

NUNIVAK ISLAND NATIONAL WILDLIFE REFUGE
Mekoryuk, Alaska

ANNUAL NARRATIVE REPORT
Calendar Year 1978

NATIONAL WILDLIFE REFUGE SYSTEM
Fish and Wildlife Service
U.S. DEPARTMENT OF THE INTERIOR

S
SPEC
COLL
NARR
NUNWR
1978

3 4982 00021221 6



US FISH & WILDLIFE SERVICE--ALA

NUNIVAK ISLAND NATIONAL WILDLIFE REFUGE
Mekoryuk, Alaska

ANNUAL NARRATIVE REPORT
Calendar Year 1978

NATIONAL WILDLIFE REFUGE SYSTEM
Fish and Wildlife Service
U.S. DEPARTMENT OF THE INTERIOR

ARLIS
Alaska Resources
Library & Information Services
Anchorage, Alaska

US FISH & WILDLIFE SERVICE--ALASKA



3 4982 00021221 6

PERSONNEL

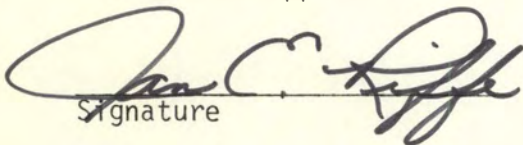
Timothy Smith
Richard Davis

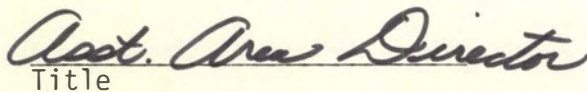
EOD 04-23-78
Permanent Part-Time

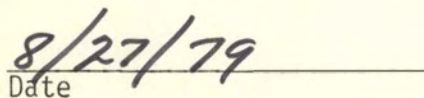
Refuge Biologist
Maintenance man

GS-05
WG-08

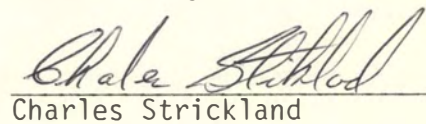
Area Office Approval:

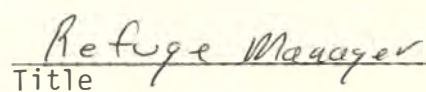

Signature


Title


Date

Submitted By:


Charles Strickland


Title

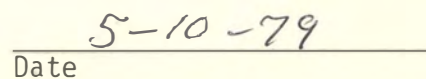

Date

TABLE OF CONTENTS

| | <u>Page</u> |
|--|-------------|
| <u>I. GENERAL</u> | |
| A. Introduction..... | 1 |
| B. Climatic and Habitat Conditions..... | 1 |
| C. Land Acquisition..... | 1 |
| D. System Status..... | 1 |
| <u>II. CONSTRUCTION AND MAINTENANCE</u> | |
| A. Construction..... | 1 |
| B. Maintenance..... | 1 |
| C. Wildfire..... | 1 |
| <u>III. HABITAT MANAGEMENT</u> | |
| A. Croplands..... | 2 |
| B. Grasslands..... | 2 |
| C. Wetlands..... | 2 |
| D. Forestlands..... | 2 |
| E. Other Habitat..... | 2 |
| F. Wilderness and Special Areas..... | 2 |
| G. Easements for Waterfowl Management..... | 2 |
| <u>IV. WILDLIFE</u> | |
| A. Endangered and Threatened Species..... | 2 |
| B. Migratory Birds..... | 2 |
| C. Mammals and Non-Migratory Birds and Others..... | 4 |
| <u>V. INTERPRETATION AND RECREATION</u> | |
| A. Information and Interpretation..... | 7 |
| B. Recreation..... | 7 |
| C. Enforcement..... | 7 |
| <u>VI. OTHER ITEMS</u> | |
| A. Field Investigations..... | 8 |
| B. Cooperative Programs..... | 8 |
| C. Items of Interest..... | 10 |
| D. Safety..... | 10 |

I. GENERAL

A. Introduction

In prior years, activities carried out by the Fish and Wildlife Service on Nunivak Island National Wildlife Refuge were limited to intermittent visits by Clarence Rhode National Wildlife Refuge staff operating out of the complex headquarters in Bethel, Alaska. Establishment of a permanent Wildlife Biologist position on the island in 1978 significantly reduced the difficulties of adequately monitoring the refuge.

