PROGRESS REPORT:

1982 WALRUS HARVEST, HEALTH AND WELFARE STUDY AT NOME, ALASKA

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Key Words: Pacific Walrus
Subsistence
Marine Mammals - Nome
Eskimo Socio - Cultural
Northwest Alaska - Bering Sea

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ABSTRACT

The U.S. Fish and Wildlife Service (USFWS) for the third consecutive year conducted a walrus (Odobenus rosmarus divergens) harvest health and welfare study in six Bering Sea coastal villages. The Eskimo Walrus Commission (EWC) was a cooperator in the study. Goals were to determine harvest levels, age structure, reproductive history, feeding habits and contaminant loading for various body organs and tissues of harvested walruses.

The documented harvest level for the Nome and King Island, Cape Woolley areas was 102 and 615 walruses respectively. Specimens collected included 36 pair of lower canine teeth, 23 female reproductive tracts and contents of seven stomachs. Inclement weather precluded active successful hunting in the Nome area during the spring of 1982. The hunting success later at King Island was significantly greater than in 1981. When combined the total harvest of walruses from Nome and King Island was similar to 1981 as was the sex composition of the harvest for the individual locations. Crew, boat and motor sizes remained appreciably unchanged from 1981.

INTRODUCTION

Monitoring the spring walrus harvest, as in the past, focused on the five villages of Gambell, Savoonga, Nome, Little Diomede and Wales. In addition, the village of Mekoryuk was added to the program's area this year. An informal agreement with the Eskimo Walrus Commission (EWC) provided for joint cooperation in the venture. The goals of the program follow listed in order of descending priority.

1.) Determine the numbers, sex and age of walrus harvested.

2.) Determine reproductive history of harvested females.

3.) Determine feeding habits of walrus.

4.) Determine other marine mammal harvests and use and record incidental observations such as weather and ice conditions, hunting methods and means, migratory bird harvests, other bird harvests, hunter attitudes, and encourage greater rapport between the users and the FWS.

The FWS provided four biologists, funding for six village assistants and acquisition of tooth specimens. The FWS contracted with the EWC for training on the study's methods of collecting harvest data, specimen preparation and other aspects of hunter and biologist communications. The EWC provided funds for the acquisition, preservations and analysis of reproductive tracts and stomach contents. Although the EWC had planned to continue marine mammal harvest monitoring in these or other villages after the peak walrus harvest period, funding and personnel constraints prevented this monitoring.

The period for which a Service biologist, Scott Schliebe, was stationed in Nome extended from April 30 to June 5. Edward Muktoyuk assisted in the Nome data collection and continued to collect harvest data at Cape Woolley and King Island through July.

STUDY AREA

The infomation presented in this report was collected at Nome, Cape Woolley and King Island. Nome is a town of approximately 3,000 individuals located on the south side of the Seward Peninsula on the shore of Norton Sound. The population was comprised of a mixture of white and native races. The Eskimo language was primarily Inupiat dialects with some Yupik spoken. The English language was universally spoken except by some of the older individuals. The most important boat launching areas early in the spring were the beach east of Nome and Ft. Davis. Some very early hunting effort was recorded at Cape Nome and the summer camp of Nuk near Safety Lagoon. King Island hunters generally hunt together and maintain a distinct social system (see also Progress Report 1981, Walrus Harvest, Health and Welfare Study, Nome, Alaska, S. L. Schliebe).

Norton Sound was viewed as the ocean garden to local marine mammal hunters. The most active hunting period was during the spring when hunters pursue walruses migrating northward on the retreating pack ice. Seals were also harvested during this period as were beluga whales occasionally. The ice conditions in Norton Sound vary annually and seasonally. This spring shore ice departed on May 17th and returned with prevailing southerly winds on two occasions. Existing currents in the Nome area and in general for Norton Sound move from east to west at a speed of less than six knots. Stringer and Hufford, 1982, determined that the motion and configuration of Bering Sea pack ice usually influenced the movement of Norton Sound ice more than any other single factor.

METHODS

The following briefly describes the methods used to inform, collect and preserve biological specimens and hunter data from the walrus hunters during this years harvest program. For more detailed information concerning necessary field supplies, setting up field gear and lab, recording data, obtaining, labeling and preserving specimens, bookkeeping and checkwriting, village journals and public relations, refer to Lourie's Field Manual (1982).

Informing the Hunters

A variety of methods were utilized in an attempt to inform hunters of this year's walrus harvest monitoring program in Nome and outlying villages. On April 30th an informative boat captain/crew meeting was held at the King Island Community Hall. The main purpose of the meetings were to introduce or reacquaint the local assistant and biologist with the hunters, explain this year's program, distribute hunter packets and answer questions on the program. A six minute video tape explaining the analysis and results of previous year's studies was presented. The video tape was aired on the public broadcasting channel throughout the hunting season. Individual contact with the majority of boat captains occurred the following week. Radio interviews of 20-30 minute lengths were recorded by local stations KNOM and KICY. Information for a newspaper article was supplied to the Nome Nugget while the editor of the Bering Strait News covered the subject in an interview with the village biologist, James Stengle, during the Savoonga Walrus Carnival.

Data Collection

Harvest data was collected by Scott Schliebe and Ed Muktoyuk at Nome from April 30 to June 5. During the period following June 5, EWC personnel collected harvest data, and the local assistant, Ed Muktoyuk, collected harvest information on King Island from June to July. The biologist and local assistant patroled the Nome road system and interviewed returning boat captains on hunting efforts and success. Data recorded included the number and sex of animals harvested. Attempts were made to determine the reproductive status of harvested females. Information from hunters on retrieval and crippling losses resulted in unreliable estimates and was discontinued.

Hunting Effort

Boat captain, crew size, boat and motor size information was collected by Schliebe, Lourie, EWC and Tunny Wulluk (Appendix I.). Direction of travel and duration of hunting effort were sampled opportunistically. For further information refer to the Eskimo Walrus Commission Walrus Data Collection Program (K. S. Lourie, 1982). Hunting effort and success for King Island was not recorded in 1981 or 1982.

Specimen Collection

The specimen collection goal for Nome was 175 pair of lower incisors, 35 stomach contents, and 50 female reproductive tracts. Costs of acquiring and analyzing specimens were separated between the Service and EWC as previously

outlined. Boat captains were provided with hunter kits containing plastic bags, specimen tags, marking pencils and a waterproof instruction card (Appendix II.) which explain and illustrate the procedures for collecting specimens. Prices paid to the hunters for specimens were $8.00 for each pair of teeth, $15.00 for each female reproductive tract and $50.00 for stomach contents (approximately 5 lb.). Reproductive tract and stomach content samples required the corresponding pair of teeth. Payments were made by checks drawn on an EWC account at the Nome bank.

An individual accession number was assigned to specimens from the same animal. Soft tissue specimen were preserved in 10% formalin solution and tooth specimens were packaged in tooth envelopes. All tagged or packed specimens included the accession number, sex, if female the reproductive condition (fetus, calf or barren), and date collected.

Data Analysis

Tooth specimens from the 1982 harvest were sectioned and aged in Nome with the use of ADF&G's laboratory saw. The Service provided one month's salary for the EWC technician, Jack Brown, who sectioned and aged the teeth with assistance and advice of Kae Lourie, EWC biologist. Aging of tooth sections (.015"-.020") collected during 1982 was accomplished by microscopic (20x-40x) reading of cementum annulli. Tooth sections were then bottled in tap water and stored in Anchorage for future reference.

Three observers independently assigned an age to each sectioned tooth collected in 1980 and 1981. Sections were immersed in water, illuminated with direct light, and viewed through a 10x to 20x dissecting microscope. The dark cementum annuli were counted several times on different parts of the section until the observer felt confident that a repeatable reading representing the walruses age had been obtained. This count was entered by each observer on a master list as his best estimate of the animal's age.

All 1213 teeth were aged by each observer, the three readings for each tooth were compared. If two or three of the readings agreed, that number was accepted as the final age for the animal. If the three readings differed but were immediately adjacent (e.g.. 14, 15, and 16), the median year was accepted as the final age.

For the 621 cases in which all three observers disagreed on the age and the range was four or more years, the section was read again by at least one of the observers. If this fourth observation agreed with one of the three original observations or fell between any two of them to form a sequence of three immediately adjacent numbers, that number was accepted as the final count. If the fourth observation resulted in a repeatable count that did not agree with any of the three original observations but fell within the original range, that number was accepted. Ages could be assigned to all teeth using these methods.

Preserved reproductive tracts collected in 1982 were shipped to the University of Alaska Institute of Marine Science for analysis. Dr. F. H. Fay and Dr. S. W. Stoker conducted the analyses of reproductive tracts and stomach contents. For a detailed description of the methods, techniques and results of analysis see "Reproductive Success and Feeding Habits of Walruses Taken in the 1982 Spring Harvest, with Comparisons From Previous Years," by Fay and Stoker, 1982.

RESULTS AND DISCUSSION

HARVEST DATA

The documented Nome harvest during the observation period was 102 walruses. This figure was comprised of 27 adult males (26.4%), 63 adult females (61.8%), 6 adults sex unknown (5.9%) and 6 calves (5.9%) (Table 1). Adult refers to independent animals, not calves, and does not refer to sexual maturity. Animals crippled or sunk have not been included. A 3:7 male to female ratio existed in known sex animals. This is not similar to the 1981 sex ratio. The small number of calves was comparable to the 1981 harvest. Some hunters avoided taking females accompanied by calves. Documented harvests of other marine mammals from Nome included a minimum of 62 bearded seals (Erignathus barbatus), 37 ringed seals (Pusa hispida), and 15 spotted seals (Phoca largha). A mixture of 125 murre, oldsquaw and eider ducks were harvested (Table 2).

The documented harvest at Cape Woolley and King Island was 615 walruses. This figure was comprised of 517 adult males (84.0%), 57 adult females (9.3%), 40 adult sex unknown (6.5%) and 1 calf (.2%). Of known sex walrus a 9:1 male to female sex ratio existed compared to a 10:0 male female sex ratio in 1981 (Table 3, 4).

The combined total documented retrieved walrus harvest for Nome and King Island areas during this spring was 717 animals; including 577 adult males (80% of the total), 87 adult females (12%), 7 calves (1%), and 46 adults of unknown sex (7%). The 10 days of hunting in the King Island area between June 8 and July 11th accounted for 85% of the combined harvest. Two days of hunting effort during this period accounted for 32% of the total harvest.

