOCKEYE COHO UNKNOWN SALMON ("bods") ("KINGS") ("HUMPLES") ("REDS") ("SILVERS") UNKNOWN SALMON (Go DMMERCIAL FISHING 3. Did your household commercially fish for salmon this year? No (Go to #17) Yes If yes, where? . Were all of the salmon you caught when commercial fishing sold or were some brought home to eat or process subsistence? All sold (Go to #17) Some used for subsistence ? . How many commercially caught salmon did your household use for subsistence? COHO	(Go to #
 Did your household help another household fish, cut or hang salmon, or process it some other way? NoYes	(Go to # G test net (o to #13)
Did you receive salmon in exchange for your help? No Yes If yes, please estimate how many salmon you received for your household. (Do not include fish from a F&G CHUM	G test net
If yes, please estimate how many salmon you received for your household. (Do not include fish from a F&G CHUM	G test net
CHUMCHINOOKPINKSOCKEYECOHOUNKNOWN SALMON("REDS") ("Ge (Ge ("HUMPIES") ("REDS") ("SILVERS") OMMERCIAL FISHING If yes, where? No(Go to #17) Yes . Were all of the salmon you caught when commercial fishing sold or were some brought home to eat or proces subsistence? All sold(Go to #17) Some used for subsistence . How many commercially caught salmon did your household use for subsistence? COHOUNKNOWN SALMON . How many commercially caught salmon did your household use for subsistence? UNKNOWN SALMON . How many commercially caught salmon did your household use for subsistence? UNKNOWN SALMON	ssed for
(Ge OMMERCIAL FISHING 3. Did your household commercially fish for salmon this year? No (Go to #17) Yes If yes, where? No (Go to #17) Yes Were all of the salmon you caught when commercial fishing sold or were some brought home to eat or proces subsistence? All sold (Go to #17) Some used for subsistence How many commercially caught salmon did your household use for subsistence? How many commercially caught salmon did your household use for subsistence? CHUM CHINOOK PINK SOCKEYE COHO UNKNOWN SALMON ("DOGS") ("KINOS") ("HUMPIES") ("REDS") ("SILVERS") Were these salmon included in the estimates you already gave me? No Yes ROUT (CHAR) AND WHITEFISH FISHING 7. Did your household catch trout or whitefish for subsistence use this year? No (Go to #19) Yes	to to #13)
DMMERCIAL FISHING 3. Did your household commercially fish for salmon this year? No (Go to #17) Yes If yes, where? . Were all of the salmon you caught when commercial fishing sold or were some brought home to eat or proces subsistence? All sold (Go to #17) Some used for subsistence . How many commercially caught salmon did your household use for subsistence? CHUM CHINOOK PINK SOCKEYE COHO UNKNOWN SALMON ("bogs") ("KENGS") ("HUMPES") ("REDS") ("SILVERS") . Were these salmon included in the estimates you already gave me? No Yes COUT (CHAR) AND WHITEFISH FISHING 7. Did your household catch trout or whitefish for subsistence use this year? No (Go to #19) Yes	essed for
3. Did your household commercially fish for salmon this year? No	essed for
If yes, where? Some used for subsistence Some used for subsistence? CHUM	essed for
Were all of the salmon you caught when commercial fishing sold or were some brought home to eat or proces subsistence? All sold (Go to #17) Some used for subsistence How many commercially caught salmon did your household use for subsistence?	essed for
. How many commercially caught salmon did your household use for subsistence? CHUM CHINOOK PINK SOCKEYE COHO UNKNOWN SALMON ("DOGS") ("KINGS") ("HUMPIES") SOCKEYE COHO UNKNOWN SALMON . Were these salmon included in the estimates you already gave me? No Yes	
CHING CHINGOK FINK SOCKETE COND ONKNOWN SALMON ("DOGS") ("KINGS") ("HUMPIES") ("REDS") ("SILVERS") ONKNOWN SALMON . Were these salmon included in the estimates you already gave me? No Yes	
. Were these salmon included in the estimates you already gave me? No Yes ROUT (CHAR) AND WHITEFISH FISHING 7. Did your household catch trout or whitefish for subsistence use this year? No(Go to #19) Yes	_
ROUT (CHAR) AND WHITEFISH FISHING 7. Did your household catch trout or whitefish for subsistence use this year? No(Go to #19) Yes	
ROUT (CHAR) AND WHITEFISH FISHING 7. Did your household catch trout or whitefish for subsistence use this year? No(Go to #19) Yes	
7. Did your household catch trout or whitefish for subsistence use this year? No(Go to #19) Yes	
. Please estimate how many trout and whitefish your household caught for subsistence use this year (your share catch if fishing with others). Include fish you caught and gave away, ate fresh lost to spoilage or fed to dogs	e of the
TROUT Whitefish	,0.
9. Do you have any suggestions or concerns about subsistence fishing?	

