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**Nuniwaarmiut Subsistence Chum Salmon Fishery,  
1995**

by

**Mary C. Pete**

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1995

Alaska Department of Fish and Game

Division of Subsistence



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<b>Weights and measures (metric)</b>		<b>General</b>		<b>Mathematics, statistics</b>	
centimeter	cm	Alaska Administrative Code	AAC	<i>all standard mathematical signs, symbols and abbreviations</i>	
deciliter	dL	all commonly-accepted abbreviations	e.g., Mr., Mrs., AM, PM, etc.	alternate hypothesis	$H_A$
gram	g			base of natural logarithm	e
hectare	ha			catch per unit effort	CPUE
kilogram	kg	all commonly-accepted professional titles	e.g., Dr., Ph.D., R.N., etc.	coefficient of variation	CV
kilometer	km			confidence interval	CI
liter	L	at	@	correlation coefficient (multiple)	R
meter	m	compass directions:		correlation coefficient (simple)	r
milliliter	mL	east	E	covariance	cov
millimeter	mm	north	N	degree (angular)	$^{\circ}$
		south	S	degrees of freedom	df
<b>Weights and measures (English)</b>		west	W	expected value	E
cubic feet per second	ft <sup>3</sup> /s	copyright	©	greater than	>
foot	ft	corporate suffixes:		greater than or equal to	≥
gallon	gal	Company	Co.	harvest per unit effort	HPUE
inch	in	Corporation	Corp.	less than	<
mile	mi	Incorporated	Inc.	less than or equal to	≤
nautical mile	nmi	Limited	Ltd.	logarithm (natural)	ln
ounce	oz	District of Columbia	D.C.	logarithm (base 10)	log
pound	lb	et alii (and others)	et al.	logarithm (specify base)	log <sub>2</sub> , etc.
quart	qt	et cetera (and so forth)	etc.	minute (angular)	'
yard	yd	exempli gratia (for example)	e.g.	not significant	NS
		Federal Information Code	FIC	null hypothesis	$H_0$
<b>Time and temperature</b>		id est (that is)	i.e.	percent	%
day	d	latitude or longitude	lat. or long.	probability	P
degrees Celsius	°C	monetary symbols (U.S.)	\$, ¢	probability of a type I error (rejection of the null hypothesis when true)	$\alpha$
degrees Fahrenheit	°F	months (tables and figures)	first three letters (Jan, ..., Dec)	probability of a type II error (acceptance of the null hypothesis when false)	$\beta$
degrees kelvin	K	registered trademark	®	second (angular)	"
hour	h	trademark	™	standard deviation	SD
minute	min	United States (adjective)	U.S.	standard error	SE
second	s	United States of America (noun)	USA	variance	
		U.S.C.	United States Code	population	Var
<b>Physics and chemistry</b>		U.S. state	two-letter abbreviations (e.g., AK, WA)	sample	var
<i>all atomic symbols</i>					
alternating current	AC	<b>Measures (fisheries)</b>			
ampere	A	fork length	FL		
calorie	cal	mid-eye-to-fork	MEF		
direct current	DC	mid-eye-to-tail-fork	METF		
hertz	Hz	standard length	SL		
horsepower	hp	total length	TL		
hydrogen ion activity (negative log of)	pH				
parts per million	ppm				
parts per thousand	ppt, ‰				
volts	V				
watts	W				

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by

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1995

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***Nuniwaarmiut* Subsistence Chum Salmon Fishery, 1995**

**by**

**Mary C. Pete  
Bethel, Alaska**

**for**

**Bering Sea Fishermen's Association  
Anchorage, Alaska**

**November 1995**

## ABSTRACT

This study documented fishing camps, fishing areas, effort and participation, and harvest levels of chum salmon on Nunivak Island in 1995. This is the second ~~community~~ <sup>island</sup> wide harvest survey; a previous one was conducted in 1965. Harvest information was generated for each fishing family, either from direct observation, interviews or averages based on knowledgeable respondents' estimates. Most families camped along the south side of the island; several camped and fished <sup>^</sup>along the east side and one fished from Mekoryuk. ✓

Although all five species of Pacific salmon occur on the island, chum salmon appear to be the most numerous, next to coho, and the most important for local food. A total of 4,695 chum salmon were harvested by 21 fishing families comprised of 34 households in 1995. Nearly one-half of all households in Mekoryuk participated in subsistence chum salmon production. The harvest converted to a total 28,170 pounds of chum salmon on the island — three to four times the total harvest of herring in the early 1990s.