The sex composition in the 1982 harvest was not drastically different from the 1981 harvest for walruses taken in the Nome area or the King Island area. The majority of the harvest occurring in the Nome area is of female animals (75% in 1983 and 66% in 1982) while the King Island harvest was predominantly of male animals. Approximately 100% in 1981 and 96% in 1982 (Table 4).

Hunter Effort and Success

Crew effort was sampled in Nome on 31 occasions. During these trips of known duration 96 walrus were harvested while 1397 man-hours were expended for an average of 14.5 man hours per walrus retrieved. This represents a 100%

increase in the amount of time required in 1981 (7-7.8 man-hours). The sampling, as in the past, may not reflect the actual amount of effort expended over time in harvesting walruses and may be biased toward hunting efforts which were successful. In this event, the success per unit effort results should be viewed as minimum figures while the actual amount of effort was assumed to be greater. I believe the 1981 and 1982 unit effort per individual walrus harvest figures mainly represent the decreased availability of walrus due to inclement and foggy weather which occurred in the Nome area, possibly coinciding with the peak migration period.

Motor size varied from 25 to 70 H.P. and averaged over 50 H.P. Backup motors were generally 25-35 H.P. The number of motors utilized varied. Two motors were frequently utilized with one serving as either the back up motor or functioning in tandem with the other. In one case an individual occasionally used 3 motors with 95 total horse power. One individual used a 32' freighter powered by an inboard diesel. Boat lengths varied from 14 to 24 feet and averaged about 18.0 feet.

Direction of travel coincided with the position of ice within Norton Sound. In April, early in the season, the ice begins leaving the sound in an east to west direction. Ice conditions in the Bering Sea west and north of Sledge Island appear to determine the rate at which ice escapes from the Sound. See

also "The Eskimo Walrus Commission 1981-82 Walrus Data Collection Program," by Lourie, 1982. Later in the season, late May and early June, most hunting was conducted to the southwest of Nome while some hunting directly south may still occur.

Weather

Weather played an important role in determining hunting effort. Rain, fog, and wind in excessive amounts deterred hunting effort. The peak of the walrus migration through Norton Sound was thought to have occurred between May 23 and June 10. During this 19 day period, fog was recorded during 7 days and heavy fog restricting visibility to 1/4 mile or less was recorded on an additional 7 days. Trace amounts of up to 1.7 inches of snow or ice pellets were recorded on 18 days. Average daily wind velocity ranged between 3 and 18.1 mph through this period with average daily speeds greater than 10 mph recorded on 10 days. The average daily wind speed during the 19 day period was greater than 11 mph and the average daily wind gust (fastest mile) through this period was greater than 17 mph.

This inclement weather limited hunter effort during the potential peak hunting period. Safety factors of operating a small craft at sea over-weighed the possibility of harvesting walrus. On days when the ice pack was blown in close to shore, 3 to 4 day period, hunting effort increased due to the buffering effect of the ice on the waves. However, navigation in consolidated close packed ice proved very difficult or impossible and even if herds of

walrus were audibly or visually located, the ice conditions prevented hunters from approaching resting herds in most cases. Hunting success was impaired due to late season south winds consolidating the broken shorefast ice in the Nome vicinity preventing hunters from reaching the moving pack ice. By the time these conditions dissipated the pack ice was located far to the west forcing hunters to search over greater distances.

Specimen Collection

Thirty-six pair of lower canine teeth, 23 female reproductive tracts and 7 stomach contents were acquired. Two reproductive tracts and one stomach content were not accompanied by teeth. Nome samples were harvested in one of the following locations and denoted by the field assession number; Nome, Cape Nome, Fort Davis, Sledge Island, Cape Wooley and King Island.

The mean age of walruses harvested at Nome during 1982 was 15 years, as estimated from counts of cementum annuli in sectioned teeth. The mean age of males and females was 18.2 and 13.5 years respectively. Fay (1983) found significant variance while cross checking age assignments by Lourie and Brown.

Analysis of soft tissues was conducted by the Institute of Marine Science. The results of the study of female reproductive and food items are found in "Reproductive Success and Feeding Habits of Walruses Taken in the 1982 Spring Harvest, with Comparison from Previous Years," 1982, Fay and Stoker.

Comparison to Previous Year

The 1982 spring harvest was different than the 1981 harvest in respect to location of walruses harvested. The documented 1982 harvest of 717 animals was similar in magnitude to the 1981 713-758. The majority of the 1982 harvest (85.6%) occurred near King Island while the 1981 King Island area harvest comprised of 31-37% of the total area harvest. This shift may be attributed to weather conditions which precluded active hunting out of Nome during the peak migration period. In 1982 the harvest period extended from May 23 to June 10 in the Nome area (Figure 1) and June 8 to July 11 in the King Island area (Figure 2). Some hunting effort in the King Island area may have occurred before the June 8 date. During 1981 the harvest period in the Nome area extended from May 9 to May 19 and June 8 to July 3 in the King Island area with the majority of the hunting effort occurring up to June 13. In general the harvest and walrus migration period in 1982 appeared to be approximately 10-14 days later than in 1981. Sex composition of the harvest was very similar with a slight decrease in the percentage of adult females and a slight increase in the percentage of adult males harvested in the Nome area (Table 1). The King Island harvest was again predominantly adult male walruses. The harvest of calf walruses was less than 7% of the combined Nome/King Island harvest in 1981 and 1982 (Table 3).

Boat and outboard motor sizes appear to have stablized in recent years, at about 16-18 feet and about 50 horsepower total. A 32 foot freighter with inboard diesels was used infrequently. The 26 foot boat listed in Appendix I was not observed.

Hunter participation in the specimen collection program has improved over three years but was still below the level desired. Public relations with the hunters have improved. However, suspicion of the biological program and resulting regulations still exist. All available media were utilized to inform the hunters of the biological program as well as public meetings and door to door interviews. The village monitor, Ed Muktoyuk, proved to be a valuable asset in collecting harvest data from King Island.

Animosity from the law enforcement effort to curb wasteful take was evident and resulted in a reactionary meeting to discuss the effort as well as two letters to the Regional Director requesting clarification of the enforcement program. The low key approach used by FWS agents in the Nome area appears to have mollified fears which had previously become exaggerated by rumor.

A video presentation of past years biological parts collection effort was well received but should be expanded and lengthened in the future.

Table 1. Chronology of Marine Mammal Harvest at Nome, Alaska, 1982.

	Walrus				Seals		
Date	Male	Female	Calve	Adult Sex Unknown	Bearded	Ringed	Other
5-14					3		4 ducks
5-16					7		
5-17					3		
5-18					4	1	20 murre & oldsquaw
5-19					8	1	
5-20					1	2	5 murre
					2 young		
5-21					5	3	10 murre and
						1 pup	oldsquaw
						1 female	
5-22					3	4	
5-23		1			14	10	6 oldsquaw
					2 young	1 young	1 eider
5-24	4	33	2		1 young	9	51 murre, 6 oldsquaw 12 eider
5-29	4	2					10 eider
5-30	3	13	2	6	8	2	
						1 young	
5-31						1	
6-7	4	6	2				
6-8		1					
6-9	12	7					
6-10						2	
Total	27	63	6	6	62	37	125

Table 2. Comparison of 1981 and 1982 Documented Walrus Harvest at Nome, Alaska (Data from Schliebe 1981, 1982). Adults are all animals older than calves.

	Adult Males	Adult Females	Calves	Adult Sex Unknown	Total
1981[a/]	110	371	8		489
% of Total	22.5	75.9	1.6		
% of Adults	22.9	77.1			
1982[a/]	27	63	6	6	102
% of Total	26.4	61.8	5.9	5.9	
% of Known Sex Adults	30.0	70.0			

a/ The maximum documented harvest is used when a harvest range is cited from the Progress Report 1981, Schliebe.

Table 3. Chronology of Marine Mammal Harvest at King Island, Alaska, 1982.

	Walrus					
Date	Male	Female	Calve	Adult Sex Unknown	Seals	Other
6-8	2	35	1		1 spotted adult female	2 gray whales
6-9	45	19				
6-12						6 Beluga whales
6-17	56				1 ringed	Lots of whales SW of King Island
6-18	72	3				
6-22						3 gray whales
6-23	110					
6-25	120					
7-3				40		1 male, 3 female killer whales; lots of whales SW of King Island
7-7	32					
7-8	60					
7-11	20					
7-14						3 killer whales, 1 gray whale
Total	517	57	1	40	2	

Table 4. Comparison of 1981 and 1982 Documented Walrus Harvest at Cape Wooley and King Island. Data from E. Muktoyuk Sr.[1/]

	Adult Males	Adult Females	Calves	Adult Sex Unknown	Total
1981	269		1		270
% of Total	99.7		.3		
% of Known Sex Adults	100.0				
1982	517	57	1	40	615
% of Total	84.0	9.3	.2	6.5	
% of Known Sex Adults	90.0	10.0			

1/ When a harvest range was presented in Ed Muktoyuk's notes the upper figure was utilized.

Figure 1. Chronology and sex composition of the walrus harvest at Nome, Alaska, 1982.