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			COMMUNITY ID#
	KOBUK RIV	'ER AREA	
199	99 SUBSISTENCE SALMON HC	DUSEHOLD HARVEST	SURVEY
	* Questions marked with an asterisk are	asked of all households intervie	wed
Community:	H	Household Head Name:	
Survey Date:	×	Household Size	situ last year? No Ves
	I	f no. where were vou livir	102?
	ŀ	Iousehold P.O. Box (if ne	w):
*1 Did your hourshold gat	tah salman fan subsistanaa usa an	with a red and real this	voor9
1. Did your nousenoid cat	ten samon for subsistence use of	No Yes	
*2. Does your household us	usually subsistence fish for salmon	? No Yes	
FISHING HOUSEHOLDS	("Voc" to #1)		
2 Diaga actimata how man	ny salman yayr hausahald aayabt f	or subsistance use or with	a rad and real this year (your she
of the catch if fishing wir others process fish.	ith others). Include salmon you ga	ve away, ate fresh, lost to	spoilage, or obtained from helpin
CHUM CHINOO	DK PINK SOCK	ЕУЕ Соно	UNKNOWN SALMON
("DOGS") ("KINGS	S") ("HUMPIES") ("REI	DS") ("SILVERS")	
4 What type(c) of fishing a	gear did your household use for catc	hing subsistence salmon t	his year?
4. What type(s) of fishing g			
SET GIL NI	NET	Seine	
What type(s) of fishing g Set gell N Rod-And-rei	иет сец Drn did b Drn	SEINE	-0
ч. What type(s) of fishing g Set gill м Rod-and-rei 4a. How many salmon d Сним	иет zel Drii did your household catch and keep Снімоок Рімк	SEINE PT GILL NET with rod-and-reel this yea SOCKEYE	r? Соно
4. What type(s) of fishing g Set gill Ni Rod-And-Rei 4a. How many salmon d CHUM ("DOGS")	EEL DRII CHINOOK PINK ("KINGS") ("HUMPIES")	SEINE FT GILL NET with rod-and-reel this yea Sockeye ("REDS")	r? Coho ("Silvers")
 4. What type(s) of fishing gives SET GILL NI ROD-AND-REI 4a. How many salmon d CHUM	TET DRII DEL DRII did your household catch and keep CHINOOK PINK ("KINGS") ("HUMPLES") e salmon to other households this yo	SEINE PT GILL NET with rod-and-reel this yea SOCKEYE ("REDS") ear? No	r? Coho ("silvers") Yes
 4. What type(s) of fishing gives SET GILL NI ROD-AND-REI 4a. How many salmon d CHUM_ ("DOGS") 5. Did your household give 	TeT DRI SEL DRI did your household catch and keep CHNOOK PINK ("KINGS") ("HUMPIES") e salmon to other households this ye	SEINE FT GILL NET with rod-and-reel this yea SOCKEYE ("REDS") ear? No	r? Coho ("silvers") Yes
 4. What type(s) of fishing gives SET GELL NI ROD-AND-REI 4a. How many salmon d CHUM ("DOGS") 5. Did your household give 6. How was subsistence <u>chi</u>	Ter DRI EEL DRI did your household catch and keep CHINOOK PINK ("KINGS") ("HUMPIES") e salmon to other households this your hum salmon fishing for your househ AVERAGE Poor	SEINE YT GILL NET with rod-and-reel this yea SOCKEYE ("REDS") ear? No ear? No old this year? F POOR, WHY?	r? Coho ("silvers") Yes
 4. What type(s) of Hishing gives SET GEL NI ROD-AND-REI 4a. How many salmon d CHUM ("DOGS") 5. Did your household give 6. How was subsistence chives 6. How was subsistence chives 	Ter DRI CHINOOK PINK ("KINOS") ("HUMPTES") e salmon to other households this year hum salmon fishing for your househ Poor	SEINE PT GILL NET with rod-and-reel this yea SOCKEYE ("REDS") ear? No ear? No old this year? F POOR, WHY?	r? Coho ("silvers") Yes
 4. What type(s) of fishing gives SET GEL NI ROD-AND-REI 4a. How many salmon d CHUM	Ter DRI Ter DRI did your household catch and keep CHINOOK PINK ("KINGS") ("HUMPIES") e salmon to other households this your num salmon fishing for your househ AVERAGEPOOR In Ch salmon specifically for dog food' Only backbones/heads/guts/scrap	SEINE TI GILL NET with rod-and-reel this yea SOCKEYE ("REDS") ear? No ear? No old this year? F POOR, WHY? ? (Using salmon for dog f ps/spoiled fish (Go to	r? COHO ("SILVERS") Yes Yes `ood is allowed by regulations.) #13) Yes(Go to #8)
 4. What type(s) of fishing gives SET GEL NI ROD-AND-REI 4a. How many salmon d CHUM ("DOGS") 5. Did your household give 6. How was subsistence chi	Image: Set in the set in	SEINE TI GILL NET with rod-and-reel this year SOCKEYE ("REDS") ear? No old this year? F POOR, WHY? ? (Using salmon for dog f pos/spoiled fish (Go to (Do not include fish lost to	r? COHO ("SILVERS") Yes Yes Yes Yes(Go to #8) o spoilage and fed to deep)
 4. What type(s) of fishing gives SET GELL NI ROD-AND-REI 4a. How many salmon di CHUM ("DOGS") 5. Did your household give 6. How was subsistence <u>chi</u> VERY GOOD 7. Did your household catc: No (Go to #13) 8. How many salmon did y CHUM CHINOOK, 	EEL DRI did your household catch and keep CHINOOK PINK ("KINGS") ("HUMPIES") e salmon to other households this your hum salmon fishing for your househ AVERAGEPOOR In ch salmon specifically for dog food? Only backbones/heads/guts/scrap your household catch for dog food? K PINK Sockey	SEINE TI GILL NET with rod-and-reel this year SOCKEYE ("REDS") ear? No old this year? F POOR, WHY? ? (Using salmon for dog f DS/Spoiled fish (Go to (Do not include fish lost f E Coho	r? COHO ("SILVERS") Yes Yes Cood is allowed by regulations.) #13) Yes(Go to #8) o spoilage and fed to dogs.) UNKNOWN SALMON
 4. What type(s) of Hishing gives SET GILL NI ROD-AND-REI 4a. How many salmon di CHUM ("DOGS") 5. Did your household give 6. How was subsistence chi	TET DRIN CEL DRIN did your household catch and keep CHINOOK CHINOOK PINK ("KINGS") ("HUMPIES") e salmon to other households this yes num salmon fishing for your househ AVERAGE POOR Chino specifically for dog food? Only backbones/heads/guts/scrap your household catch for dog food? X PINK SOCKEY ") ("HUMPIES")	SEINE TI GILL NET with rod-and-reel this year SOCKEYE ("REDS") ear? No old this year? F POOR, WHY? ? (Using salmon for dog f ps/spoiled fish (Go to (Do not include fish lost to E COHO) ("SLVERS")	r? COHO Yes Yes Tood is allowed by regulations.) #13) Yes(Go to #8) o spoilage and fed to dogs.) UNKNOWN SALMON
 4. What type(s) of fishing gives SET GELL NI ROD-AND-REI 4a. How many salmon di CHUM ("DOGS") 5. Did your household give 6. How was subsistence <u>chi</u> VERY GOOD	HET DRIN EEL DRIN did your household catch and keep CHINOOK C'HINOOK PINK ("KINGS") ("HUMPIES") e salmon to other households this youth salmon fishing for your households POOR In AVERAGEPOOR In DRIN ChromagePOOR In DRIN ChromagePOOR In DRIN ChromagePOOR In DRIN ChromagePOOR In DRIN ChromagePOOR In DRIN ChromagePOOR In DRIN ChromagePOOR In DRIN ChromagePOOR In DRIN ChromagePOOR In DRIN Chromage DRIN Chromage DRIN Chromage DRIN Chromage Sockey Throw CHROMAGE Uded in the estimates you already gate DRIN	SEINE YT GILL NET with rod-and-reel this year SOCKEYE ("REDS") ear? No old this year? F POOR, WHY? ? (Using salmon for dog f pos/spoiled fish (Go to (Do not include fish lost t E COHO D ("SILVERS") we me? No Yes	r? COHO ("SILVERS") Yes Yes Cood is allowed by regulations.) #13) Yes(Go to #8) o spoilage and fed to dogs.) UNKNOWN SALMON
 What type(s) of fishing gives SET GELL NI ROD-AND-REI 4a. How many salmon d CHUM ("DOGS") Did your household give 6. How was subsistence chi	Image: CHINOOK DRIN CHINOOK PINK ("KINGS") ("HUMPIES") e salmon to other households this year num salmon fishing for your households this year	SEINE TI GILL NET with rod-and-reel this year SOCKEYE ("REDS") ear? No old this year? F POOR, WHY? ? (Using salm on for dog f ps/spoiled fish (Go to (Do not include fish lost to E COHO ("SILVERS") we me? No Yes	r? COHO ("SILVERS") Yes Yes Yes(Go to #8) o spoilage and fed to dogs.) UNKNOWN SALMON (Go to #13)
 4. What type(s) of Hishing g SET GEL NI ROD-AND-REI 4a. How many salmon d <u>CHUM</u> ("DOGS") 5. Did your household give 6. How was subsistence <u>chi</u> 	HET	SEINE TI GILL NET with rod-and-reel this year SOCKEYE ("REDS") ear? No old this year? F POOR, WHY? ? (Using salmon for dog f ps/spoiled fish (Go to (Do not include fish lost the E COHO ("SILVERS") we me? No Yes	r? COHO 'SILVERS") Yes 'Ood is allowed by regulations.) #13) Yes(Go to #8) o spoilage and fed to dogs.) UNKNOWN SALMON (Go to #13)