B. Climatic and Habitat Conditions

The winter of 1977-78 was relatively mild with regard to its impact on reindeer and muskox populations. Bad weather during the spring and summer months hampered research considerably as usual. Only thirteen of thirty-four days were even marginally suitable for small boat travel from June 25 to July 29. This was the best part of the summer. It is axiomatic that any extended trip to or around the island will include a significant portion of time spent waiting for better weather.

C. Land Acquisition

Nothing to report.

D. System Status

Nothing to report.

II. CONSTRUCTION AND MAINTENANCE

A. Construction

No new construction was carried out during 1978. The perennial problem on Nunivak is still lack of facilities. Although much has been said about the need for a permanent structure to provide living quarters, office and storage space; so far, little has been done to remedy the situation.

Both winter and summer operations are usually conducted far from human habitation and often under severe and unpredictable weather conditions. Lack of emergency shelter requires that winter work in particular be conducted with very little margin for safety.

B. Maintenance

Nothing to report.

C. Wildfire

Nothing to report.

III. HABITAT MANAGEMENT

A. Croplands

Nothing to report.

B. Grasslands

Nothing to report.

C. Wetlands

Nothing to report.

D. Forestlands

Nothing to report.

E. Other Habitat

Nothing to report.

F. Wilderness and Special Areas

Nothing to report.

G. Easements for Waterfowl Management

Nothing to report.

IV. WILDLIFE

A. Endangered and Threatened Species

Nothing to report.

B. Migratory Birds

1. Waterfowl

Waterfowl investigations on Nunivak carried out during the past year have been aimed at identifying habitats used by breeding and migrating birds.

Substantial numbers of Canada geese are found on interior lakes and marshes during the mid-summer flightless period. At present, little is known of the status of these birds and how they fit into the overall population. A marking program planned for the upcoming season will provide important data on where these birds come from and where they go.

The objective this year was to locate areas used by moulting geese.