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Many thanks to Daniel Albrecht of Bering Sea Fishermen's Association for offering me this opportunity to learn about Nunivak Island and the people who flourish there. I had always wanted to spend more time on the island since conducting herring surveys there. The assistance, sense of humor and many questions of Ken Cash, the survey biologist, kept me on my toes and allowed my to see things in a new light. The hospitality, kindness, teaching, and delicious food provided by Abraham and Mona David was invaluable. Last but not least, the people of Nunivak Island were patient and good-humored through all my questions and verbal observations. I thank them all.

## INTRODUCTION

This report describes findings of a survey of Mekoryuk families who fished for chum salmon (*Oncorhynchus keta*), or *iqalluk*, on Nunivak Island in summer 1995. Lying in the Bering Sea about 23 miles off the mainland in southwest Alaska, Nunivak Island spans 1,109,400 millions acres and one community, Mekoryuk, with 197 people in 60 households in 1995. Nearly all families and households who fished for chum salmon, contributed harvest and fishing area information, resulting in the most complete survey of chum salmon fishing and effort since 1965 (US, Department of the Interior 1965). ✓

All five species of Pacific salmon occur on the island (ibid; Alaska Department of Fish and Game 1994), but only chum and coho (*Oncorhynchus kisutch*) return to local streams in numbers sufficient for subsistence harvest. Of the two species, chum salmon are the most important salmon species for local food. In recent years, the Alaska Department of Fish and Game, Division of Commercial Fisheries (1994) has administered a calendar mailout questionnaire for subsistence salmon harvest to selected Mekoryuk households, however, return rates have been very low. The goals and methods of the 1965 were similar to those of this study: to conduct a chum salmon subsistence harvest and stream reconnaissance survey throughout the island (US Department of the Interior). Further, the project aimed to obtain local information on recent changes in chum salmon numbers subsistence productivity, particularly during the 1993 season, when chum salmon returns were low in other western Alaska rivers (Alaska Department of Fish and Game 1994).

## METHODOLOGY

From 1990 through 1993, the surveyor conducted subsistence herring surveys in Mekoryuk (Pete 1990; Pete 1991a; Pete 1991b; 1992; 1993), so she had experience and a database from which to frame goals and methods for this subsistence salmon survey project. The employment of a local couple to assist with subsistence surveys and to serve as host and guide for the surveyor and the stream survey biologist greatly expedited the research process. They were willing to identify and contact local fishing families, update the

household census, and to document Cup'ik placenames for salmon spawning streams and fish camps.

After two days of preliminary work in Mekoryuk, the surveyor spent a week at fish camps along the south side of Nunivak Island, where the most productive chum salmon streams are, hence where most of the subsistence fishing effort and production occurs. Camps along the east and south east coast of the island were visited either enroute to the south side or on the way back to Mekoryuk. Only camps along the southwest side were not visited, however, most families who fished from those camps were contacted in Mekoryuk or by telephone from Bethel. Most harvesting and processing information was gathered from direct observation and participation in activities, while fishing area information was derived from interviews, and harvest data was derived from a combination of counts from salmon drying racks and interviews.

Twenty-one fishing families including 34 households were identified as participating in subsistence chum salmon production. Most families (74 percent) and households were contacted while on Nunivak Island or by telephone from Bethel (16 percent). The remainder (10 percent) either did not have telephones or did not provide harvest information, although they did indicate where they fished. Missing harvest data was calculated either from the average harvest of the families who provided these data or from an estimated range of harvest assigned by key respondents knowledgeable about these families' harvest patterns and their production this year.

## FINDINGS

### **Brief History**

The Central Yup'ik Eskimo pronunciation of the island has provided the English name for Nunivak Island. However, the proper name for the island in Cup'ik, the distinctive dialect of Yup'ik spoken on the island is *Nuniwaaq*. Similar to other Yup'ik societies, Nunivak Islanders take their societal name from the toponym: *Nuniwaarmiut*,

"inhabitants of *Nuniwaaq*" (*nuni-* means "to settle (land)" and is related to *nuna*, the word for "land").