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	1999 SUBSISTENCE SALMON HOUSEHOLD HARVEST SURVEY (CON'T)	
NO	N-FISHING HOUSEHOLDS ("No" to #1)	
11.	Did your household help another household fish, cut or hang salmon, or process it some other way? No(G	o to #1
12.	Did you receive salmon in exchange for your help? No Yes	
	If yes, please estimate how many salmon you received for your household. (Do not include fish from a F&G test	st net.
	CHUM CHINOOK PINK SOCKEYE COHO UNKNOWN SALMON ("DOGS") ("KINGS") ("HUMPIES") ("REDS") ("SILVERS") (COHO	 lo to #:
CO	MMERCIAL FISHING	
*13	Did your household commercially fish for salmon this year? No (Go to #17) Yes If yes, where?	
14.	Were all of the salmon you caught when commercial fishing sold or were some brought home to eat or processed subsistence? All sold(Go to #17) Some used for subsistence	1 for
15.	How many commercially caught salmon did your household use for subsistence?	
	CHUM CHINOOK PINK SOCKEYE COHO UNKNOWN SALMON ("DOGS") ("KINGS") ("HUMPIES") ("REDS") ("SILVERS") UNKNOWN SALMON	
16.	Were these salmon included in the estimates you already gave me? No Yes	
SH1	EEFISH AND WHITEFISH FISHING	
10	. Did your nousenoid catch sheerish or whitehish for subsistence use this year? NO (G to #19) $1es$	C 4
18.	catch if fishing with others). Include fish you caught and gave away, ate fresh, lost to spoilage, or fed to dogs.	e oi u
	Sheefish Whitefish	
*19	. Do you have any suggestions or concerns about subsistence fishing?	

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	Community ID#
	HHLL# NOATAK RIVER AREA
1999 S	UBSISTENCE SALMON HOUSEHOLD HARVEST SURVEY
	* Ouestions marked with an asterisk are asked of all households interviewed
Community:	Household Head Name:
Survey Date:	*Household Size
Interviewer:	Was household in community last year? NoYes
	If no, where were you living?
	Household F.O. Box (If flew).
*1. Did your household catch	salmon for subsistence use or with a rod-and-reel this year?
	NoYes
*2. Does your household <u>usua</u>	<u>llv</u> subsistence fish for salmon? No Yes
FISHING HOUSEHOLDS ("Y	Yes" to #1)
 Please estimate how many s of the catch if fishing with c others process fish. 	almon your household caught for subsistence use or with a rod-and-reel this year (your shar thers). Include salmon you gave away, ate fresh, lost to spoilage, or obtained from helping
CHUM CHINOOK ("LOGS") ("KINGS")	PINK SOCKEYE COHO UNKNOWN SALMON ("HUMPIES") ("REDS") ("SILVERS")
	did your household use for catching subsistence salmon this year?
4. What type(s) of fishing gear	
 What type(s) of fishing gear Set GLL NET_ 	Seine
 What type(s) of lishing gear Set gill net _ Rod-and-reel _ 	Seine Drift gill net
 What type(s) of fishing gear Set GILNET_ ROD-AND-REEL_ 4a. How many salmon did 2000 000000000000000000000000000000000	SEINE DRIFT GILL NET your household catch and keep with rod-and-reel this year?
 What type(s) of fishing gear Set gill net _ Rod-and-reel _ 4a. How many salmon did y <u>CHUM</u> C ("Dogs") (" 	SEINE DRIFT GILL NET your household catch and keep with rod-and-reel this year? 'HINOOK PINK SOCKEYE COHO "KINGS") ("HUMPTES")
 What type(s) of fishing gear SET GILLNET _ ROD-AND-REEL _ 4a. How many salmon did y <u>CHUM</u> C ("DOGS") (' 5. Did your household give sal 	SEINE
 What type(s) of fishing gear SET GILLNET _ ROD-AND-REEL _ 4a. How many salmon did y <u>CHUM</u> C ("DOGS") (' Did your household give sal How was subsistence <u>chum</u> VERY GOOD 	SEINE
 What type(s) of fishing gear SET GILL NET _ ROD-AND-REEL _ 4a. How many salmon did y <u>CHUM</u> C ("DOGS") (" Did your household give sal How was subsistence <u>chum</u> <u>VERY GOOD</u> Did your household catch se NO (Go to #13) C 	SEINE
 What type(s) of fishing gear SET GILL NET _ ROD-AND-REEL _ 4a. How many salmon did y <u>CHUM</u> C ("DOGS") (' Did your household give sal How was subsistence <u>chum</u> 	
 What type(s) of fishing gear SET GILL NET _ ROD-AND-REEL _ 4a. How many salmon did y <u>CHUM</u> C ("DOGS") (' Did your household give sal 6. How was subsistence <u>chum</u> <u>VERY GOOD</u> Did your household catch sa No (Go to #13) C 8. How many salmon did your <u>CHUM</u> CHINOOK ("DOGS") ("KINGS") 9. Were these salmon included 	
 What type(s) of fishing gear SET GILL NET _ ROD-AND-REEL_ 4a. How many salmon did y <u>CHUM</u> C ("DOGS") (' Did your household give sal How was subsistence <u>chum</u> <u>VERY GOOD</u> ('' Did your household catch se NO (Go to #13) C How many salmon did your <u>CHUM</u> ("DOGS") ("KINGS") 9. Were these salmon included 10. How many dogs does your household solutions of the second solution of the second solution	

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	1999 SUBSISTENCE SALMON HOUSEHOLD HARVEST SURVEY (CON'T)
NO	DN-FISHING HOUSEHOLDS ("No" to #1)
11.	Did your household help another household fish, cut or hang salmon, or process it some other way? No(Go to #
12.	Did you receive salmon in exchange for your help? No Yes
	If yes, please estimate how many salmon you received for your household. (Do not include fish from a F&G test ne
	CHUM CHINOOK PINK SOCKEYE COHO UNKNOWN SALMON ("DOGS") ("KINGS") ("HUMPIES") ("REDS") ("SILVERS") UNKNOWN SALMON
	(Go to #13)
60	
×13	JUMERCIAL FISHING 3. Did vour household commercially fish for salmon this year? No (Go to #17) Yes
	If yes, where?
14.	Were all of the salmon you caught when commercial fishing sold or were some brought home to eat or processed for subsistence? All sold (Go to #17) Some used for subsistence
15.	How many commercially caught salmon did your household use for subsistence?
	CHUM CHINOOK PINK SOCKEYE COHO UNKNOWN SALMON ("DOGS") ("KINGS") ("HUMPIES") ("REDS") ("SILVERS")
16.	Were these salmon included in the estimates you already gave me? No Yes
TR	OUT (CHAR) AND WHITEFISH FISHING
*17	7. Did your household catch trout or whitefish for subsistence use this year? No(Go to #19) Yes
18.	Please estimate how many trout and whitefish your household caught for subsistence use this year (your share of the catch if fishing with others). Include fish you caught and gave away, ate fresh lost to spoilage, or fed to does
	TROUT WhiteFish
*19). Do you have any suggestions or concerns about subsistence fishing?