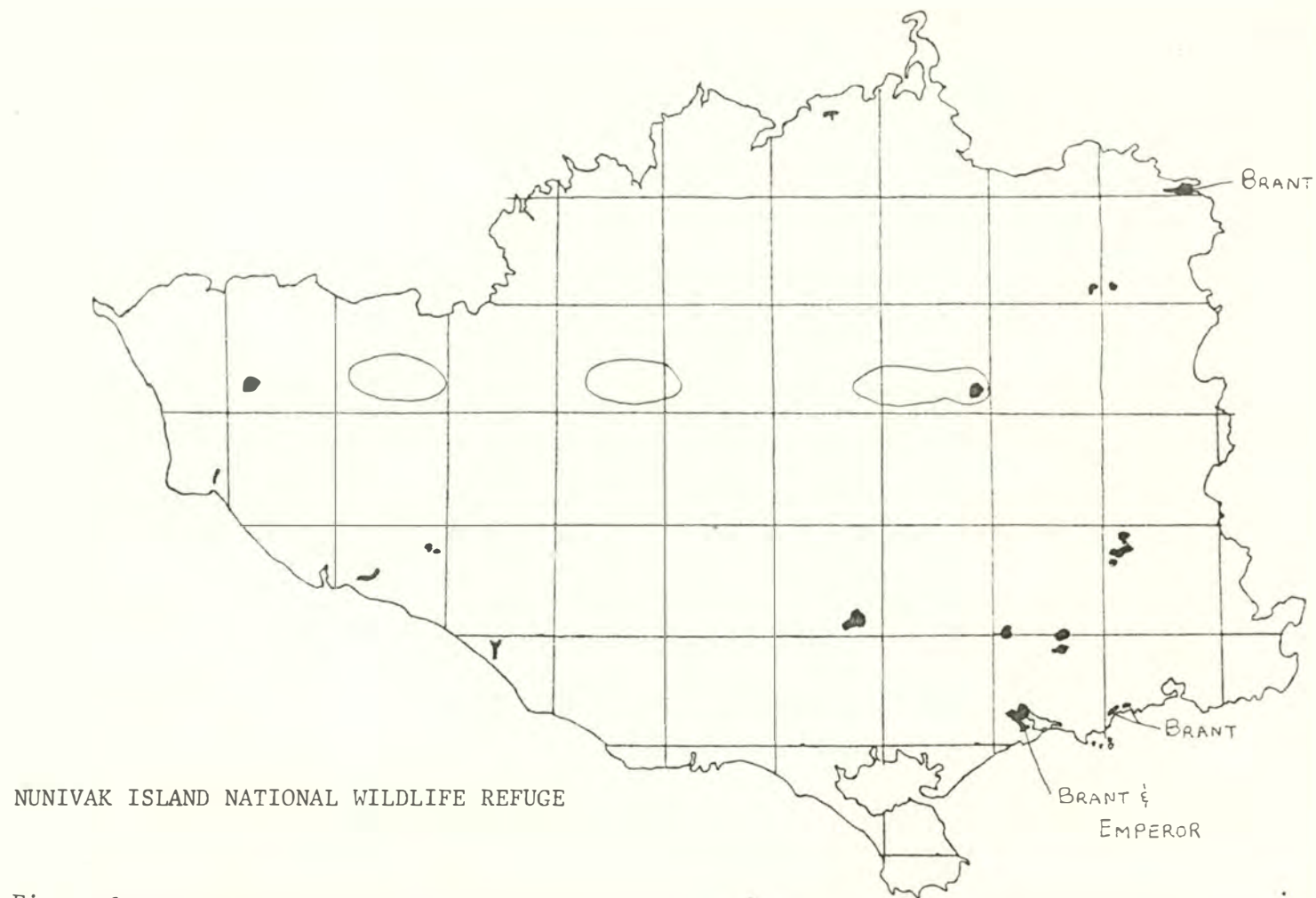


Figure 1. Location of areas used by moulting waterfowl, primarily Canada geese. Brant and emperor geese locations are indicated.

Figure 1, page 3 shows these areas.

2. Marsh and Waterbirds

Nothing to report

3. Shorebirds, Gulls, Terns and Allied Species

Nothing to report.

4. Raptors

Nothing to report.

5. Other Migratory Birds

Nothing to report.

C. Mammals and Non-Migratory Birds and Others

1. Game Mammals

(a) Muskox

The structure of the muskox population has been substantially altered as a result of selective hunting. In the four years that trophy hunting has been permitted, 179 males have been removed from the Nunivak population. This produced an estimated sex ratio among animals of breeding age at the time of the 1978 rut (males 4 years plus, females 2 years plus) to be eight-two percent (82%) females or 22 bulls per hundred cows. The preponderance of adult females in the herd is unlike any natural muskox population which has been studied.

The winter ground survey was conducted by snow machine during the fourth week of February. As in past years, the winter survey provided the most complete data on population composition and size. Personnel involved were Wildlife Biologist C. Dau, Assistant Refuge Manager D. Ross and Maintenceman R. Davis.

A total of 491 animals were observed. The results are summarized in Table I below.

Table I - Sex/Age Composition of Muskoxen Surveyed 21-28 February 1978.

| Total | Adults 4 Yrs. Plus | | 3 Yr. Old | | 2 Yr. Old | | Yearling | Unclass. |
|-------|-----------------------|--------|-----------|--------|-----------|--------|----------|----------|
| | Male | Female | Male | Female | Male | Female | | |
| 491 | *86 | 142 | 34 | 88 | 19 | 19 | 92 | 11 |

*30 bulls were killed by hunters after the census. Number of observations 34.

The aerial summer census was done on August 29 and 30 and September 3 by Assistant Refuge Manager L. Hotchkiss and Wildlife Biologist Tim Smith. Although all portions of the island were covered in the short time allotted to the survey, the low total indicates that a number of animals were missed. Table II shows the results of this survey.

Table II - Muskoxen Observed During the Aerial Survey Conducted August 29 - 30 and September 3, 1978.

| Total | Adults 4 Yrs. Plus | | Sub-adults | Yearlings | Calves | Unclass. |
|-------|-----------------------|--------|------------|-----------|--------|----------|
| | Male | Female | | | | |
| 394 | 34 | 21 | 7 | 17 | 88 | *216 |

*None of the unclassified animals were calves. Number of observations 71.

Observed overwinter mortality during the winter of 1977-78 was light. Only two fresh carcasses were found, both of these were yearlings.

Minor losses can be attributed to mild weather in terms of snow accumulation and icing and to the fact that weaker animals perished in the period of severe weather encountered during the last part of the winter of 1976-77.

ADF&G personnel reported that 38 adult bulls were killed by trophy hunters during the 1978 spring hunt. An additional three bulls were taken by hunters in the fall season.