The earliest censuses identifying communities and areas in southwest Alaska documented 400 people on Nunivak Island in 1880 (U.S. Department of the Interior 1884) and 700 people in nine communities on the island in 1890 (U.S. Department of the Interior 1893). However, after the 1900 measles and influenza epidemic ravaged western Alaska (Wolfe 1982), the island's population fluctuated between a low of 127 people in 1910 and a high of 249 people in 1970 (Rollins 1978). As late as 1940, Nunivak Island had seven year-round settlements (Lantis 1946); by 1950, there were two year-round communities — Mekoryuk and Nash Harbor (Rollins 1978). Mekoryuk is the only permanent community left on the island today.

*many local resources. These included* A detailed ethnographic study in 1939-40 documented Nuniwaarmiut harvesting four species of hair seal, walrus, beluga, sea lion, three species of salmon (chum, coho, and pink salmon), halibut, Pacific cod, saffron cod, wolf fish, Dolly Varden, herring and herring spawn-on-kelp, stickleback (needlefish), smelt, several species of whitefish, "dogfish" (a species of shark), numerous types of shellfish and marine invertebrates, several species of flounder and sculpin, many species of waterfowl and sea birds and their eggs, ptarmigan, arctic and red fox, mink, weasel, reindeer (formerly caribou, until they were decimated and reindeer were introduced), and an occasional polar bear and dolphin (Lantis 1946). Many plant species and driftwood were also collected. Most of these species and resources are still harvested and used today, with the addition of muskox, which were transplanted to the island in the 1930s and grew to harvestable numbers in the 1970s. Nunivak Islanders are renowned traders of marine mammals products dried salmon from communities along the Kuskokwim River (Lantis 1946), a practice in evidence today. Mekoryuk residents still travel throughout the entire island and along its coast to hunt, fish, and gather wild resources.

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### **Fish Camps and Fishing Areas**

Families fishing from camps along the south side of the island often traveled on a larger aluminum boat (24-29 feet long) while towing a smaller 14 to 18 foot aluminum boat. The smaller boat was used to set and tend gillnets or seines in salmon spawning streams.

Most of the productive salmon spawning streams occur along the south side of the island. Further, the weather on the south side of the island being considerably warmer than the north side is more conducive to drying fish in late June and early July.

In 1995, Mekoryuk families fished from eleven camps, as well as from Mekoryuk. Nine of the camps were along the south side of the island and two were along the east coast (Table 1). Seven camps were situated at the outlets of salmon spawning streams and the remainder were along the coast. Most families had substantial wood framed wall tents, between 10 x 12 or 12 x 14 feet in size. Outhouses (both homemade and portable commercially made), storage sheds, drying racks, and steambaths were common structures. Several camps with good level alpine tundra had basketball poles set up. Several camps also had sod houses, used mostly during winter hunting trips (see Appendix 1).

Many other subsistence activities occurred during salmon fishing and drying. Families also fished for halibut, Pacific and saffron cod, flounder, sole, and Dolly Varden, hunted waterfowl, gathered edible plants, muskox wool, and grass for baskets, beachcombed for rope, glass floats, and buoys, and enjoyed the area. Once fishing and processing was <sup>completed and fish were on drying racks</sup> done, families visited each other and had meals and steambaths.

Families reported fishing from 15 salmon spawning streams (Table 1). Most of these stream<sup>s</sup> were relatively short (5 to 10 miles in length) with a short stretch near the mouth marginally navigable even at high tide with small aluminum boats. The average yield per stream was between 285 to 318 chum and the range was 70 to 600 fish per stream (Table 1). Families camped at spawning stream outlets <sup>understandably</sup> caught all or most of their salmon <sup>for</sup> the nearby stream.