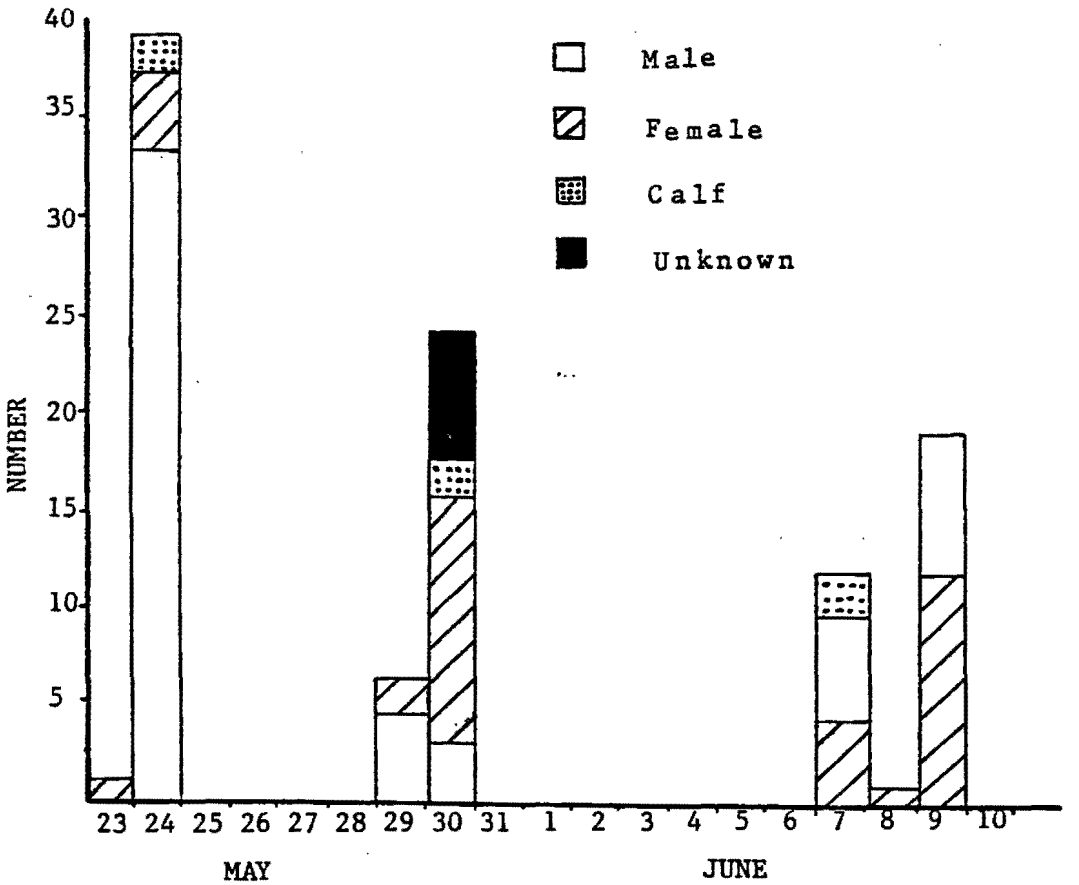
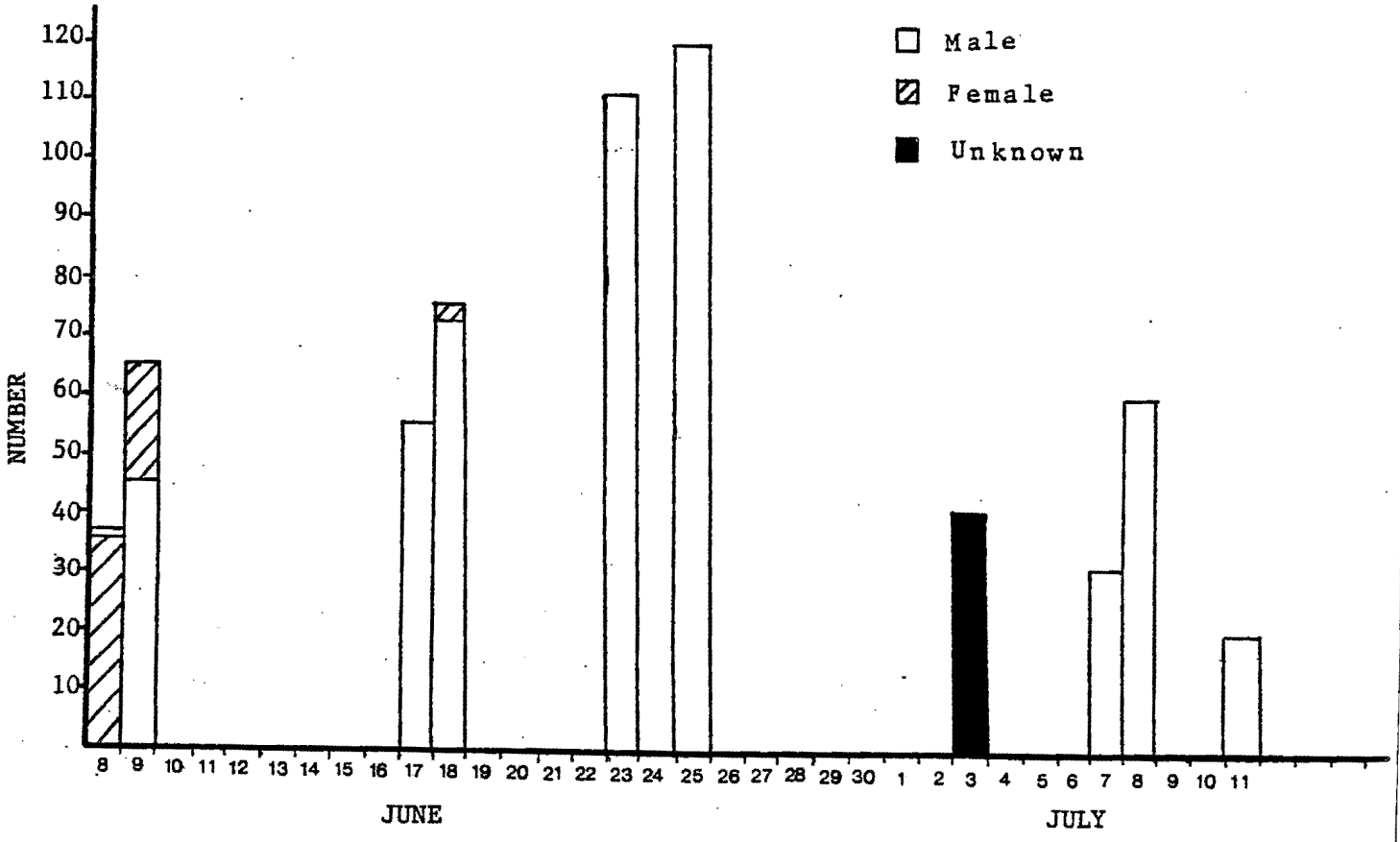


Figure 2. Chronology and sex composition of the walrus harvest at King Island, Alaska, 1982.



Appendix I.

Launch Area	Boat Captain Co-Captain	Crew Members	Relationship	Boat Types & Sizes	Outboards: Brands, HP	Back-up Outboards
East End (in Nome not Woolley)	Howard Nunooruk	Alternates with Ralph Olanna, Jr. Howard Jr. N. Sometimes Moody Baker	Nephew Son Friend	White 18' Lund	(Use same motor as Ralph) 50 HP Merc.	Maybe 35 HP Merc. ?
East End	Harry Johnson	Harry Jr. (Cookie)	Son	18' Smoker-craft	50 HP Merc.	
	Paul Tiulana	Justin Tiulana Tommy Tiulana Matthew Tiulana Ed Muktoyuk Ed Penata	Son Son Son (Just started 6/8/82) Cape Woolley Cousin Cape Woolley Cousin	White 18' Lund	55 HP John.	35 HP John.
East End (in Nome)	Simon Angusuc	Danny Angusuc Anybody available	Son	18' Lund	70 HP John.	35 HP Evin.
East End King Island (in Woolley)	Francis Alvanna	Raymond Panetas Jerry Kozuna David Nattanguk Sometimes more	Nephew Nephew Nephew	18' Lund	70 HP Evin.	
East End King Island (in Woolley)	John Pullok	Keith Kunnuk Teddy Pullok Charles Pullok	Friend Brother Son	18' Lund	75 HP Evin.	
East End (in Woolley)	Aloysius Pikonganna	Vincent P. David Pullok Freddie Pushruk Others ??	Son Nephew	18' Lund	55 HP Evin.	35 HP Evin.

Launch Area	Boat Captain Co-Captain	Crew Members	Relationship	Boat Types & Sizes	Outboards: Brands, HP	Back-up Outboards
East End (in Woolley)	Mike Saclamana	Hubert Kukoluk Charlie Kukoluk 4 other various people-who ever is handy	Brother-in-law Brother-in-law	White 18' Lund	50 HP John.	35 HP Evin.
Seppalla or East End	Caleb Pungowiyi	Mina P. Sharon Satre Sometimes Matt Iya	Wife Sister Friend	White 18' Lund	40 HP Evin.	
Ft. Davis	Ira Ahnangatoguk	Wayne Walluk Wes Pagel	Nephew Nephew-in-law (Niece's husband)	White 18' Lund	50 HP Merc.	35 HP Merc.
Ft. Davis	Earl Scott	Alfred Pootoogooluk Fred Davis Tunny Walluk	Nephew Nephew Nephew	Marino 26' Plywood 20' Lund	55 HP Johnson 35 HP Johnson	35 HP John.
(Mostly seal/some walrus hunters)						
Ft. Davis	Harold Ahmasuk, Jr.	Harold Sr. A. Harrison A. Mike A. Bart Costel	Father Brother Son Nephew	18' Lund	40 HP Evin.	35 HP John.
Ft. Davis	Sam Kakik Sr.	Pete Larson, Jr. Wally K.	Friend Son	16' Valco	25 HP Chrysler	
Ft. Davis	Andrew Koweluk	Bobby K. Duane K.	Nephew Nephew	Red 18' Lund	35 HP Evin.	25 HP John.
Ft. Davis	Willy Senungetuk	Ronald S.	Son	16' Sears	25 HP Chrysler	
Ft. Davis	Daniel Walluk Co-Capt. Steve W.	Ronald Ahnangatoguk	Cross cousin	Yellow 16' Smoker Craft	50 HP Merc.	25 HP John.
Ft. Davis	Larry Davis	Caleb Dotomain	Brother-in-law	Red 18' Lund		