Calf production is best measured during the summer aerial census. The figure of 22% calves as a proportion of the total observed population is difficult to compare to previous records since, as was mentioned before, the adult composition is strongly skewed toward females. Extrapolation of data from both censuses indicates there were 0.53 calves per cow three years or older. This falls within the range of observations of productivity during average years.

2. Other Mammals

(a) Reindeer

Bering Sea Reindeer Products, a cooperative of residents of the village of Mekoryuk, conducted two summer reindeer drives and one in the winter.

Both of the summer roundups were accomplished by the use of a Bell 47G helicopter with support from men on the ground.

Although there has been some controversy regarding possible detrimental effects of herding with the helicopter in other areas of Alaska, there is no question that it greatly increased the efficiency of the roundup.

The primary purpose of the summer operations was to collect velvet antlers for use in the Oriental pharmaceutical trade. Antler sales provided a substantial income while leaving the reindeer essentially undamaged for return to the range.

A total of 670 animals were handled in the July 9 operation and 7 were killed for subsistence use. 1,844 reindeer were brought into the corral in the August 13 - 15 roundup, 327 of these had been captured in July. 56 were harvested for food. About 1,500 were gathered in the December harvest operation. 56 were taken for subsistence. Most of the slaughtered animals were used in Mekoryuk. However, a number of carcasses were sent to villages on the mainland and to former Mekoryuk residents in Bethel.

Although a complete reindeer census was not conducted in 1978, observations associated with the summer muskox survey indicate that the 2,187 animals handled in July and August represent about 80% of the total population on the island.

The animals were generally in excellent condition. Many of the carcasses had 1-1/2 to 3 inches of back fat. Rates of reproduction appear to be high. 0.92 fawns per adult cow were observed during the July roundup.

(b) Marine Mammals

Walrus were present in unusually large numbers in November and December near the village of Mekoryuk. Groups of over 200 animals were seen on the rocks near Cape Etolin. Walrus sightings were common along the north coast of the island for a period of three weeks. Residents could recall few times in the past when this species had been so abundant at this time of the year.

At least fifteen animals were harvested by subsistence users. Overall, the people of Mekoryuk showed remarkable restraint considering the availability of the animals and the seemingly unlimited demand for raw ivory and ivory carvings among the non-native population. With increasing numbers of affluent visitors coming to Nunivak, access to this market has been greatly expanded.

(c) Small Mammals

Although no attempt was made to quantitatively measure small mammal populations, microtine rodents were observed to be at low levels. Snowy and short-eared owls which are common when

rodent populations are high were notably absent in 1978.

3. Resident Birds

Nothing to report.

4. Other Animal Life

Nothing to report.

V. INTERPRETATION AND RECREATION

A. Information and Interpretation

1. On-Refuge

Relations between the Fish and Wildlife Service and the village of Mekoryuk have always been good. With a permanent Fish and Wildlife representative in the village, the level of communications has been improved and both sides have benefited by increased ease of information transfer.

The cruise ship Linblad Explorer made two stops at Nunivak, on the south side of the island in May and at Nash Harbor in July. Several groups of tourists were landed at Nash Harbor.

2. Off-Refuge

Nothing to report.

B. Recreation

1. Wildlife Oriented

Nothing to report.

2. Non-Wildlife Oriented

Nothing to report.

C. Enforcement

In the past there has been no real need for enforcement. Now with large numbers of sport hunters coming to the island for the muskox hunt the need has arisen.

Muskox hunting has not been adequately monitored to this point. A probable violation which occurred in the fall involving illegal use of aircraft by a hunter could not be confirmed because no aircraft was available to refuge personnel.

VI. OTHER ITEMS

A. Field Investigations

1. Seabird Studies

The first major study of seabird colonies on the western end of the island were conducted this year by Wildlife Biologist Tim Smith and Bob Ritchie of Alaska Biological Research.

The objectives were to map and describe the habitats used by nesting seabirds and to obtain an estimate of the numbers and species composition of the birds inhabiting the 142 miles of coastal cliffs.

Figure 2, page 9 shows the study area and the location of major concentrations of breeding birds.

The common murre was by far the most abundant. An estimated 400,000 individuals were on the cliffs at the time of the survey. Thick-billed murres were present but in small numbers. 70,000 black-legged kittiwakes, 20,000 puffins of which over 80% were horned puffins, 1,500 cormorants, 5,000 parakeet auklets, more than 100 crested auklets, 500 pigeon quillemons, 200 glaucous winged gulls and 50 glaucous gulls were estimated to have been in the same area. This results in a total figure for birds on the study area at the time of the survey of 497,350.