**TABLE 1. FISH CAMPS, NUMBERS OF FISHING FAMILIES  
AND HOUSEHOLDS, AND ESTIMATED CHUM SALMON  
CATCH BY RIVER ON NUNIVAK ISLAND, 1995**

Fish Camp and/or River placename <sup>a</sup>	<u>Numbers of Fishing Families</u>		Estimated number of chums taken from river
	Camping (Households)	Fishing	
<i>Amiigtulirmiut</i> (or <i>Amig'tulirmiut?</i> ): river and camp	3 (4)	3	350-425
<i>Carwarmiut</i> : river		?	?
<i>Iqangmiut</i> : river		3	600
<i>Kangirtulirmiut</i> : river		5	600
<i>Kituqatararmiut</i> : camp and river	1 (2)	1	70-100
<i>Kuicararmiut</i> : river		3	600
<i>Kuigmiut</i> : river		2	200-300
<i>Mecagmiut</i> : camp and river	1 (1)	2	200-300
<i>Mikuryaq</i> : community and river	1 (2)	? <sup>b</sup>	150
<i>Narulqirnararmiut</i> : camp	1 (1)		
<i>Nunarlugarmiut</i> : camp	3 (7)		
<i>Paamiut</i> : camp and river	2 (3)	2	200-300
<i>Penguarmiut</i> : camp	3 (6)		
<i>Qangneryagtalermiut</i> : river		?	
<i>Qayigyalegmiut</i> : river		1	100
<i>Qengartaarmiut</i> : camp	2 (3)		
<i>Tacirmiut</i> : camp and river	1 (1)	5	450
<i>Talungmiut</i> : camp and river	1 (2)	1	300
<i>Ucingurmiut</i> : camp and river	2 (2)	2	450
<b>Total</b>	<b>21 (34)</b>	<b>na<sup>c</sup></b>	<b>4270-4775<sup>d</sup></b>

<sup>a</sup>See Appendix 1 for translations. This does not include all the fish camps or salmon spawning streams on the island, just those reported used in 1995.

<sup>b</sup>Many families get fresh chum to eat from gillnet set by few families along this river. It is likely that other families seined or set nets after the field season, especially for coho.

<sup>c</sup>Totals of this column would not reflect an accurate total because many families fished from more than one river.

<sup>d</sup>Fishing families listed rivers they fished, and when possible estimated catches from particular streams. Otherwise, the researcher apportioned the catch.

## Harvesting

Chum salmon were caught with set gillnets or seines. Although <sup>M</sup>Mostly men fished, <sup>but</sup> it was not uncommon for a married couple to fish together, with the help of one or several of their young adult or adult children. In 1995, most families seined ~~about~~ for three to seven days, with one to three seines a day, usually in one river. Seines caught between 11 to 45 chum <sup>s</sup> per set. Several families used seines exclusively to catch fish and slightly more used only set gillnets; few used a combination of the two methods. Most families reported setting gillnets for up to two days at a stretch in any one stream, with a day-long break or a move to another stream. ✓

Most gillnets ranged between 60 to 150 feet in length with four- to six-inch stretched mesh, and were used for pink and coho salmon as well. Seines ranged from 40 to 70 feet in length, most being 60 feet long with two- to three-inch stretched mesh made of very soft cotton-like string. Few plastic or cork floats threaded through the float line of seines and the lead line was either internally-lead rope or had actual lead sheets wrapped around the lead line at two-foot intervals. Both gillnets and seines were commonly set in the lower reaches of chum salmon spawning streams.

Set gillnets sets followed standard practices found elsewhere — the float line is attached to a pole driven into the ground on one end and stretched perpendicular to shore and anchored to the bottom of the stream on the other end. The webbing lies vertically in the water as the lead line pulls it taut. Entangled fish are pulled off of the webbing from the lead line.

Several people cooperate in seining. One person takes one end of the seine upriver and sweeps out downstream while another stays put onshore with the other end of the seine. Once the person in the water is directly across from one onshore, they both head slowly downriver parallel to each other. Seiners pulling the water-end wear either hip waders neoprene chest waders and can go into relatively pretty deep water (hip deep). As the two people head downriver with the seine, a third person begins heading slowly upriver from about 100 to 200 yards downriver, often near a sand bar where the seine will end up. This person makes noise (sings or whistles), waves their arms, hits the water

with sticks, or throws leaves and pebbles into the water to scare the fish upriver into the seine. As the seiners get closer to the end point, the one holding the end in the water begins to get slightly ahead of one onshore, and the noise maker slowly head downstream to the end spot to keep fish from escaping the catchment area. As the seine is closed, the person onshore pulls the bottom of the seine tighter than the top to prevent fish from swimming below the webbing. The noise make often heads a little ways upriver to scare the fish into the bag of the seine, to prevent the fish from bolting or pulling against the seine. Then the entire bag is pulled on to a sand bar.