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	Community	r ID#
	HI KOBUK RIVER AREA	HID#
	2000 SUDSISTENCE SALMON HOUSEHOLD DHADVEST SUDVEV	
	2000 SUBSISTENCE SALMON HOUSEHOLD HARVEST SURVET	
	* Questions marked with an asterisk are asked of all households interviewed	
Community:	Household Head Name:	
Survey Date:	*Household Size	
Interviewer:	If new household, where were you living last year?	
	(If new household) P.O. Box:	
*1. Did your hous	isehold catch salmon for subsistence use or with a rod-and-reel this year?	
*2 De	100 cm 105	
*2. Does your not	Jusenoid <u>usually</u> subsistence fish for salmon? No 1 es	
FISHING HOUSI	EHOLDS ("Yes" to #1)	
3. Please estimate of the catch if a others process	te how many salmon your household caught for subsistence use or with a rod-and-reel this year (fishing with others). Include salmon you gave away, ate fresh, lost to spoilage, or obtained fro s fish.	(your sha om helpin
CHUM ("DOGS")	CHINOOK PINK SOCKEYE COHO UNKNOWN SALMON ("KINGS") ("HUMPIES") ("REDS") ("SILVERS") UNKNOWN SALMON	
4. What type(s) of	of fishing gear did your household use for catching subsistence salmon this year?	
••••	Set gill net Seine	
Re	Xod-and-reel Drift gill net	
4a. (If rod-and CHUM	d-reel was used) How many salmon did your household catch and keep with rod-and-reel this your household catch and keep with rod-and-reel	ear?
4а. (If rod-and CHUM_ ("DOGS" 5. Did your house	ad-reel was used) How many salmon did your household catch and keep with rod-and-reel this y CHNOOK PINK ("KINGS") PINK ("HUMPIES") SOCKEYE Sehold give salmon to other households this year? No Yes Yes	ear?
 4a. (If rod-and <u>Сним_</u> ("bogs" 5. Did your house 6. How was subs: <u>Very go</u> 	ad-reel was used) How many salmon did your household catch and keep with rod-and-reel this y CHNOOK PINK ("KINGS") PINK ("HUMPIES") SOCKEYE ("REDS") ("SILVERS") sehold give salmon to other households this year? No year Yes sistence chum salmon fishing for your household this year? ood Average Poor	ear?
 4a. (If rod-and CHUM_("DOGS" 5. Did your house 6. How was subs:VERY go 7. Did your house No() 	ad-reel was used) How many salmon did your household catch and keep with rod-and-reel this y CHNOOK PINK SOCKEYE COHO "") ("KINGS") ("KINGS") ("HUMPIES") Sockeye COHO ("REDS") ("SILVERS") sehold give salmon to other households this year? No Sockeye POOR If poor, why? Sehold catch salmon specifically for dog food? (Using salmon for dog food is allowed by regula (Go to #13) Yes (Go to #13) Yes	ations.)
 4a. (If rod-and CHUM_("DOGS") 5. Did your house 6. How was subs:VERY go 7. Did your house No(") If Household Fish 	ad-reel was used) How many salmon did your household catch and keep with rod-and-reel this y CHINOOK PINK SOCKEYE COHO s") ("KINGS") ("HUMPIES") SOCKEYE COHO sehold give salmon to other households this year? No Yes	ations.) o #8)
 4a. (If rod-and CHUM_("DOGS") 5. Did your house 6. How was subs:VERY go 7. Did your house No(" If Household Fish 8. How many salt CHUM_("DOGS") 	ad-reel was used) How many salmon did your household catch and keep with rod-and-reel this y CHINOOK PINK SOCKEYE COHO S") ("KINGS") ("HUMPIES") ("REDS") COHO sehold give salmon to other households this year? No Yes	ear? ations.) o #8) gs.)
 4a. (If rod-and CHUM_("DOGS") 5. Did your house 6. How was subs:VERY go 7. Did your house No(" If Household Fish 8. How many salt CHUM_("DOGS") 9. Were these sal 	ad-reel was used) How many salmon did your household catch and keep with rod-and-reel this y CHNOOK PINK SOCKEYE COHO S") ("KINGS") ("HUMPTES") ("REDS") COHO sehold give salmon to other households this year? No Yes	ear? o #8) gs.)

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	2000 SUBSISTENCE SALMON HOUSEHOLD HARVEST SURVEY (CON'T)
NO	N-FISHING HOUSEHOLDS ("No" to #1)
11.	Did your household help another household fish, cut or hang salmon, or process it some other way? No(Go to #
12.	Did you receive salmon in exchange for your help? No Yes
	If yes, please estimate how many salmon you received for your household. (Do not include fish from a F&G test net
	CHUM CHINOOK PINK SOCKEYE COHO UNKNOWN SALMON ("DOGS") ("KINGS") ("HUMPTES") ("REDS") ("SILVERS") ("SILVERS")
CO	MMERCIAL FISHING
*13	. Did your household commercially fish for salmon this year? No (Go to #17) Yes If yes, where?
14.	Were all of the salmon you caught when commercial fishing sold or were some brought home to eat or processed for subsistence? All sold (Go to #17) Some used for subsistence
15.	How many commercially caught salmon did your household use for subsistence? Chum Chinook PINK Sockeye Coho UNKNOWN SALMON ("DoGs") ("KINGS") ("HUMPIES") ("BLDS") ("SILVERS") UNKNOWN SALMON
16.	Were these salmon included in the estimates you already gave me? No Yes
SHI	EEFISH AND WHITEFISH FISHING
*17.	. Did your household catch sheefish or whitefish for subsistence use this year? No(Go to #19) Yes
18.	Please estimate how many sheefish and whitefish your household caught for subsistence use this year (your share of catch if fishing with others). Include fish you caught and gave away, ate fresh, lost to spoilage, or fed to dogs. SHEEFISH WHITEFISH
*19.	. Do you have any suggestions or concerns about subsistence fishing?