Launch Area	Boat Captain Co-Captain	Crew Members	Relationship	Boat Types & Sizes	Outboards: Brands, HP	Back-up Outboards
Ft. Davis	Teddy Sockpick	Carson Sockpick Carson Tingook	Son Nephew	White 18' Lund	25/25 HP Evin	15 HP Evin.
Ft. Davis	Frank Ahnagatoguk	Eric Baxter Ronald Ahnagatoguk Steven Walluk	Nephew Son Nephew	Navy Gray 18' Lund	55 HP John.	15 HP Evin.
Jetty	Tom Gologergen	Tim Jr. G. Justin G.	Son Grandson	Red/Silver Bottom 18' Lund	40 HP Evin.	
Seppalla	Ralph Olanna, Jr.	Richard Immingan Robert Wongittilan	Friend Friend	Navy gray 18' Lund	50 HP Merc.	25 HP Merc.
Seppalla Dr. (Belmont Pt)	Walter Dotomain	Caleb Dotomain	Brother	Marine 18' Plywood	40 HP Evin.	
Seppalla	Roy Piscoya	Stanley P. Tommy P. ????? Danny Piscoya	Son Son Son Nephew	White 26' Plywood 16' Smoker craft	50 HP Merc.	25 HP ?
Seppalla	Lincoln Milligrok	Tommy Jack Simon Jack Up to six crew	Friend Brother	Navy Gray 20-24' Plywood	35 HP John. 35 HP Evin.	
Seppalla	Tommy Herman	Ben Herman Daisy Baxter Moody Baker Al Mazonna (occas.)	Father Sister Friend Friend	18' Smoker craft White 18' Lund	40 HP Suzuki	35 HP Evin.
All Locations	Strum Dickson	Dr. Stang	Friend Son	White 18' Lund	55 HP John.	
In Jetty by the barges (by bulk plant S Oil)	Johnny Bahnnke, Jr.	Strum Dickson Pat Norbert Stanley Walker	Friend Friend Friend	32' Freightner	Inboard Diesel	

Launch Area	Boat Captain Co-Captain	Crew Members	Relationship	Boat Types & Sizes	Outboards: Brands, HP	Back-up Outboards
Other Boat Captains and Crew Members	Clarence Outwater	Burl Mosquito	Friend	14' Yellow	35 HP John.	
	Vincent Kunuk	3-4				
	Matt Iya					
	Frank Ellanna			24' Skin Boat		
	Charlie Johnson			18'		
	Clarence Irrigod	Gordon Irrigod Bernard Irrigod				
	Marty Howard			18' Aluminum		
	Harry Koozaata	3-4 family				
Other Hunters	Gabe Muktoyuk	Dan Karmen	Gilbert Ozzanna			
	Dan Karmen	Tom Koyuk	John Koyuk			
	Bernard Kasgnoc	Dennis Kasgnoc	Seetamona			
	Steve Augdahl					

SCHLIEBE/nav/18Aug83/0915g

Appendix II. Hunter instruction card.

IT IS VERY IMPORTANT TO KEEP ALL SPECIMENS FROM THE SAME ANIMAL TOGETHER. EACH BOAT CAPTAIN WILL BE GIVEN COLLECTING BAGS AND TAGS TO DO THIS.

1. TEETH. PLACE THE 2 FRONT LOWER JAW TEETH IN A SMALL ZIPLOCK BAG WITH A TAG WITH THE SEX OF THE ANIMAL (M OR F) AND THE NUMBER (IN ORDER TAKEN) WRITTEN ON IT. FOR EXAMPLE: THE FIRST ANIMAL TAKEN WAS A MALE (M1). THE SECOND A FEMALE (F1) AND THE THIRD A MALE (M2). AND SO ON. USE A BAG FOR EACH PAIR OF TEETH.

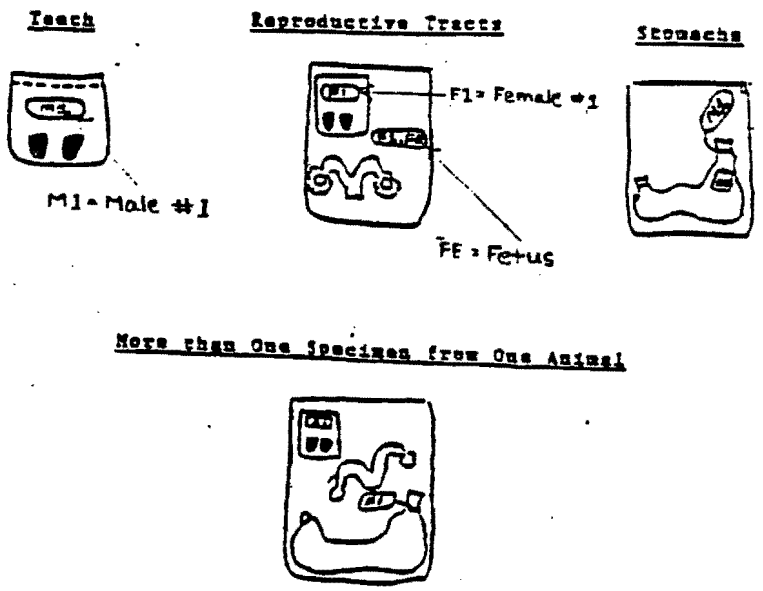
2. FEMALE REPRODUCTIVE TRACTS. THE FEMALE WALRUS' REPRODUCTIVE TRACT IS LOCATED UNDERNEATH THE GUTS. ALONG THE BACK. JUST BELOW THE KIDNEYS. BRING IN BOTH HORNS FROM WHERE THEY ATTACH. ALL THE WAY UP INCLUDING THE OVARIES. PUT THE TRACT IN A MEDIUM SIZED PLASTIC BAG WITH A TAG LISTING F1. OR F2. ETC. (FOR FEMALE 1. FEMALE 2. ETC.) AND FE OR C IF THE FEMALE HAD A FETUS OR A CALF. PUT THE BAG OF TEETH FROM THAT ANIMAL IN THE BAG ALSO.

3. STOMACHS. PLACE THE TEETH BAG IN THE ESOPHAGUS END OF THE STOMACH AND TIE OFF BOTH ENDS WITH A STRING. USE ONE OF THE STRINGS WITH A TAG ATTACHED AND WRITE M1. M2. OR F1. F2. ETC. TO IDENTIFY THE ANIMAL. LARGE HEAVY WEIGHT BAGS ARE INCLUDED TO USE FOR THE STOMACHS.

4. MORE THAN ONE SPECIMEN FROM AN ANIMAL. IF YOU GET A FEMALE WITH FOOD IN HER STOMACH AND YOU COLLECT THE STOMACH. REPRODUCTIVE TRACT. AND TEETH THEN PUT THE TEETH IN A ZIPLOCK BAG AND ALL THE SPECIMENS TOGETHER IN A LARGE HEAVY WEIGHT PLASTIC BAG WITH A TAG LISTING THE ANIMAL'S NUMBER (F1. F2. OR M1. M2. ETC.) IN THE BAG TO IDENTIFY IT.

WHEN YOU RETURN FROM HUNTING THE BIOLOGIST OR VILLAGE MONITOR WILL BUY YOUR SPECIMENS AND COLLECT OTHER NEEDED INFORMATION. YOUR VILLAGE MAY HAVE A SPECIMEN QUOTA. IF SO THE BIOLOGIST AND VILLAGE MONITOR WILL EXPLAIN WHAT SPECIMENS THEY WILL BE BUYING. WHEN. AND HOW MANY.

Side 1



Side 2

APRIL 1982 26617
NOME, ALASKA
MUNICIPAL AIRPORT

ISSN 0198-040

LOCAL CLIMATOLOGICAL DATA

Monthly Summary

NATIONAL WEATHER SERVICE OFC

LATITUDE 64° 30' N LONGITUDE 165° 26' W ELEVATION (GROUND) 13FEET TIME ZONE BERING WBAN #26617

DATE	TEMPERATURE °F MAXIMUM	MINIMUM	AVERAGE	DEPARTURE FROM NORMAL	AVERAGE DEW POINT	DEGREE DAYS BASE 65°F HEATING (SEASON BEGINS WITH JUL)	COOLING (SEASON BEGINS WITH JAN)	WEATHER TYPES (1 FOG, 2 HEAVY FOG, 3 THUNDERSTORM, 4 ICE PELLETS, 5 HAIL, 6 GLAZE, 7 DUSTSTORM, 8 SMOKE, HAZE, 9 BLOWING SNOW)	SNOW (ICE PELLETS OR ICE ON GROUND AT 07AM INCHES)	PRECIPITATION WATER EQUIVALENT (INCHES)	PRECIPITATION SNOW, ICE PELLETS (INCHES)	AVERAGE STATION PRESSURE IN INCHES ELEV. 22 FEET ABOVE M.S.L.	WIND (M.P.H.) RESULTANT DIR.	RESULTANT SPEED	AVERAGE SPEED	FASTEST MILE SPEED	FASTEST MILE DIRECTION	SUNSHINE MINUTES	SUNSHINE PERCENT OF TOTAL POSSIBLE	SKY COVER (TENTHS) SUNRISE TO SUNSET	SKY COVER (TENTHS) MIDNIGHT TO MIDNIGHT	DATE
1	2	3	4	5	6	7A	7B	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
1	11	-15	-2	-14	- 9	67	0		6	0	0	30.52	07	4.0	5.2	13	08	625	77	2	3	1
2	19	4	12	0	5	53	0	1	6	.04	.4	30.37	10	13.2	13.4	18	10	0	0	10	10	2
3	24	18	21	8	14	44	0	1	7	.06	.6	30.09	10	12.8	12.9	18	10	0	0	10	10	3
4	34	20	27	14	22	38	0	1	7	.14	1.3	29.76	13	14.5	17.7	20	09	0	0	10	10	4
5	36*	33	35*	21	30	30	0	1	7	.27	2.2	29.62	16	17.1	17.4	25	16	0	0	10	10	5
6	35	26	31	17	28	34	0	1	8	.01	.1	29.75	20	10.3	10.4	14	19	178	21	8	9	6
7	34	23	29	14	25	36	0	1	7	.03	.3	30.02	17	9.6	10.2	18	18	0	0	9	9	7
8	34	21	28	13	24	37	0	1	7	.05	.5	29.93	24	6.9	8.9	16	29	157	18	10	10	8
9	26	5	16	0	1	49	0		7	T	T	30.04	28	3.3	7.8	13	30	452	52	4	6	9
10	18	-5	7	-9	- 1	58	0		7	.01	.1	29.79	34	5.6	6.6	12	35	655	75	3	4	10
11	9	-10	-1	-17	-15	66	0		7	0	0	29.96	35	8.6	10.4	18	33	418	47	5	3	11
12	8	-10	-1	-18	-15	66	0		7	0	0	30.05	03	2.0	6.2	10	35	654	74	3	2	12
13	6	-15	-5*	-22	-16	70	0		7	0	0	29.95	01	3.9	4.6	9	34	895	100	0	0	13
14	15	-11	2	-16	-11	63	0		7	0	0	29.70	36	5.1	5.9	9	04	902	100	0	0	14
15	16	-8	4	-14	- 9	61	0		7	0	0	29.69	36	4.8	5.3	12	35	908	100	1	1	15
16	13	-10	2	-17	- 9	63	0		7	T	T	29.79	03	3.1	4.9	8	36	427	47	3	3	16
17	10	-13	-2	-21	-11	67	0		7	T	T	29.94	36	3.4	4.2	7	03	483	52	6	4	17
18	11	-16*	-3	-23	- 9	68	0		7	.02	.3	30.02	08	5.9	6.6	13	09	215	23	7	6	18
19	16	-6	5	-16	- 2	60	0	1	8	.02	.5	29.96	09	6.3	6.9	12	10	341	36	6	6	19
20	20	-8	6	-15	1	59	0	1	8	T	T	29.96	04	3.1	3.9	7	09	157	17	8	7	20
21	27	18	23	1	17	42	0	1	8	.02	.3	30.08	10	7.5	7.9	12	09	0	0	10	10	21
22	30	14	22	0	21	43	0	1	8	.02	.2	30.07	09	5.3	5.5	9	10	0	0	10	10	22
23	31	15	23	0	17	42	0		9	0	0	29.91	04	6.4	7.8	15	05	414	43	4	4	23
24	32	19	26	3	13	39	0		9	0	0	29.79	02	3.7	4.9	9	01	891	92	0	1	24
25	30	5	18	-6	9	47	0		8	0	0	29.62	32	3.6	4.5	8	28	899	92	4	4	25
26	27	-1	13	-11	2	52	0		7	0	0	29.48	05	3.7	5.5	10	09	706	72	6	5	26
27	25	4	15	-10	- 1	50	0		7	0	0	29.46	36	5.3	5.8	12	03	777	79	1	1	27
28	22	-2	10	-15	- 4	55	0		7	0	0	29.59	34	4.0	5.5	9	35	996	100	0	0	28
29	19	-7	6	-20	- 7	59	0		7	0	0	29.79	35	3.3	3.9	7	04	1003	100	0	0	29
30	20	-5	8	-19	- 4	57	0		7	0	0	29.87	31	1.8	3.9	8	04	1010	100	4	3	30