Since the chums have been in fresh water for some time, they are very watermarked, with the most intense shades of purple and yellow as they pulled out of the water. These calico chum are called *mac'utaq* by Nuniwaarmiut, a term used for the dried product as well. A few spawnouts and dead, decaying fish, *nalayat*, are caught; depending on their preference, some families keep these to dry and others throw them back into the water. Several elders considered dried *nalayat* a delicacy and sought them out in greater numbers in the past. However, as families spend less time at fish camp and with *nalayat* occurring later in the season for adequate drying, fewer *nalayat* are put away for the winter than was the practice in the past.

## **Processing**

Women perform most of the processing and drying activities, although it is not uncommon for men to behead, gut and wash the fish. Men haul the heads and guts in skiffs out to deeper water away from camps, to discourage sea gulls and ravens from hanging around and picking on drying fish and to keep the camp area clean. Several families made *tep'a*, fermented salmon heads, a delicacy enjoyed throughout Cup'ik and Yup'ik communities in summer and fall.

Female chum are processed like any chum on the mainland (e.g. Charnley 1983); the deboned fillets processed in this manner are called *qup'at*: “split things”. If they were processed like male chum, the thin belly part of the near-spawning females would

roll in and prohibit adequate drying of the belly. Drying chum indicated that catches were between 25 to 30 female.

Male chum are split into blankets, much like king salmon processed by families along the Kuskokwim River (Charnley 1983). The difference is the backbone is left on to counterbalance the weight of the whole fillet when it is hung over the rack. The flesh on the backbone is roughly scored. After a few days of drying, the fleshy end of backbones (about four-inch sections) are cut off to be boiled and eaten as *egamaarrluk* (half-dried, boiled fish or meat), while the less fleshy mid section (also about four-inches) is braided into strings of four, like herring to continue drying. If the drying season is especially difficult (too many flies laying maggots or weather is too wet) the fleshy part of the backbone is thrown out. A two- to three-inch section of the backbone is left attached to half the fillets to be used to pair up the fillets— *aapartat* or *inglukeggtet*: “paired things (split male chum fillets).” The tail of the “host” fillet is cut off, a slit is cut below the caudal peduncle, and the tail and section of backbone of the “guest” fillet is pushed through the slit of the host. After cutting off the backbone, the fillets are put together into pairs so that each fillet will counterbalance the weight of the other as they continue drying on the log racks. Once dry, the pairs are stored, flesh to flesh and skin to skin in bundles of a dozen pairs. This allows them to be squeezed together with minimal exposure of the dried flesh to open air, hence minimizing mold.

Toward the end of fish camp season, if there is a sunny day and a family is anxious to get their catch dried, they may lay out their fish on the black volcanic rocks along the beach to “quick dry.” It usually takes only a day or two longer for fish to dry on the warm dark rocks, eliminating perhaps a day or two from the drying process. This can only be done during the last stage of drying, otherwise the heat from the sun and rocks can burn the flesh and subsequently make the flesh of the essentially fat-free chum rancid.

These fat-free chums are not smoked as part of the drying cycle. Nuniwaarmiut believe that eating too much smoked products can sap them of their energy (Pete 191a), thus they smoke very few of their dried fish products. Only though with relatively high fat content, such as dried herring and king salmon strips, are lightly smoked. Further, the

island is open tundra with few stand of willow and scarce driftwood. A preference for dried, unsmoked chum means wood can serve other uses, notably steambathing.

**Effort and Participation**

All 21 fishing families comprised of 34 households whose heads were current or former Nunivak Island residents. Most were (87 percent) were current residents of Mekoryuk; a few now lived in Bethel (10 percent) or outside the state (3 percent). Several of the families now residing in Bethel reported fishing also for king salmon along the Kuskokwim, but preferred Nunivak Island chum to Kuskokwim chum; they grew up with it and liked the contrasting taste, texture, and flavor.