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		Con	IMUNITY ID#
	NOATAK F	RIVER AREA	HHID#
20	00 SUBSISTENCE SALMON F	IOUSEHOI D HADVEST SUDVEV	
20	00 SUBSISTENCE SALMONT.	IOUSEHOLD HARVEST SURVET	
	* Questions marked with an asterisk	are asked of all households interviewed	
Community:		Household Head Name:	
Survey Date:		*Household Size	
Interviewer:		If new household, where were you living la	ast year?
		(If new household) P.O. Box:	
*1. Did your household ca	itch salmon for subsistence use (No Yes	
*? Does your household i	1511ally subsistence fish for salm	on? No Ves	
2. Dous your nousenoru			
FISHING HOUSEHOLDS	S ("Yes" to #1)		
3. Please estimate how ma of the catch if fishing w others process fish.	ny salmon your household caught ith others). Include salmon you s	t for subsistence use or with a rod-and-reel tl gave away, ate fresh, lost to spoilage, or obta	his year (your sha ained from helpin
CHUM CHINO ("DOGS") ("KINO	DK РІNK So 's") ("HUMPIES") ("I	CKEYE COHO UNKNOWN REDS") ("SILVERS")	SALMON
4 What true a(a) of fishing	gear did your household use for ca	atching subsistence salmon this year?	
4. what type(s) of fishing			
4. what type(s) of fishing Set gill:	JET	Seine	
4. What type(s) of fishing Set gill: Rod-and-r	NET D.	SEINE RIFT GILL NET	
4. What type(s) of fishing Set gill: Rod-and-r 4a. (If rod-and-reel was	VET D. EEL D. used) How many salmon did you	SEINE RIFT GILL NET Ir household catch and keep with rod-and-rea	el this year?
4. What type(s) of fishing SET GILL: ROD-AND-R 4a. (If rod-and-reel was CHUM	NET D. EEL D. Used) How many salmon did you CHINOOK PINK ("KINOS") ("HUMPIES")	SEINE RIFT GILL NET Ir household catch and keep with rod-and-red Sockeye Coho) ("REDS") ("SILVERS")	el this year?
 What type(s) of fishing SET GIL: ROD-AND-R 4a. (If rod-and-reel was CHUM	RET D. USEd) How many salmon did you <u>CHINOOK PINK</u> ("KINOS") ("HUMPIES") e salmon to other households this	SEINE RIFT GILL NET Ir household catch and keep with rod-and-red SOCKEYE Coho) ("REDS") ("SILVERS") year? No Yes	el this year?
 What type(s) of fishing SET GEL: ROD-AND-R 4a. (If rod-and-reel was <u>CHUM</u> ("DOGS") 5. Did your household giv 6. How was subsistence <u>c</u> VERY GOOD 	KET D EEL D used) How many salmon did you CHINOOK CHINOOK PINK ("KINOS") ("HUMPHES") e salmon to other households this num salmon fishing for your hous	SEINE RIFT GILL NET Ir household catch and keep with rod-and-rea SOCKEYE Coho ("REDS") ("SILVERS") year? No Yes ehold this year? IF POOR, WHY?	el this year?
 What type(s) of fishing SET GEL: ROD-AND-R 4a. (If rod-and-reel was <u>CHUM</u> ("DOGS") Did your household giv How was subsistence <u>c</u> VERY GOOD Did your household cat No (Go to #13) 	XET D: EEL D: used) How many salmon did you CHINOOK CHINOOK PINK ("KINGS") ("HUMPLES") e salmon to other households this num salmon fishing for your hous	SEINE RIFT GILL NET Ir household catch and keep with rod-and-red SOCKEYE COHO ("REDS") ("SILVERS") year? No Yes ehold this year? IF POOR, WHY? bd? (Using salmon for dog food is allowed b raps/spoiled fish (Go to #13) Yes	el this year? y regulations.) (Go to #8)
 What type(s) of fishing SET GEL: ROD-AND-R 4a. (If rod-and-reel was CHUM	NET D. EEL D. used) How many salmon did you CHINOOK PINK ("KINOS") ("HUMPIES") e salmon to other households this	SEINE RIFT GILL NET Ir household catch and keep with rod-and-red SOCKEYE COHO ("REDS") ("SILVERS") year? NO Yes ehold this year? IF POOR, WHY? Dd? (Using salmon for dog food is allowed b raps/spoiled fish (Go to #13) Yes	el this year? oy regulations.) (Go to #8)
 What type(s) of fishing SET GEL: ROD-AND-R 4a. (If rod-and-reel was CHUM	KET D: EEL D: used) How many salmon did you CHENOOK PINK CHENOOK PINK ("HUMPIES") e salmon to other households this <u>num</u> salmon fishing for your hous	SEINE	by regulations.) (Go to #8)
 What type(s) of fishing SET GEL: ROD-AND-R 4a. (If rod-and-reel was <u>CHUM</u>("DOGS") Did your household giv How was subsistence <u>c</u> 	KET D. EEL D. used) How many salmon did you CHENOOK PINK ("KINGS") ("HUMPIES") e salmon to other households this num salmon fishing for your hous AVERAGE POOR Ch salmon specifically for dog food Only backbones/heads/guts/scr og Food: YOUR household catch for dog food wour household catch for dog food SOCK ") ("HUMPIES") SOCK YOUR household catch for dog food uded in the estimates you already SOCK	SEINE	by regulations.) (Go to #8)

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	2000 SUBSISTENCE SALMON HOUSEHOLD HARVEST SURVEY (CON'T)
NO	N-FISHING HOUSEHOLDS ("No" to #1)
11.	Did your household help another household fish, cut or hang salmon, or process it some other way? No(Go to
12.	Did you receive salmon in exchange for your help? No Yes
	If yes, please estimate how many salmon you received for your household. (Do not include fish from a F&G test r
	CHUM CHINOOK PINK SOCKEYE COHO UNKNOWN SALMON ("DOGS") ("KINGS") ("HOMPIES") ("REDS") ("SLIVERS") UNKNOWN SALMON
	(Go to #13
~ ~	
CO:	MMERCIAL FISHING
~13.	If yes, where?
14.	Were all of the salmon you caught when commercial fishing sold or were some brought home to eat or processed for subsistence? All sold (Go to #17) Some used for subsistence
15.	How many commercially caught salmon did your household use for subsistence?
	CHUM CHINOOK PINK SOCKEYE COHO UNKNOWN SALMON ("DOGS") ("KINGS") ("HUMPIES") ("REDS") ("SILVERS")
16.	Were these salmon included in the estimates you already gave me? No Yes
TR	OUT (CHAR) AND WHITEFISH FISHING
*17	. Did your household catch trout or whitefish for subsistence use this year? No(Go to #19) Yes
18.	Please estimate how many trout and whitefish your household caught for subsistence use this year (your share of th
	catch it fishing with others). Include fish you caught and gave away, ate fresh, lost to spoilage, or fed to dogs.
	1K001 WHIEFISH
*19	. Do vou have any suggestions or concerns about subsistence fishing?
	,