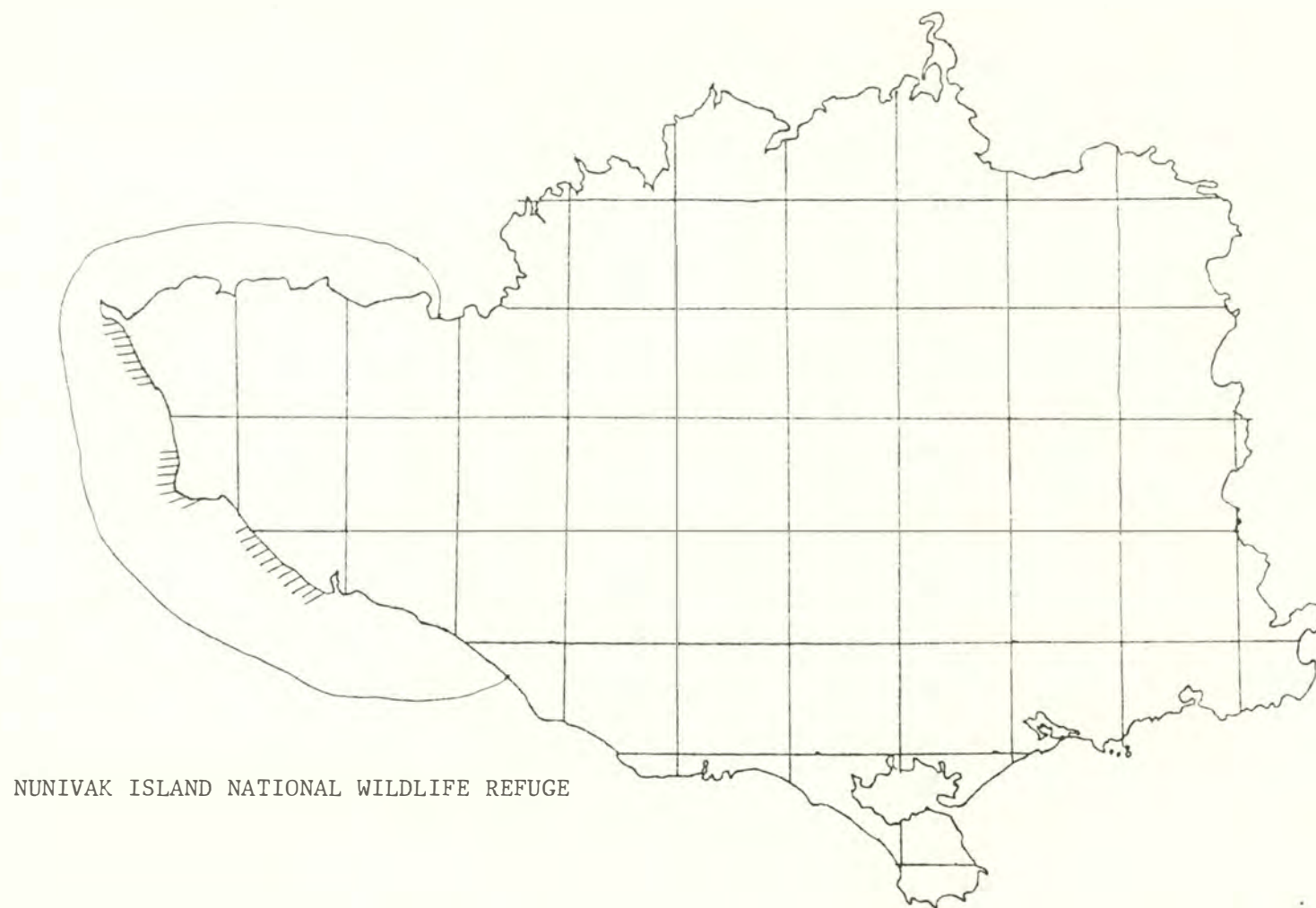
Five permanent study plots were established for future reference. These were in areas where natural boundaries are present which will allow them to be located again. Observation of bird numbers of the study plots is being investigated as a means of monitoring fluctuations in the number of seabirds using the study area.