Of the 60 total households currently resident in Mekoryuk, 28 households or 47 percent of the total were involved in subsistence chum salmon production. This participation rate is similar to that found for herring fishing (Pete 1991a; 1991b; 1992; 1993). In fact, many of the same families who fish for herring also fish for chum salmon. Fishing households were larger and had older household heads (Table 2).

**TABLE 2. NUMBER AND PERCENTAGE OF FISHING HOUSEHOLDS, AVERAGE AND RANGE OF SIZE, AND AVERAGE AGE OF HOUSEHOLD HEADS OF CHUM SALMON FISHING AND NON-FISHING HOUSEHOLDS IN MEKORYUK, 1995**

	<u>Fishing</u>	<u>Non-Fishing</u>
Total Number (Percent): 60	28 (47 %)	32 (53 %)
Average Size:	4	2.7
Range of Size:	1-6	1-9
Average age of household head:	54	46

**Harvest Levels**

The total estimated 1995 subsistence chum salmon harvest in Nunivak Island was 4,695 chum for a total of 28,170 pounds (Table 3). This is three to four times higher than the total harvest of herring by the community of Mekoryuk (Pete 1990; 1991a; 1991b; 1992). The average fishing family harvest was 213 chum with a range of 47 to 550 chum per family. In 1965, the harvest was estimated at 4,256 chum salmon caught by 12 fishing families for an average of 354 chum salmon per family (US Department of the Interior 1965) (Table 3). Per capita harvests by weight (pounds) are the inverse of those by numbers because there were more people in Mekoryuk in 1965 compared to 1995 (Table 3).

**TABLE 3. TOTAL ESTIMATED CHUM SALMON HARVEST, AVERAGE AND RANGE OF FISHING FAMILY HARVEST BY NUMBER AND WEIGHT OF FISH ON NUNIVAK ISLAND, 1965 AND 1995**

	<u>1965<sup>a</sup></u>	<u>1995</u>
Total estimated harvest (in pounds) <sup>b</sup> :	4,256 (25,536)	4,695 (28,170)
Average number harvested by fishing family (household):	354 (na)	213 (138)
Average weight by fishing family in pounds <sup>b</sup> (household)	2,123	1,278
Average weight <sup>b</sup> per capita	102 <sup>c</sup>	142 <sup>d</sup>

<sup>a</sup>Source: US Department of the Interior 1965.

<sup>b</sup>Conversion factor calculated at six pounds per chum salmon because heads are often boiled or fermented for food.

<sup>c</sup>Calculated from the entire population, 250 people.

<sup>d</sup>Calculated from the entire population (N=197). The average would be 251 pounds per capita if only members of households that participated in subsistence salmon production were included.

#### **Changes in Productivity**

Although not all families reported decreased productivity in 1993, many did note difficulty in catching the usual numbers of chum salmon in the expected amount of time. They remembered having to go to more streams to catch what they needed and using more gasoline to fish. Others chose to fish late for coho, which seemed to return in adequate numbers.

In the past, some fluctuations in stream or area productivity are attributed to bay and river channels shifting. Channels too close to either shore or bank are thought to confuse and discourage salmon sufficiently to cause them to mill around or join salmon going to neighboring streams. Decreases in productivity in specific streams have generally been offset by adequate numbers in neighboring systems.

## **SUMMARY AND CONCLUSIONS**

In 1995, subsistence chum salmon fishing on Nunivak Island constituted a major activity engaging many households who produced a large amount of food: 142 pounds per capita in 1995. Most of the fishing camps and salmon producing streams are located along the south and east side of Nunivak Island, thus families move there for three to six weeks in June and July to catch, process and dry chum salmon. They also harvest other subsistence resources, such as halibut, Pacific cod, flounders, saffron cod, Dolly Varden, waterfowl, and edible and structural plants.

The study documented relatively similar harvest rates as those found in 1965. Between 4,200 and 4,700 chums were harvested in 1965 and 1995, respectively. Household participation rates appeared to be higher in 1995. This may be an artifact of more extended families splitting residences in 1995 compared to 1965, when three-generation extended families tended to live in the same household.