SUM	SUM				TOTAL	TOTAL	NUMBER OF DAYS		TOTAL	TOTAL	FOR THE MONTH:						TOTAL	%	SUM	SUM
658	83				1575	0			.69	6.8	29.89	08	2.3	7.5	25	16	14163	FOR	154	151
AVG.	AVG.	AVG.	DEP.	AVG.	DEP.	DEP.	PRECIPITATION		DEP.						DATE:	05	POSSIBLE	MONTH	AVG.	AVG.
21.9	2.8	12.4	-6.5	4	192	0	> .01 INCH.	12	-0.04								27350	52	5.1	5.0

NUMBER OF DAYS				SEASON TO DATE		SNOW, ICE PELLETS		GREATEST IN 24 HOURS AND DATES				GREATEST DEPTH ON GROUND OF SNOW, ICE PELLETS OR ICE AND DATE
MAXIMUM TEMP.		MINIMUM TEMP.		TOTAL	TOTAL	> 1.0 INCH	2	PRECIPITATION		SNOW, ICE PELLETS		
≥ 90°	≤ 32°	≤ 32°	≤ 0°	DEP.	DEP.	THUNDERSTORMS	0	.28	5- 6	2.3	5- 6	9 24+
0	25	29	16	-400	0	HEAVY FOG	0					
						CLEAR 11	PARTLY CLOUDY 9	CLOUDY 10				

* EXTREME FOR THE MONTH - LAST OCCURRENCE IF MORE THAN ONE.
T TRACE AMOUNT.
+ ALSO ON EARLIER DATE(S).
HEAVY FOG: VISIBILITY 1/4 MILE OR LESS.
BLANK ENTRIES DENOTE MISSING DATA.

DATA IN COLS 6 AND 12-15 ARE BASED ON 7 OR MORE OBSERVATIONS AT 3-HOUR INTERVALS. RESULTANT WIND IS THE VECTOR SUM OF WIND SPEEDS AND DIRECTIONS DIVIDED BY THE NUMBER OF OBSERVATIONS. ONE OF THREE WIND SPEEDS IS GIVEN UNDER FASTEST MILE: FASTEST MILE - HIGHEST RECORDED SPEED FOR WHICH A MILE OF WIND PASSES STATION (DIRECTION IN COMPASS POINTS). FASTEST OBSERVED ONE MINUTE WIND - HIGHEST ONE MINUTE SPEED (DIRECTION IN TENS OF DEGREES). PEAK GUST - HIGHEST INSTANTANEOUS WIND SPEED (A / APPEARS IN THE DIRECTION COLUMN). ERRORS WILL BE CORRECTED AND CHANGES IN SUMMARY DATA WILL BE ANNOTATED IN THE ANNUAL PUBLICATION.

I CERTIFY THAT THIS IS AN OFFICIAL PUBLICATION OF THE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION, AND IS COMPILED FROM RECORDS ON FILE AT THE NATIONAL CLIMATIC CENTER, ASHEVILLE, NORTH CAROLINA, 28801.

Daniel B. Mitchell
DIRECTOR
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noaa NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION / ENVIRONMENTAL DATA AND INFORMATION SERVICE / NATIONAL CLIMATIC CENTER ASHEVILLE, NORTH CAROLINA

APRIL 1982
NOME, ALASKA

MAY 1982
26617
NOME, ALASKA
MUNICIPAL AIRPORT

ISSN 0198-0408

LOCAL CLIMATOLOGICAL DATA

Monthly Summary

NATIONAL WEATHER SERVICE OFC

LATITUDE 64° 30' N LONGITUDE 165° 26' W ELEVATION (GROUND) 13 FEET TIME ZONE BERING WBAN #26617

DATE	TEMPERATURE °F					DEGREE DAYS BASE 65°F		WEATHER TYPES	SNOW ICE PELLETS OR ICE ON GROUND AT 07AM	PRECIPITATION		AVERAGE STATION PRESSURE IN INCHES	WIND (M.P.H.)				SUNSHINE		SKY COVER (TENTHS)		DATE
	MAXIMUM	MINIMUM	AVERAGE	DEPARTURE FROM NORMAL	AVERAGE DEW POINT	HEATING (SEASON BEGINS WITH JULY)	COOLING (SEASON BEGINS WITH JAN)	1 FOG 2 HEAVY FOG 3 THUNDERSTORM 4 ICE PELLETS 5 HAIL 6 GLAZE 7 DUSTSTORM 8 SMOKE, HAZE 9 BLOWING SNOW	INCHES	WATER EQUIVALENT (INCHES)	SNOW, ICE PELLETS (INCHES)	ELEV. 22 FEET ABOVE M.S.L.	RESULTANT DIR.	RESULTANT SPEED	AVERAGE SPEED	FASTEST MILE SPEED	FASTEST MILE DIRECTION	MINUTES	PERCENT OF TOTAL POSSIBLE	SUNRISE TO SUNSET	MIDNIGHT TO MIDNIGHT	
	2	3	4	5	6	7A	7B	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
1	20	-6‡	7‡	-20	- 5	58	0		6	0	0	29.91	33	2.0	4.0	6	09	1016	100	0	0	1
2	22	-3	10	-18	5	55	0	1	6	.04	.7	29.94	10	8.3	8.3	14	09	133	13	9	8	2
3	31	20	26	-2	21	39	0	1	7	.01	.1	29.94	08	10.8	10.9	16	09	0	0	10	10	3
4	34	28	31	2	26	34	0	1	8	.07	1.0	30.08	10	5.7	5.9	8	10	0	0	10	10	4
5	39	26	33	3	24	32	0		6	0	0	30.05	02	5.2	5.9	10	06	843	81	2	3	5
6	42	28	35	5	22	30	0		6	0	0	29.91	04	8.7	9.4	16	03	965	92	4	5	6
7	43	35	39	8	29	26	0		4	0	0	29.87	09	7.4	7.6	10	09	386	37	10	10	7
8	41	35	38	7	32	27	0	1	3	.10	0	29.72	08	10.0	10.1	18	08	0	0	10	10	8
9	38	35	37	5	31	28	0	1	2	.13	T	29.51	11	9.6	9.8	16	09	0	0	10	10	9
10	38	34	36	4	30	29	0	1	2	.12	T	29.60	09	8.2	9.5	13	09	384	36	9	9	10
11	46	34	40	7	28	25	0		2	0	0	29.68	03	9.2	10.2	17	03	872	80	10	10	11
12	40	31	36	3	27	29	0		1	.02	.2	29.85	02	5.1	6.5	12	03	804	74	10	10	12
13	33	27	30	-4	25	35	0		T	T	T	30.11	18	3.7	5.0	9	36	826	75	10	10	13
14	30	27	29	-5	22	36	0	6	T	T	0	30.23	22	4.5	7.8	10	23	753	68	10	10	14
15	31	25	28	-7	21	37	0	6	T	.01	T	30.22	13	8.6	9.9	16	11	0	0	10	10	15
16	50	27	39	4	26	26	0		T	.01	T	30.05	07	11.7	11.9	17	07	914	82	5	6	16
17	53‡	34	44‡	8	27	21	0		T	0	0	29.88	04	12.7	14.2	21	04	976	87	6	7	17
18	44	30	37	1	24	28	0		T	0	0	29.74	33	3.6	7.9	12	03	1023	90	8	7	18
19	43	29	36	0	23	29	0		T	0	0	29.72	33	5.3	8.8	10	27	1061	93	1	1	19
20	41	29	35	-2	24	30	0		T	0	0	29.74	30	4.3	7.6	12	36	1145	100	0	0	20
21	37	26	32	-5	25	33	0		T	T	T	29.80	24	2.9	5.9	10	24	1022	89	5	5	21
22	41	29	35	-3	24	30	0		T	T	T	29.77	27	9.4	9.8	15	27	1063	92	6	6	22
23	48	25	37	-1	26	28	0		T	0	0	29.68	27	4.2	6.2	10	29	1165	100	0	0	23
24	38	27	33	-6	22	32	0		T	T	T	29.79	29	14.1	14.8	22	27	1033	88	4	4	24
25	39	27	33	-6	25	32	0		T	0	0	30.02	27	7.0	8.8	15	27	1067	91	8	7	25
26	50	34	42	3	31	23	0	1	T	.17	0	29.78	09	15.1	17.0	23	10	600	51	8	8	26
27	46	38	42	2	35	23	0	1	T	.10	0	29.61	10	14.1	14.4	20	11	0	0	10	10	27
28	39	33	36	-4	31	29	0	1	T	.15	T	29.87	16	13.4	14.0	17	16	0	0	10	10	28
29	38	34	36	-4	31	29	0	2	T	.05	.1	30.07	22	5.5	7.8	10	23	0	0	10	10	29
30	38	32	35	-6	30	30	0	2	T	.11	.6	30.25	16	7.6	9.1	14	09	0	0	10	10	30
31	42	35	39	-2	33	26	0	2	T	.14	0	30.10	13	10.6	10.8	16	12	0	0	10	10	31
	SUM	SUM				TOTAL	TOTAL	NUMBER OF DAYS		TOTAL	TOTAL	FOR THE MONTH:						TOTAL	%	SUM	SUM	
	1215	865				969	0			1.23	2.7	29.89	09	2.9	9.3	23	10	18051	FOR	225	226	
	AVG.	AVG.	AVG.	DEP.	AVG.	DEP.	DEP.	PRECIPITATION		DEP.						DATE:	26	POSSIBLE	MONTH	AVG.	AVG.	
	39.2	27.9	33.6	-1.2	25	33	0	> .01 INCH	15	0.53								34652	52	7.3	7.3	