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	Community ID#
	HHID# KOBUK RIVER AREA
2001 SU	JBSISTENCE SALMON HOUSEHOLD HARVEST SURVEY
sje	Questions marked with an asterisk are asked of all households interviewed
Community:	Household Head Name:
Survey Date: Interviewer:	'Household Size If new household, where were you living last year?
	(If new household) P.O. Box:
*1. Did your household catch s	almon for subsistence use or with a rod-and-reel this year?
	No Yes
*2. Does your household <u>usuall</u>	ly subsistence fish for salmon? No Yes
FISHING HOUSEHOLDS ("Y	'es" to #1)
3. Please estimate how many sa of the catch if fishing with ot	lmon your household caught for subsistence use or with a rod-and-reel this year (your shar thers). Include salmon you gave away, ate fresh, lost to spoilage, or obtained from helping
others process fish.	
others process fish. <u>Сним </u>	PINK SOCKEYE COHO UNKNOWN SALMON ("HUMPIES") ("REDS") ("SILVERS")
others process fish. <u>CHUM</u> <u>CHINOOK</u> ("DOGS") ("KINGS") 4. What type(s) of fishing gear d	PINK SOCKEYE COHO UNKNOWN SALMON ("HUMPIES") ("REDS") ("SILVERS") UNKNOWN SALMON did your household use for catching subsistence salmon this year?
others process fish. <u>CHUM</u> <u>CHINOOK</u> ("DOGS") ("KINGS") 4. What type(s) of fishing gear d SET GILL NET_	PINK SOCKEYE COHO UNKNOWN SALMON ("HUMPIES") ("REDS") ("SILVERS") UNKNOWN SALMON did your household use for catching subsistence salmon this year? SEINE
others process fish. CHUM CHINOOK ("DOGS") ("KINGS") 4. What type(s) of fishing gear d SET GILL NET ROD-AND-REEL	PINK SOCKEYE COHO UNKNOWN SALMON ("HUMPIES") ("REDS") ("SILVERS") UNKNOWN SALMON did your household use for catching subsistence salmon this year?
others process fish. <u>CHUM</u> CHINOOK ("DOGS") ("KINGS") 4. What type(s) of fishing gear d SET GILL NET ROD-AND-REEL 4a. (If rod-and-reel was used <u>CHUM</u> CE ("DOGS") ("I	PINK SOCKEYE COHO UNKNOWN SALMON ("HUMPIES") ("REDS") ("SILVERS") UNKNOWN SALMON did your household use for catching subsistence salm on this year? SEINE
others process fish. <u>CHUM</u> <u>CHINOOK</u> ("DOGS") ("KINGS") 4. What type(s) of fishing gear d <u>SET GILL NET</u> <u>ROD-AND-REEL</u> 4a. (If rod-and-reel was used <u>CHUM</u> <u>CE</u> ("DOGS") ("1 5. Did your household give salm	PINK SOCKEYE COHO UNKNOWN SALMON did your household use for catching subsistence salmon this year?
 others process fish. <u>CHUM</u> <u>CHINOOK</u> ("DOGS") ("KINGS") 4. What type(s) of fishing gear d SET GILL NET <u>ROD-AND-REEL</u> 4a. (If rod-and-reel was used <u>CHUM</u> <u>CHUM</u> <u>CHUM</u> 5. Did your household give salm 6. How was subsistence <u>chum</u> s <u>URY GOOD</u> <u>A</u> 	PINKSOCKEYECOHOUNKNOWN SALMON did your household use for catching subsistence salmon this year? SEINE DRIFT GILL NET d) How many salmon did your household catch and keep with rod-and-reel this year? HINOOK PINKSOCKEYE COHO NOCK PINK NOCK Yes Salmon fishing for your household this year? AVERAGE POOR IF POOR, WHY?
 others process fish. <u>CHUM</u> CHINOOK ("DOGS") ("KINGS") 4. What type(s) of fishing gear d SET GILL NET	PINK SOCKEYE COHO UNKNOWN SALMON did your household use for catching subsistence salmon this year?
others process fish. CHUM CHINOOK ("DOGS") CHINOOK ("KINGS") 4. What type(s) of fishing gear d SET GILL NET ROD-AND-REEL 4a. (If rod-and-reel was used CHUM CHUM CE ("DOGS") (") 5. Did your household give salm 6. How was subsistence chum sVERY GOODA 7. Did your household catch sal No (Go to #13) Or If Household Fished for Dog Fo	PINK SOCKEYE COHO UNKNOWN SALMON ("HUMPIES") ("REDS") ("SILVERS") UNKNOWN SALMON did your household use for catching subsistence salmon this year? DRIFT GILL NET
others process fish. <u>CHUM</u> <u>CHINOOK</u> ("DOGS") ("KINGS") 4. What type(s) of fishing gear d <u>SET GILL NET</u> <u>ROD-AND-REEL</u> 4a. (If rod-and-reel was used <u>CHUM</u> <u>CHUM</u> <u>CHUM</u> 5. Did your household give salr 6. How was subsistence <u>chum</u> s <u>CHUM</u> <u>CHU</u>	PINKSOCKEYECOHOUNKNOWN SALMON ("HUMPIES") ("REDS") ("SILVERS") SEINE DRIFT GILL NET DINKSOCKEYECOHO NONKNON Yes NONPINKNO Yes NONPOORNOR Yes NONPOORNOR Yes NON specifically for dog food? (Using salmon for dog food is allowed by regulations.) Inly backbones/heads/guts/scraps/spoiled fish(Go to #13) Yes(Go to #8) pod: household catch for dog food? (Do not include fish lost to spoilage and fed to dogs.) NK
others process fish. CHUM CHINOOK ("DOGS") CHINOOK ("KINGS") 4. What type(s) of fishing gear d SET GILL NET ROD-AND-REEL 4a. (If rod-and-reel was used CHUM CF ("DOGS") ("I 5. Did your household give salm 6. How was subsistence chum sVERY GODA 7. Did your household catch sal No(Go to #13) Or If Household Fished for Dog Fo 8. How many salmon did your H CHUM CHINOOK ("DOGS") ("KINGS") 0. Ware these scheme included at the	PINK SOCKEYE COHO UNKNOWN SALMON did your household use for catching subsistence salmon this year?
others process fish. CHUM CHINOOK ("DOGS") ("KINGS") 4. What type(s) of fishing gear d SET GILL NET ROD-AND-REEL 4a. (If rod-and-reel was used CHUM CHUM CHUM CHUM CHUM CHUM CHUM CHUM	PINK SOCKEYE COHO UNKNOWN SALMON Idd your household use for catching subsistence salmon this year? SEINE

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		2001 SUBSIST	KO ENCE SALMON	BUK RIVER A 1 HOUSFHOLI	REA NHADVEST SUD	VEV (CON'T)	
		2001 50 169151	EI/CE SALMON	HOUSEHOLI	HARVEST SON		
NOI	N-FISHING H	OUSEHOLDS	("No" to #1)				
11.	Did your house	ehold help anothe	er household fish,	cut or hang salm	on, or process it so	me other way? No Yes	(Go to #1 -
12.	Did you receiv	e salmon in exch	ange for your help	9? No	Yes		
	If yes, please	estimate how man	ny salmon you rec	eived for your h	ousehold. (Do not	include fish from a F&G t	test net
	CHUM ("DOGS")	CHINOOK ("KINGS")	PINK ("HUMPIES")	Sockeye ("reds")	Coho ("silvers")	UNKNOWN SALMON	
							(Go to #
COI	MERCIAL I	FISHING			2.7		
*13.	Did your hou	ischold commer	cially fish for sali If yes, wh	non this year? here?	No (Go to	#17) Yes	
14.	Were all of the subsistence?	salmon you cauş All sold	ght when commerce (Go to #17)	cial fishing sold Some used f	or were some broug	ght home to eat or process	sed for
15.	How many cor	nmercially caugh	t salmon did your	household use f	or subsistence?		
	Chum ("Dogs")	CHINOOK ("KINGS")	PINK ("HUMPIES")	Sockeye ("reds")	Coho ("silvers")	UNKNOWN SALMON	-
16.	Were these sal	mon included in 1	the estimates you a	already gave me	? No	Yes	
CIII	TELCII AND		ETHNO				
эпг *17.	Did your hou	whill Erish r. isehold catch sh	eefish or whitefis	h for subsistenc	e use this year?	No (Go to #19) Ye	s
18.	Please estimate	e how many shee:	fish and whitefish	your household	caught for subsiste	nce use this year (your sha	are of t
		SHEEFISH	erade fisht y ea eaa	.5in and 5are an	VHITEFISH	spondge, or red to dogs.	
*19.	Do you have	any suggestions	or concerns abou	ut subsistence fi	shing?		
		. 00			0		