There were indications that families experienced some level of difficulty catching as many chum salmon in 1993 as they would have liked, which is the year of the chum salmon collapse in western Alaska spawning streams. Families fishing on Nunivak Island fished more streams or caught more coho salmon to make up for the shortfall.

Previous fluctuations in specific stream productivity is attributed to channel shifting from year to year.

Salmon, particularly chum salmon, are an important resource for residents and families from Nunivak Island. More research is needed to fathom the full complexity of subsistence salmon fishing patterns on the island.

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## APPENDIX 1

### Placenames of Fish Camps and Fishing Streams Used by Fishing Families on Nunivak Island in 1995

Proper Cup'ik/Yup'ik names are in italics. A rough translation adapted in most cases from Jacobson (1984) is offered in quotes; it is understood in the quote that *-miut*: “place with inhabitants of” is part of the translation. Lantis (1946) recorded information on some of these places for 1936-39. She spent most of her time at Mekoryuk and Nash Harbor, so doesn't have as detailed information for the south side. The list goes We went from west to east and north around the island. Many other camps sites and named places are not included. The focus of this project was salmon fishing camps and fishing areas.

*Talungmiut*: something to do with *talu*, or “the partition between the areas of two families in a shared house”; south side; “Daloongmiut” on the map and in Lantis (1946). Two families with two households fished there.

*Qayigyalegmiut*: “place with many spotted seals” according to the Yup'ik dictionary's rendition of the Norton Sound dialect. Mekoryuk people weren't sure what *qayigsaq* meant. On south west side; no families camping this year, although there have been families in the recent past. Water may be getting too low, but the stream still has lots of fish.

*Carwarmiut* (*Carvarmiut* in *Yup'ik*): “strong flowing stream”; south west side; no families at this camp this year. Noted for lots of fish.

*Penacuarmiut*: “small bluff”; south west side; no families camping there this year, but there were in recent years. This spot is near the smaller set of sand dunes.

*Ucingurmiut*: “place to load up”; on the south side just outside and west of *Tacirrlak*. Two families with two household are there.

*Mecagmiut*: “swampy, or wet area”; on south side. One family (currently living in Bethel) is there this year.

The camps are along or have streams flowing into *Tacirrlak*, “one heck of a bay,” just north of Cape Mendenhall and has most of the salmon streams and camps. The bay faces east and offers great protection from rough water and high winds for fish camps along the bay. Traversing the bay becomes problematic at low tide with current technology — was a perfect place to use *qayaqs*.

*Qengartaarmiut*: “like a nose”; at the south side of the mouth of *Tacirrlak*, where the US Fish and Wildlife Service cabin is. Three tents and about five tent frames. Two fishing families with three households are there.

**Penguarmiut:** “small hill”; about 1/3 mile from *Qengartaarmiut*. Nice spot at mouth of little bay that has lots of big mussels available at low tide. These two camps get fresh water from a small spring near the head of the bay. It is quite a little haul to *Qengartaarmiut* with water containers. Three fishing families in six households are there; two of the households live in Bethel.

**Kangirtulirmiut:** “that with a source; head of bay”; no camps there this year. Families still fish along this river.

**Tevcarmiut:** “place to portage”; *Kangirtulirmiut* is a tributary of this stream, but it appears longer on the map. No camps here this year but have been in the past.

**Kuigaarmiut:** “little river”; no families camping here this year, but have in the recent past. Usually families camping at the following place fish in this river as the family there now has. Were two functional sod houses belonging to a pair of siblings.

**Narulqirnarmiut:** “something to do with bringing a harpoon”; this also has a fresh water stream nearby, but families here also to *Tacirmiut* to get water and set their nets. One single-household fishing family was here this year.

**Tacirmiut:** “a sandy bay”; one single-household fishing family established camp here fairly late in the season. This spot is directly across from *Qengartaarmiut*. There is a huge old village side at the mouth of this stream.

The rest of the camps are outside of **Tacirrlak** on the south and east side of the Island.

**Nunarlugarmiut:** “good old bit of land”; the first set of camps just outside of *Tacirrlak*. Actually are visible from the mouth of the bay because there are so many tents. Three fishing families in seven households are at this camp.