NUMBER OF DAYS				SEASON TO DATE		SNOW, ICE PELLETS		GREATEST IN 24 HOURS AND DATES				GREATEST DEPTH ON GROUND OF SNOW, ICE PELLETS OR ICE AND DATE	
MAXIMUM TEMP.		MINIMUM TEMP.		TOTAL	TOTAL	> 1.0 INCH	1	PRECIPITATION		SNOW, ICE PELLETS			
≥ 90°	≤ 32°	≤ 32°	≤ 0°	DEP.	DEP.	THUNDERSTORMS	0	.20	26-27	1.1	3- 4	8	4
0	5	20	2	-367	0	HEAVY FOG	3						
						CLEAR 5	PARTLY CLOUDY 6			CLOUDY 20			

‡ EXTREME FOR THE MONTH - LAST OCCURRENCE IF MORE THAN ONE.
T TRACE AMOUNT.
+ ALSO ON EARLIER DATE(S).
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DATE	TEMPERATURE °F MAXIMUM	MINIMUM	AVERAGE	DEPARTURE FROM NORMAL	AVERAGE DEW POINT	DEGREE DAYS BASE 65°F HEATING (SEASON BEGINS WITH JULY)	COOLING (SEASON BEGINS WITH JAN)	WEATHER TYPES 1 FOG 2 HEAVY FOG 3 THUNDERSTORM 4 ICE PELLETS 5 HAIL 6 GLAZE 7 DUSTSTORM 8 SMOKE, HAZE 9 BLOWING SNOW	SNOW ICE PELLETS OR ICE ON GROUND AT 07AM INCHES	PRECIPITATION WATER EQUIVALENT (INCHES)	PRECIPITATION SNOW, ICE PELLETS (INCHES)	AVERAGE STATION PRESSURE IN INCHES ELEV. 22 FEET ABOVE M.S.L.	WIND (M.P.H.) RESULTANT DIR.	RESULTANT SPEED	AVERAGE SPEED	FASTEST MILE SPEED	FASTEST MILE DIRECTION	SUNSHINE MINUTES	SUNSHINE PERCENT OF TOTAL POSSIBLE	SKY COVER (TENTHS) SUNRISE TO SUNSET	SKY COVER (TENTHS) MIDNIGHT TO MIDNIGHT	DATE
1	38	34	36	-6	31	29	0	1	T	.43	.8	29.72	15	13.0	15.5	20	13	0	0	10	10	1
2	37	34	36*	-6	30	29	0	1	T	.18	1.7	29.83	23	8.8	10.4	17	25	0	0	10	10	2
3	47	34	41	-1	33	24	0	2	T	.02	T	29.84	12	9.9	13.2	20	09	0	0	10	10	3
4	48	39	44	2	35	21	0	1	T	.10	0	29.40	12	18.1	18.3	25	13	256	21	9	9	4
5	46	36	41	-2	36	24	0	2	T	.36	0	29.32	13	14.0	14.2	21	12	0	0	10	10	5
6	39	34	37	-6	31	28	0	2	T	.03	T	29.61	18	13.5	13.8	23	18	0	0	10	10	6
7	44	35	40	-3	35	25	0	2	T	.10	0	29.89	12	7.2	7.6	12	13	0	0	10	10	7
8	43	37	40	-4	32	25	0	1	T	.02	0	30.04	17	3.0	5.5	9	18	175	14	9	9	8
9	54	34	44	0	33	21	0		T	T	0	29.89	07	3.4	7.1	13	08	731	58	7	7	9
10	66	44	55	11	39	10	0		T	T	0	29.58	05	16.4	16.5	24	04	968	76	5	6	10
11	59	48	54	9	40	11	0		0	.04	0	29.53	02	4.0	6.5	17	04	347	27	10	10	11
12	55	42	49	4	39	16	0		0	0	0	29.55	21	3.6	5.5	10	19	774	61	7	7	12
13	45	36	41	-4	34	24	0	2	0	T	0	29.80	14	7.9	8.5	13	16	0	0	10	10	13
14	47	35	41	-4	31	24	0	1	0	T	0	30.07	24	4.2	6.3	12	28	90	7	10	10	14
15	42	34	38	-8	30	27	0	1	0	0	0	30.18	28	11.9	12.2	21	28	829	65	6	5	15
16	47	33	40	-6	33	25	0		0	0	0	30.17	28	11.7	12.1	20	26	1284	100	0	0	16
17	51	33*	42	-4	34	23	0	1	0	0	0	30.13	23	3.5	4.3	9	22	1286	100	0	0	17
18	62	38	50	4	36	15	0		0	0	0	29.96	25	4.2	5.9	17	28	1138	88	3	3	18
19	75	44	60	13	39	5	0		0	0	0	29.82	28	4.4	7.2	13	28	1288	100	1	1	19
20	77	52	65	18	35	0	0		0	0	0	29.71	02	10.4	10.6	17	03	1289	100	0	0	20
21	65	49	57	10	44	8	0	1	0	.02	0	29.69	13	6.0	6.8	16	13	773	60	8	8	21
22	57	45	51	4	47	14	0	1	0	.10	0	29.96	12	7.7	8.2	14	14	1015	79	8	8	22
23	65	45	55	8	44	10	0		0	T	0	30.16	15	4.7	7.8	14	11	989	77	5	5	23
24	69	44	57	9	45	8	0		0	0	0	30.07	22	2.4	4.5	9	15	670	52	5	5	24
25	80*	58	69*	21	47	0	4		0	T	0	29.80	05	3.1	8.5	12	27	263	20	8	8	25
26	79	57	68	20	50	0	3		0	T	0	29.58	12	6.3	8.2	13	15	803	63	6	6	26
27	66	56	61	13	50	4	0	1	0	.12	0	29.46	11	6.7	9.2	14	12	718	56	9	9	27
28	68	47	58	10	45	7	0		0	.03	0	29.31	10	9.1	14.7	25	15	175	14	9	9	28
29	61	44	53	5	42	12	0		0	T	0	29.62	11	8.3	8.9	16	13	713	56	6	5	29
30	72	44	58	9	40	7	0		0	0	0	29.51	01	9.7	10.6	17	36	974	77	8	8	30

SUM	SUM				TOTAL	TOTAL	NUMBER OF DAYS	TOTAL	TOTAL	FOR THE MONTH:						TOTAL	%	SUM	SUM
1704	1245				476	7		1.55	2.5	29.77	13	3.1	9.6	25	15	17548	FOR	209	208
AVG.	AVG.	AVG.	DEP.	AVG.	DEP.	DEP.	PRECIPITATION	DEP.						DATE:	28+	POSSIBLE	MONTH	AVG.	AVG.
56.8	41.5	49.2	3.7	38	-109	7	> .01 INCH 13	0.60								38086	46	7.0	6.9

NUMBER OF DAYS				SEASON TO DATE TOTAL	SEASON TO DATE TOTAL	SNOW, ICE PELLETS	GREATEST IN 24 HOURS AND DATES			GREATEST DEPTH ON GROUND OF SNOW, ICE PELLETS OR ICE AND DATE	
MAXIMUM TEMP.		MINIMUM TEMP.		13849	7	> 1.0 INCH 1	PRECIPITATION	SNOW, ICE PELLETS		2	2
≥ 90°	≤ 32°	≤ 32°	≤ 0°	DEP.	DEP.	THUNDERSTORMS 0	.53	31- 1	1.7		
5	0	0	0	-476	7	HEAVY FOG 5					
						CLEAR 5 PARTLY CLOUDY 8 CLOUDY 17					

* EXTREME FOR THE MONTH - LAST OCCURRENCE IF MORE THAN ONE.
T TRACE AMOUNT.
+ ALSO ON EARLIER DATE(S).
HEAVY FOG: VISIBILITY 1/4 MILE OR LESS.
BLANK ENTRIES DENOTE MISSING DATA.