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	Community ID#
	HHLL# NOATAK RIVER AREA
2001 SUBSISTI	ENCE SALMON HOUSEHOLD HARVEST SURVEY
* Questions	marked with an asterisk are asked of all households interviewed
Community:	Household Head Name:
Interviewer:	If new household, where were you living last year?
	(If new household) P.O. Box:
*1. Did your household catch salmon fo	or subsistence use or with a rod-and-reel this year? No Yes
*2. Does your household usually subsis	stence fish for salmon? No Yes
FISHING HOUSEHOLDS ("Yes" to #1	
 Please estimate how many salmon yo of the catch if fishing with others). I others process fish. 	ur household caught for subsistence use or with a rod-and-reel this year (your shar nclude salmon you gave away, ate fresh, lost to spoilage, or obtained from helping
CHUM CHINOOK ("DOGS") ("KINGS")	PINK Sockeye Coho Unknown Salmon ("HUMPIES") ("Reds") ("Silvers")
4. What type(s) of fishing gear did your l	household use for catching subsistence salmon this year?
Set gill net	Seine
SET GILL NET ROD-AND-REEL 4a. (If rod-and-reel was used) How m	SEINE DRIFT GILL NET nany salmon did your bousehold catch and keen with rod-and-reel this year?
Set GILL NET Rod-And-reel 4a. (If rod-and-reel was used) How m CHUM CHINOOK ("DOGS") ("KINGS")	SEINE DRIFT GILL NET nany salmon did your household catch and keep with rod-and-reel this year? PINK Sockeye Coho ("HUMPIES") ("REDS") ("SILVERS")
SET GILL NET ROD-AND-REEL 4a. (If rod-and-reel was used) How m CHUM CHINOOK ("DOGS") CHINOOK ("KINGS") 5. Did your household give salmon to of	SEINE DRIFT GILL NET nany salmon did your household catch and keep with rod-and-reel this year? PINK Sockeye Coho ("HUMPIES") ("REDS") ("SILVERS") ther households this year? No Yes
SET GILL NET ROD-AND-REEL 4a. (If rod-and-reel was used) How m CHUM CHINOOK ("DOGS") CHINOOK ("KINGS") 5. Did your household give salmon to of 6. How was subsistence <u>chum</u> salmon fi VERY GOODAVERAGE	SEINE DRIFT GILL NET anny salmon did your household catch and keep with rod-and-reel this year? PINK SOCKEYE COHO ("HUMPIES") ("REDS") ("SILVERS") ther households this year? Yes ishing for your household this year? POOR IF POOR, WHY?
SET GILL NET ROD-AND-REEL 4a. (If rod-and-reel was used) How m <u>CHUM</u> CHINOOK ("DOGS") ("KINGS") 5. Did your household give salmon to of 6. How was subsistence <u>chum</u> salmon fi VERY GOODAVERAGE 7. Did your household catch salmon spe No (Go to #13) Only backl	SEINE
SET GILL NET ROD-AND-REEL 4a. (If rod-and-reel was used) How m CHUM CHINOOK ("DOGS") ("KINGS") 5. Did your household give salmon to of 6. How was subsistence <u>chum</u> salmon fi VERY GOODAVERAGE 7. Did your household catch salmon spe No (Go to #13) Only backl If Household Fished for Dog Food:	SEINE
SET GILL NET ROD-AND-REEL 4a. (If rod-and-reel was used) How m <u>CHUM</u> <u>CHINOOK</u> ("DOGS") ("KINGS") 5. Did your household give salmon to of 6. How was subsistence <u>chum</u> salmon to 6. How was subsistence <u>chum</u> salmon to 7. Did your household catch salmon spe No (Go to #13) Only backl If Household Fished for Dog Food: 8. How many salmon did your househol <u>CHUM</u> <u>CHINOOK</u> PI ("KINGS") ("KINGS") ("	SEINE
SET GILL NET ROD-AND-REEL 4a. (If rod-and-reel was used) How m CHUM CHINOOK ("DOGS") ("KINGS") 5. Did your household give salmon to of 6. How was subsistence <u>chum</u> salmon fi VERY GOODAVERAGE 7. Did your household catch salmon spe NO (Go to #13) Only backl If Household Fished for Dog Food: 8. How many salmon did your househol <u>CHUM CHINOOK PI</u> ("DOGS") ("KINGS") (" 9. Were these salmon included in the es	SEINE
SET GILL NET ROD-AND-REEL 4a. (If rod-and-reel was used) How m <u>CHUM</u> CHINOOK ("DOGS") C'HINOOK ("KINGS") 5. Did your household give salmon to of 6. How was subsistence <u>chum</u> salmon to <u></u>	SEINE

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	2001 SUBSISTENCE SALMON HOUSEHOLD HARVEST SURVEY (CON'T)	
NO	N-FISHING HOUSEHOLDS ("No" to #1)	
11.	Did your household help another household fish, cut or hang salmon, or process it some other way? No(Go	to #1
12.	Did you receive salmon in exchange for your help? No Yes	
	If yes, please estimate how many salmon you received for your household. (Do not include fish from a F&G test	net
	CHUM CHINOOK PINK SOCKEYE COHO UNKNOWN SALMON ("DOGS") ("KINGS") ("HUMPIES") ("REDS") ("SILVERS") UNKNOWN SALMON	
	(Go to #	3)
~ ~ ~		
CO] *13	MMERCIAL FISHING Did your bousebold commercially fish for salmon this year? No. (Constating) Vas	
15.	If yes, where?	
14.	Were all of the salmon you caught when commercial fishing sold or were some brought home to eat or processed subsistence? All sold (Go to #17) Some used for subsistence	for
15.	How many commercially caught salmon did your household use for subsistence?	
	CHUM CHINOOK PINK SOCKEYE COHO UNKNOWN SALMON ("DOGS") ("KINGS") ("HUMPIES") ("REDS") ("SILVERS")	
16.	Were these salmon included in the estimates you already gave me? No Yes	
TR	OUT (CHAR) AND WHITEFISH FISHING	
*17.	Did your household catch trout or whitefish for subsistence use this year? No(Go to #19) Yes	_
18.	Please estimate how many trout and whitefish your household caught for subsistence use this year (your share of t	the
	TROUT Trout WhiteFish	
*19.	. Do you have any suggestions or concerns about subsistence fishing?	