**Iqangmiut:** “accumulating dirt”; camp and river across from *Nunarlugarmiut*. This camp is no longer used because its outlet is too shallow -- can't get out at low tide. Used to be used by many families until the channel shifted. Five families fished here.

**Kuicararmiut:** “place of little river”; a branch that shares an outlet with *Iqangmiut* River. No camps here this summer, but five families fished here.

**Paamiut:** “mouth of river or bay”; at the mouth of a small bay that two small rivers flow into (did not get river names confirmed, but have *Paamiut* and *Kiugmiut* as tentative names). Two families in three households fished here.

**Kituqatarmiut:** “about to pass by”; on the east side of the Island. Are two sod houses there. One fishing family in two households (one living in Bethel) fished here. Parents of the household head used to camp on the south side (**Paamiut?**), but the long boat trip south has become too much of burden for his parents.

***Amiigtulirmiut:*** (or *Amig'tulirmiut?* need to get confirmation) “that with skins (used for entryway barriers in sod house)”; on the east side. Three fishing families in four households (one in Bethel) fished here.

***Qangneryagtalegmiut:*** not sure what this means -- *qang* means “no”, but with *-ner*, could be related to *qanglluk* or “hole (deep spot) in the river bed or coastline”; *yagtaleg-* means to “to have many (noun). This is a good place to fish for salmon; families camped at *Amiigtulirmiut* go fishing here when they want to give their river a break. Mekoryuk people come here to fish for coho with rod and reel. No families were camped here this summer, although there have been in the past.

***Mikuryarmiut:*** “to be abundant (usually of fish or insects)”; the proper name of Mekoryuk and the Mekoryuk River. One fishing family with households fished for chum during this summer. Many other households may have gotten fresh salmon for a meal from the set net; the owner of the set net did not keep track of how many fish he gave away. Coho and pink salmon are also harvested from this river.

**TABLE 1. FISH CAMPS, NUMBERS OF FISHING FAMILIES  
AND HOUSEHOLDS, AND ESTIMATED CHUM SALMON  
CATCH BY RIVER ON NUNIVAK ISLAND, 1995**

Fish Camp and/or River placename <sup>a</sup>	Numbers of Fishing Families		Estimated number of chums taken from river
	Camping (Households)	Fishing	
<i>Amiigtulirmiut</i> (or <i>Amig'tulirmiut?</i> ): river and camp	3 (4)	3	350-425
<i>Carwarmiut</i> : river		?	?
<i>Iqangmiut</i> : river		3	600
<i>Kangirtulirmiut</i> : river		5	600
<i>Kituqatarmiut</i> : camp and river	1 (2)	1	70-100
<i>Kuicararmiut</i> : river		3	600
<i>Kuigmiut</i> : river		2	200-300
<i>Mecagmiut</i> : camp and river	1 (1)	2	200-300
<i>Mikuryaq</i> : community and river	1 (2)	? <sup>b</sup>	150
<i>Narulqirnararmiut</i> : camp	1 (1)		
<i>Nunarlugarmiut</i> : camp	3 (7)		
<i>Paamiut</i> : camp and river	2 (3)	2	200-300
<i>Penguarmiut</i> : camp	3 (6)		
<i>Qangneryagtalermiut</i> : river		?	
<i>Qayigyalegmiut</i> : river		1	100
<i>Qengartaarmiut</i> : camp	2 (3)		
<i>Tacirmiut</i> : camp and river	1 (1)	5	450
<i>Talungmiut</i> : camp and river	1 (2)	1	300
<i>Ucingurmiut</i> : camp and river	2 (2)	2	450
<b>Total</b>	<b>21 (34)</b>	<b>na<sup>c</sup></b>	<b>4270-4775<sup>d</sup></b>

<sup>a</sup>See Appendix 1 for translations. This does not include all the fish camps or salmon spawning streams on the island, just those reported used in 1995.

<sup>b</sup>Many families get fresh chum to eat from gillnet set by few families along this river. It is likely that other families seined or set nets after the field season, especially for coho.

<sup>c</sup>Totals of this column would not reflect an accurate total because many families fished from more than one river.

<sup>d</sup>Fishing families listed rivers they fished, and when possible estimated catches from particular streams. Otherwise, the researcher apportioned the catch.