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JUN 1982
NOME, ALASKA

JUL 1982 26617
NOME, ALASKA
MUNICIPAL AIRPORT

ISSN 0198-G408

LOCAL CLIMATOLOGICAL DATA

Monthly Summary

NATIONAL WEATHER SERVICE OFC

LATITUDE 64° 30' N LONGITUDE 165° 26' W ELEVATION (GROUND) 13 FEET TIME ZONE BERING WBAN #26617

DATE	TEMPERATURE °F MAXIMUM	MINIMUM	AVERAGE	DEPARTURE FROM NORMAL	AVERAGE DEW POINT	DEGREE DAYS BASE 65°F HEATING (SEASON BEGINS WITH JULY)	COOLING (SEASON BEGINS WITH JAN)	WEATHER TYPES 1 FOG 2 HEAVY FOG 3 THUNDERSTORM 4 ICE PELLETS 5 HAIL 6 GLAZE 7 DUSTSTORM 8 SMOKE, HAZE 9 BLOWING SNOW	SNOW ICE PELLETS OR ICE ON GROUND AT 07AM INCHES	PRECIPITATION WATER EQUIVALENT (INCHES)	SNOW, ICE PELLETS (INCHES)	AVERAGE STATION PRESSURE IN INCHES ELEV. 22 FEET ABOVE M.S.L.	WIND (M.P.H.) RESULTANT DIR.	RESULTANT SPEED	AVERAGE SPEED	FASTEST MILE SPEED	FASTEST MILE DIRECTION	SUNSHINE MINUTES	PERCENT OF TOTAL POSSIBLE	SKY COVER (TENTHS) SUNRISE TO SUNSET	MIDNIGHT TO MIDNIGHT	DATE
	2	3	4	5	6	7A	7B	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
1	62	48	55	6	43	10	0		0	T	0	29.47	24	5.5	8.1	18	23	485	38	10	10	1
2	63	45	54	5	42	11	0		0	0	0	29.63	11	6.2	8.9	16	15	1017	80	5	6	2
3	67	52	60	11	44	5	0		0	T	0	29.67	23	2.1	9.6	15	14	740	59	8	8	3
4	75*	50	63	14	45	2	0		0	0	0	29.59	31	4.9	7.5	15	34	895	71	7	7	4
5	68	53	61	12	49	4	0	1	0	.35	0	29.51	10	9.9	12.5	20	15	230	18	8	8	5
6	61	51	56	7	43	9	0		0	.02	0	29.73	12	12.3	14.1	20	13	162	13	10	10	6
7	66	45	56	7	49	9	0		0	.02	0	29.84	13	2.9	8.3	12	19	820	66	6	6	7
8	73	43	58	8	48	7	0		0	0	0	29.78	27	10.0	11.4	20	26	1237	100	1	1	8
9	59	45	52	2	44	13	0		0	0	0	29.86	26	17.5	17.7	22	26	1058	86	2	2	9
10	62	42	52	2	43	13	0		0	0	0	29.96	26	7.1	7.5	15	25	801	65	4	4	10
11	68	53	61	11	50	4	0		0	T	0	29.89	26	6.3	7.8	16	26	828	68	5	6	11
12	71	56	64*	14	53	T	0		0	T	0	29.88	13	3.6	6.2	14	14	944	78	7	7	12
13	61	52	57	7	49	8	0	1	0	0	0	29.87	22	3.1	7.2	12	24	1043	86	6	6	13
14	66	51	59	9	48	6	0		0	.10	0	29.85	17	3.7	5.8	12	14	366	30	8	9	14
15	67	50	59	9	49	6	0		0	0	0	29.76	29	3.7	6.0	15	26	429	36	8	7	15
16	72	51	62	12	50	3	0		0	.10	0	29.65	29	3.8	6.8	14	25	244	21	9	9	16
17	66	50	58	8	52	7	0	3	0	.07	0	29.73	26	3.4	6.5	12	24	362	31	9	9	17
18	69	50	60	10	53	5	0		0	0	0	29.91	24	4.5	7.6	14	25	1023	87	5	4	18
19	67	50	59	9	48	6	0		0	0	0	30.05	24	5.2	6.2	12	24	1171	100	0	0	19
20	57	44	51	1	44	14	0		0	0	0	29.94	24	2.9	4.0	9	24	0	0	10	9	20
21	60	50	55	5	44	10	0		0	T	0	29.77	26	7.5	9.5	15	27	84	7	9	9	21
22	59	51	55	4	46	10	0	1	0	.03	0	29.78	16	8.5	9.9	14	16	122	11	10	10	22
23	55	39	47	-4	42	18	0	1	0	.16	0	29.74	26	10.4	12.7	21	29	0	0	10	10	23
24	52	39*	46*	-5	34	19	0		0	0	0	30.03	24	4.9	6.6	12	24	601	53	9	9	24
25	54	48	51	0	38	14	0		0	T	0	30.06	22	8.6	8.9	14	21	194	17	10	10	25
26	55	46	51	0	38	14	0	1	0	.33	0	30.00	05	1.1	9.6	21	05	0	0	10	10	26
27	56	49	53	2	47	12	0	1	0	.34	0	29.90	11	9.0	11.1	21	05	0	0	10	10	27
28	55	52	54	3	49	11	0	1	0	.06	0	29.91	15	10.8	11.1	15	15	0	0	10	10	28
29	61	51	56	5	48	9	0	1	0	.01	0	29.82	01	1.8	6.9	12	29	0	0	10	10	29
30	53	49	51	0	45	14	0	1	0	T	0	30.05	28	13.0	13.7	20	28	0	0	10	10	30
31	52	49	51	0	44	14	0	1	0	.03	0	30.20	20	9.5	10.1	14	18	0	0	10	10	31
	SUM	SUM				TOTAL	TOTAL			TOTAL	TOTAL	FOR THE MONTH:						TOTAL	%	SUM	SUM	
	1932	1504				288	0	NUMBER OF DAYS		1.62	0	29.83	22	3.2	9.0	22	26	14856	FOR MONTH	236	236	
	AVG.	AVG.	AVG.	DEP.	AVG.	DEP.	DEP.	PRECIPITATION		DEP.						DATE:	09	POSSIBLE		AVG.	AVG.	
	62.3	48.5	55.4	5.3	46	-174	0	> .01 INCH.	13	-0.80								36781	40	7.6	7.6	

NUMBER OF DAYS				SEASON TO DATE	
MAXIMUM TEMP.		MINIMUM TEMP.		TOTAL	TOTAL
≥ 90°	≤ 32°	≤ 32°	≤ 0°	DEP.	DEP.
4	0	0	0	-174	7

SNOW, ICE PELLETS, > 1.0 INCH	0
THUNDERSTORMS	1
HEAVY FOG	0
CLEAR 3 PARTLY CLOUDY 8 CLOUDY 20	

GREATEST IN 24 HOURS AND DATES		
PRECIPITATION	SNOW, ICE PELLETS	
.63	26-27	0

GREATEST DEPTH ON GROUND OF SNOW, ICE PELLETS OR ICE AND DATE: 0

* EXTREME FOR THE MONTH - LAST OCCURRENCE IF MORE THAN ONE.
T TRACE AMOUNT.
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JUL 1982
NOME, ALASKA

APPENDIX IV

June 1, 1982 - Winds S. E.,15,snow.

June 2, 1982 - Winds south, 10,snow.

June 3, 1982 - Winds S.E. 7, fog. Scott and Kae brought us to Woolley.

June 4, 1982 - Cloudy and rain, wind S.E.,20-30. Partly cloudy by noon. Two trucks came down the road, they were Frank Ellanna and someone else. They didn't make it because of the water was high. Robert Kasgnoc came dow n with Aloysius Pikonganna, they unload a drum of gas by Al's camp. John Pullock and two OO-Q-VOK vans came down.

June 5,1982 - Winds S.E.,15, light rain. Nobody came down today. I can see ice off Woolley.

June 6,1982 - Cloudy, part snow, wind S,25. Ice S.W. of Cape Woolley about 5 miles. Two OO-Q-VOK vans ~~came~~ and John came down. Abput 30 people with camping gear. Two boats, one 14 ft. aluminum and one wooden for ferry this summer. All of them go back to town including my wife and baby Margaret. We forgot sugar, she went shopping.

June 7,1982 - Cloudy, winds S.,10, part rain, temp. 40 F. See no ice this time. High Way cat. came down to washed out road by 10:00 a.m. Al and Dan came down and visit in the morning. Al Pikonganna came down with two boats.John and Francis came by 5:10 p.m. Three boats came by 7:10 p.m., they were John, Francis and Paul.

June 8,1982 - Cloudy and fog, winds S.E. 5, visibilty 18. Three boats ready to go hunting,John, Francis and Paul. Paul's son Justin was captain of his boat. Justin came and ask me if I wanted to go hunting, I told him that I had a bad cold and asked how much crew he had. He said only two that is why I decided to go with my son Eddie. We start at 9:10 a.m. toward King Island, half an hour later we ran into closed ice pack. I shot a ringed seal pup. John's crew shot @ spotted seals. I show them how to cut the females reproduction system. Then we start S.E. towards Sledge Island, 45 minutes later we saw some people on the ice 5 miles S.E. They ran into closed ice pack. westward

June 8 cont. - ½ a mile to open water and head N.W. The people were Aloysius Pikonganna's crew, they were already working on the walrus killed on the ice. Forty-five minutes later we ran from the closed ice pack, we ran out. I saw 8 dead walrus on the ice, they lost two ♀ in the water. Al had a crew of 5, on our side John had 4 men, Francis also had 4, Justin had 5 men. There was lots of walrus, mostly ♀ , we killed 14 ♀ ,one calf on our first stop. The walrus were on small ice packs, about 5 to 10 to one ice pack. We worked separately to our kill , as far as we can see there was wlarus on the ice and in the water. Two gray whales, and thousands of walrus and in the water. Par Norbert and his crew of Stan Walker, and John Panke. were hunting. On our next stop we killed 15,2 ♂ and 13 ♀, we lost about 5 in the water. the ice was very closed after our work by 10:20 p.m. WE start to go home, it took us 1 hour and 45 minutes to go to our home at Woolley. Frank Ellanna Brought his skin boat to Woolley.

June 9,1982 - Clear, Wind N.E. 10. John,Francis and Justin boat go out at 11:35 a.m. Start out towards the west then ran toward King Island for 45 minutes, stopped then went toward ice by Port Clarence, stop on ice. Then went towards Cape Prince of Wales, ran into walrus on ice of Lost River about 15 miles out. There was about 5 herds of walrus, 10-30 on ice. First kill was 19 walrus, about 5 ♂, 14 ♀, see about 4 calfs. lost 6 ♀. Soon we finish working we start back to Woolley along edge of ice. At 7:45 p.m. we run into ice pack 3 times toward mainland but the ice is veryclosed. Four times we made it. We arrived at Woolley by 10:10 p.m. Mike Saclamanna's aluminum boat came to Woolley from walrus hunt from Nome with a crew of 7. They hunt west of Sledge Is. mostly ♂ walrus. They got about 40 walrus'. Al Pikonganna went out about 5:10 p.m., he had about 6 crew. They hunt east of King Is. about 10 miles. Number of walrus(?)

June 10, 1982 - Clear, wind N.E. 30, temp. high 58°F. Work on specimens today.