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				Сомм	IUNITY ID# <u>25(</u> HH ID#
	2002 SUBSIST	ENCE SALMON	HARVEST S	URVEY	
		Νοάτακ			
	* Questions marked v	vith an asterisk are asked	of all households inter	viewed	
Survey Date:		*Hous	ehold Size		
Interviewer:		(If new	household) P.O.	Box:	
*1. Did your household*2. Does your household	fish for salmon for su d <u>usually</u> subsistence f	bsistence use this ye ish for salmon?	ar (including wi YES 🗖 (Go to #2, t YES 🗖	th a rod-and-reel)? No 🖨 hen to #3) (Go to # No 🗖	2, then to #11)
of the catch if fishing others process fish. <u>Сним</u> Сни ("boos") ("к 4. What type(s) of fishin 4a. <i>(lf rod-and-reel w</i>	g with others). Include NOOKPINK INGS'') ("HUMP ag gear did your househo Set GILL NET ROD-AND-REEL Was used) How many sal CHINOOK ("KINGS'')	salmon you gave aw Sockeye ("REDS") old use for catching s Drift o mon did your housel PINK ("HUMPIES")	Ay, ate fresh, lost	to spoilage, or obtair UNKNOWN SA n this year? ep with rod-and-reel COHO ("SILVERS") VES	ed from helping LMON this year?
 CHUM ("DOGS") 5. Did your household § 6. How was subsistence VERY GOOD 	give salmon to other hou e <u>chum</u> salmon fishing f Average D Poor	Iseholds this year? or your household th	is year? Y?	125	
 CHUM ("DOGS") 5. Did your household § 6. How was subsistence VERY GOOD 7. Did your household on No (Go to #13) 	give salmon to other hou e <u>chum</u> salmon fishing f Average Poor catch salmon specificall Only backbones/r	Iseholds this year? or your household th IF POOR, WE y for dog food? (Usi eads/guts/scraps/spo	ng salmon for do	g food is allowed by o #13) YES 🗖 ((regulations.) Go to #8)

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	20.02)#
	2002	SUBSISTENCE S	ALMON HAR	VEST SURVEY (C	ON'T)	
If Household Did .	NOT Subsisten	e Fish for Salmon	ı ("No" to #1):			
11. Did your house	ehold help anoth	er household fish, c	eut or hang salm	on, or process it son	ne other way? No 🗖 (Go YES 🗖	to #13)
12. Did you receiv	e salmon in excl	ange for your help	? No 🗖 Y	ES 🗖		
(If yes) Please	estimate how m	any salmon you rec	eived for your	nousehold.		
CHUM ("DOGS")	CHINOOK ("KINGS")	PINK ("HUMPIES")	Sockeye ("reds")	Соно ("Silvers")	Unknown Salmon	_
					(Go to	#13)
COMMERCIAL	FISHING	aiolla fich fon colu				
*15. Did your not	isenoid commer	If yes, where?	ion this year?		IES 🖵	
14. Were all of the subsistence?	salmon you cau All sold 🕻	ght when commerc (Go to #17)	ial fishing sold Some used for	or were some brougl subsistence 🗖	nt home to eat or processe	d for
15. How many cor	nmercially caug	nt salmon did your	household use f	or subsistence?		
CHUM ("DOGS")	CHINOOK ("KINGS")	PINK ("HUMPIES")	Sockeye ("reds")	Coho ("silvers")	UNKNOWN SALMON	
16. Were these sal	mon included in	the harvest estimat	es you gave me	in #3? No 🗖	YES 🗖	
TROUT (CHAR)	AND WHITEF	ISH FISHING				
*17. Did your hou	isehold catch tr	out or whitefish fo	or subsistence (ise this year? No	(Go to #19) YES	נ
 Please estimate catch if fishing 	e how many trou ; with others). Ir	: and whitefish you clude fish you cau	r household cau ght and gave aw	ght for subsistence u ay, ate fresh, lost to	ise this year (your share of spoilage, or fed to dogs.	f the
	Trout		T	WHITEFISH		
*19. Do you have	any suggestions	or concerns abou	ıt subsistence f	ishing?		

IZEBUE SUUN ska Department	of Fish and Game				HH ID#
Community:					
Survey Date: Interviewer:			Hou (If new househ	sehold Size: old) PO Box:	
sehold participation i	s voluntary. Individual hou	sehold data will not be r	eleased without permiss	on of household head	
id your household	fish for salmon for subs	sistence use this year ((including with a rod ar	id reel)? 🛛 YES 🔲 NO	
loes your househol	ld <u>usually</u> subsistence fi	ish for salmon?		D YES D NO	
SALMON FISHING		"Yes" to #1)			
lease estimate how n eport only your share rocess fish	nany salmon your househo e of the catch if fishing wit	old caught for subsistenc h others. Include salmor	ce use this year, including n you gave away, ate fres	g with a rod and reel. It is importan h, fed to dogs, lost to spollage, or c	t not to double count fish harvest btained from helping others
	NN	IMBER OF SALMON YO	OUR HOUSEHOLD HAF	VESTED	
	SUBSISTENCE	ROD AND REEL	Salmon Kept From	Of your total harvest, how	
SPECIES	GILL NET or SEINE (Number of fish)	(Number of fish)	Commercial Fishing (Number of fish)	many salmon were caught specifically for dog food?	
CHUM SALMON					
IINOOK SALMON					
King					
PINK SALMON					
CKEYE SALMON					
Red					
COHO SALMON Silver					
low was subsistenc J Very Good	se chum salmon fishing □ Average □	for your household th i Poor If poor, why? _	is year?		
oid vour household	aive salmon to other ho	useholds this vear?	L VES L NO		

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Community:				
Survey Date:				
usehold participation is voluntary. Individual houser		Househc (If new household) I	ld Size: 0 Box:	
	old data will not be re	eleased without permission o	household head	
Did your household fish for salmon for subsist	ence use this year (i	including with a rod and re	el)? 🗆 YES 🗖 NO	
Does your household <u>usually</u> subsistence fish i	or salmon?		D YES D NO	
R SALMON FISHING HOUSEHOLDS ONLY ("Ye	s" to #1]			
Please estimate how many salmon your household o Report only your share of the catch If fishing with ot process fish	aught for subsistenc ners. Include salmon	e use this year, including wit you gave away, ate fresh, fe	r a rod and reel. It is important i I to dogs, lost to spoilage, or ob	not to double count fish harvests. tained from helping others
NUMB	ER OF SALMON YO	UR HOUSEHOLD HARVES	TED	
	ROD AND REEL	Salmon Kept From Of	your total harvest, how	
GILL NET OF SEINE SPECIES (Number of fish)	(Number of fish)	(Number of fish) SI	any saimon were caught ecifically for dog food?	
CHUM SALMON Dog				
HINOOK SALMON				
King				
PINK SALMON Humby				
OCKEYE SALMON Red				
COHO SALMON				
Silver				
How was subsistence <u>chum</u> salmon fishing for	your household thi or If poor, why? _	s year?		
Did your household give salmon to other house	holds this year?	D YES D NO		

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