In addition to following trends in overall numbers, future work will concentrate on more detailed analysis of the biology of the breeding colonies. Information on productivity, phenology and mortality factors is still needed.

Nunivak does not lend itself to investigations of this nature. Harsh weather, logistics problems and the exposed aspect of the western end of the island make work here difficult and time consuming. Future emphasis will be on developing techniques and acquiring better equipment to make data gathering more effective and safer.

B. Cooperative Programs

The above mentioned seabird research was accomplished with the help of Bob Richie of Alaska Biological Research. Bob's Company was under contract to the U.S. Fish and Wildlife Service for this study.



NUNIVAK ISLAND NATIONAL WILDLIFE REFUGE

Figure 2. Seabird study area June and July 1978
 Study Area
 Major concentrations of murres and kittiwakes

C. Items of Interest

Timothy Smith, the principle author of the narrative, is the first Refuge Biologist to be assigned to Nunivak NWR. This is also the first full time permanent position that Nunivak has had. Prior to this year Richard Davis, an Intermittent Maintenceman, was the only refuge employee to have lived on the refuge. Tim began working at Nunivak Island on April 23, 1978.

D. Safety

Frequent storms and generally harsh weather create safety problems while personnel are out on surveys. This is true both winter and summer. It is typical to be stranded for days or weeks at a time due to weather on Nunivak Island. Steps are being taken to remedy this situation to the best of our ability. Although, we cannot improve the weather, we can improve our equipment. A larger more seaworthy boat, probably a Boston Whaler is planned as a FY-79 purchase. Repair or replacement of at least 2 snow machines is also planned and a new radio system. This should be in operation by summer of 1979.



Figure 3. Reindeer entering main enclosure.



Figure 4. Animals in corral prior to handling.



Figure 5. Driving reindeer into the corral from the main enclosure.



Figure 6. Harvested antlers were graded according to stage of development.



Figure 7. Butchering a reindeer during the August round-up operation.



Figure 8. Black legged kittiwakes and common murrelets on a typical portion of cliff habitat.



Figure 9. Seabird observations were made from the cliff top as well as from the water.



Figure 10. Walrus in the water off Cape Etolin.

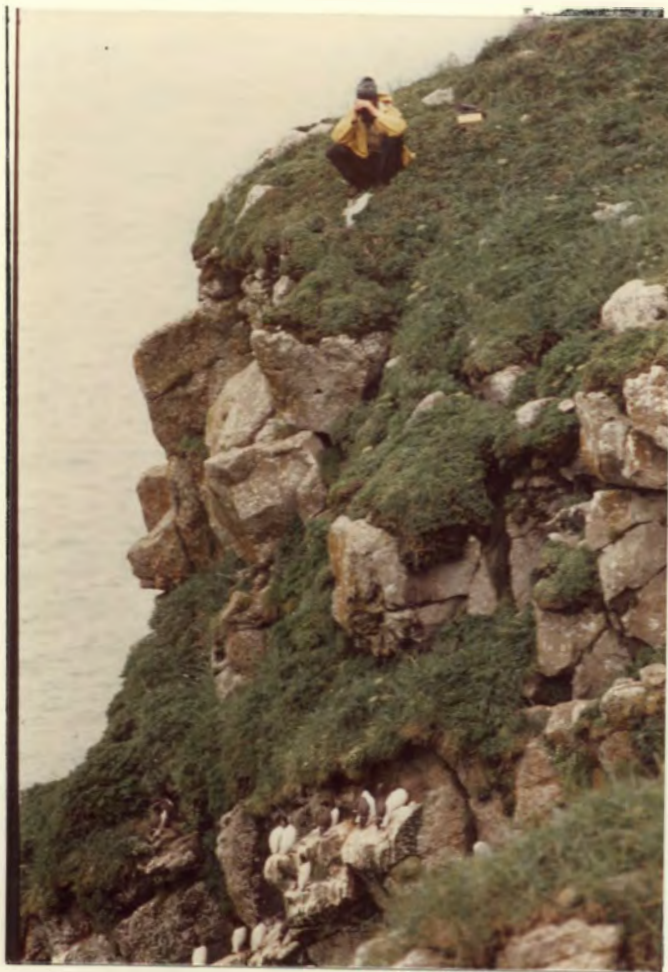


Figure 9. Seabird observations were made from the cliff top as well as from the water.



Figure 10. Walrus in the water off Cape Etolin.