June 11, 1982 - Cloudy, wind N.E. 10, temp. 48°F. By 5:00 p.m. wind clear, by 7:30 a.m. temp. 44°F. Rae and Jack Brown came down, did paper work with Rae.

June 12, 1982 - Clear, wind N. 30. No hunting today. John and Francis go on the Teller road to look out, they saw 6 Beluga whales.

June 13, 1982 - Calm in the morning, becoming fog, S.E. winds at 7 and increasing Four boats go out about 3:45 toward King Is. In 15 minutes they turn toward Cape Douglas and had lunch. Wind increasing so we went back to Woolley. Arrive 8:10 p.m., a 11 captains go to Nome with Francis, they arrived at 11:30 p.m.

June 14, 1982 - Pick up my orders from the Post Office, they were there for a week. Go back to Woolley arrive 8:20 p.m. Winds S.E. 10 and cloudy.

June 15, 1982 - Cloudy, wind S.E.7. Four boats go out by 2:10 p.m. Francis had a crew of 5, John 5, Justin 5, and Al also had 5. Head S.E. for 45 minutes, stop then head N.W. for 40 minutes, stop then head S.W. for 10 min., stop. Visibility 5 miles, can't find King Island. See 3 pieces of ice then go back to the mainland. We saw 3 walrus in the water and 2 whales near Cape Douglas, arrive Woolley 9:10 p.m. Father Macke came by noon to say mass, over 30 people squeeze into my cabin to hear the mass.

June 16, 1982 - Cloudy and fog, visibilty 5 miles, wind S. 10 increasing to 15. They see walrus in the water heading north. We sit up on the look out tower.

June 17,1982 - Fog, wind S 5, temp. 32°F by 6:00 a.m. Justin and Mike's boats go to King Is. The Little Sisters caught a ringed seal in their net. Start to go to King Is by 10:00 p.m. Lots of walrus on shore ice. Start to hunt by 2:40 a.m., weather is clear now. First kill 27 ♂, lost 3. Ice break 20 to 60 ft. thick. Lost an ax, one tusk and almost Mike. Again his boa t kill 29 ♂, Al Pikonganna's boat

June 17 cont. - arriv[illegible] early in the morning, they lan[illegible] below the village. Lots of whales below S.W. of the Island.

June 18-19, 1982 - Partly cloudy, winds N.W. 7. John and Francis arrive in the morning and start hunting. Tom Tiulanna, Charles Kokuluk a nd Jerome Saclamanna came with John and Francis. They got about 20-30 ♂ walrus. John and Francis hunt around the village, they hunt only once. Swells kept us on the Island. We used Mike and Al's boat with a crew of 14. We went around the back of the Island, all 4 boats. We kill about 16 walrus, 3 ♀, 16 ♂, lost 4 ♂. John, Francis and Aloysius went out to the ice away from the Island. About ½ a mile N.W from the Island they shot like hell, maybe 10 walrus (?) We went to the east side of the Island, another kill on the ice 10 yards from the rocks. Got 9 ♂., another kill this time 3 yards from the rocks, we got 7 ♂. John and Francis went back to woolley.

June 20, 1982 - Clear, winds N. 15. I just feel dirty, all I think of at Woolley was to go to King Is. , I did not bring extra clothes. More More walrus on the North side of the Island on the rocks. We don't like to hunt them with the north wind. So I took off my clothes and made a diaper out of a piece of cloth and washed my clothes, and hang them dry outdoors. Nice wind, temp. 66° F. I took a bath and washed my hair. Half an hour later my clothes were good and dry, I put them on and climb to the top of the Island and enjoy the paradise. When evening came Gabe Payenna cook some walrus meat. Hubert Kokuluk light the Coleman stove but it didn't burn right so he start to swear at it. Gabe thought he was swearing at him so he threw the walrus out the door. Hubert got the meat, flipper, a coke (skin) and cooked. We got together and had dinner.

The wind start to pick up to 25, fog covered the Island. Most of us retired with a full stomach.

June 21, 1982 - Wind is blowing from the north, fog covered the Island in the

June 21 cont. - morning. Walrus were swimming in the water every day. Wind becoming E., then at 15 in the evening.

June 22, 1982 - Cloudy, visibility 15, wind S.E. Lots of birds landing on the Island. We start out for Woolley at 10:10 a.m., arrive at 1:10 p.m. John and Francis came from Nome and start for King Is. at 7:10 p.m. Weather now is clear and calm. More walrus haul on the rocks east of the Island about 200 and west of the village about 100. Saw 3 Gray whales going to Cape Douglas. Mike and Justins crew go to Nome.

June 23, 1982 - Partly cloudy, winds N. 5 and variable. King Island look beautiful John and Francis came from King Island, arrive at 9: 10 p.m. They hunt on the east side of the Island on the rocks two times. They got about 110 walrus, all ♂, they left one in the water. They were very tired. Justin and Mike's crew came to Woolley about 11:00 p.m. Justin was waiting for his sister to come in from Anchorage by Friday. Mike and Al's boat left after midnight for King Island. Weather is very good, there is more walrus on the rocks. I was tired and coughing. My wife went to Nome to check on our baby Margaret, who went to see a doctor.

June 24, 1982 - Clear, wind calm, temp. 54° F by 6:00 a.m. John and Francis are in Nome. They will come tomorrow.

June 25, 1982 - Clear in the morning becoming partly cloudy. Temp. 66° F by 5:00 p.m. too hot for us. John and Francis come about 8:10 p.m. with my brother Gabe's aluminum boat. They want to go to King Island but the N.E. wind was increasing to 15 and it wa s raining. Mike and Al's boat came from King Island about 9:35 p.m. They had 2 beautiful days of hunting at King Island on the rocks. About 120 ♂ walrus. Mike said walrus haul all around the Island. John was planning to hunt off Cape Prince of Wales.

June 26, 1982 - Cloudy, wind N.E. 15 by noon light winds. John, Francis, Tiulanna,

June 26 cont. - and my brother Gabe were ready to go to King Island. They left at 12:20 p.m.

June 27, 1982 - Cloudy, wind E 10. Go to Nome with Joe Amarok, arrive 12:10 p.m., back to Woolley arrive 6:10 p.m.

June 28, 1982 - Cloudy, east wind 15, by morning increasing to 25- 30 with some rain an sunshine mixed. Contact King Is. by C.B.

June 29, 1982 - Partly cloudy, wind E 15 increasing to 20 and part rain. Go to Nome, use 00-Q-VOK car, arrive 12:10 p.m., back to Woolley arrive 5:45 p.m. Wind swing to N.W at 10 by evening.

June 30, 1982 - Got up at 5:00 a.m. Three boats arrived, John, Francis and Gabe then they went to Nome. Wind N.E. 20, partly cloudy.. They said they were all wet. They did not hunt for walrus because of the swells.

July 1, 1982 - E. wind 15 partly cloudy.

July 2, 1982 - E. wind 15, clear. John , Francis and Gabe came by evening.

July 3, 1982 - Cloudy, wind N.E. 15. We got ready to go to King Is. Gabe, Francis and Al's boats leave Woolley 11:30 p.m., arrive King Is. 4:00 p.m. Unload boats, had lunch then went egg hunting. Tiulanna's boat been hunt about 40 walrus and saw 4 killer whales, 1 ♂ and 3 ♀. Saw lots of whales S.W of the Island and few walrus in the water.

July 4, 1982 - Clear, wind N.E. 5. See more walrus in the water. Nine walrus raced in the water, they stop at the finish line. They knew it was the 4th of July. Very good day to hunt walrus but we enjoy the 72° F weather.

July 5, 1982 Wind N.E. 15, cloudy and rain, wind becoming E.SE 10 in the after noon Saw few walrus in the water.

July 6, 1982 - Partly cloudy , wind E at 5. Clearing by noon. The day we are waiting for is here. It took us over 1 hour to put 2 aluminum boats in the water. They are not like skin boats. They head towards the east side of the Island at 3:35 p.m. , then to east side to hunt walrus and pick greens. Four ladies, 14 kids, and 13 walrus hunters. There was about 70-80 male walrus on the rocks. We kill

July 7 cont. - 32 walrus, lost 3 in the water. We hope to find them later. While working on the hole in the walrus the skin came off. I fell off. I fell backwards then sit on a rock, my body was under water. If there was no rock the back of my head would have hit the wall of the rock. My body got all wet. We got home at 9:50 p.m.

July 8, 1982 - Clear above low fog east and west of the Island. Wind N.E. 10, temp. 68°F. at 8:00 a.m. Lots of birds flying and landing on top of the houses and rocks, they were singing, it is a paradise. Go hunting at 11:50 a.m., first hunt we killed 28 walrus, next kill was 32 all males. We saw a female with a calf in the water. Got home at 9:45 p.m.

July 9, 1982 - Cloudy, wind S.W. 10 and fog. Not very much walrus in the water.

July 10, 1982 - Cloudy, and part rain, wind W. at 10, becoming N at 5 by the evening.

July 11, 1982 Partly cloudy, wind N 10. My brother killed a bull walrus below the village on the rocks. Hunt walrus again at the north side of the Island. First kill 5 ♂ walrus, then 9 walrus, all bulls. Tiulanna's crew find 5 bull walrus that we lost on the rocks. Back home at 7:40 p.m. My brother and I put walrus meat in the cave.

July 12, 1982 - Cloudy, wind N. 15. We climb to go green picking, see 3 walrus in the water.

July 13, 1982 - Cloudy, wind N. 10 becoming east at 7, clear at the top of the Island. Climb to pick greens, egg hunt and watch birds.

July 14, 1982 - Calm and fog. Clear a little by evening. We got ready to go to Woolley but Al Pikonganna's two motors can't start. In his 55 hp. motor we found a ground wire broken and his 35 hp. oil got into the points. After 2 hours the 55 hp. start, Tiulanna's boat tow Al's boat. We start at 8:00 p.m. Saw 3 killer whales and 1 gray whale on the way to Cape Douglas. We run slow in calm water, we finally kick it from Cape Douglas. Arrive Woolley 11:30 pm.

July 15, 1982 - Go to Nome arrive at 11:20 p.m.

July 16,1982 - Go to Woolley to pick up meat and ivory which I can't get transportation

July 16 cont. - The meat looked old in the meat hole from the summer weather. I will be at camp for the rest of the summer, maybe one more trip to King Island for Salmon berries.