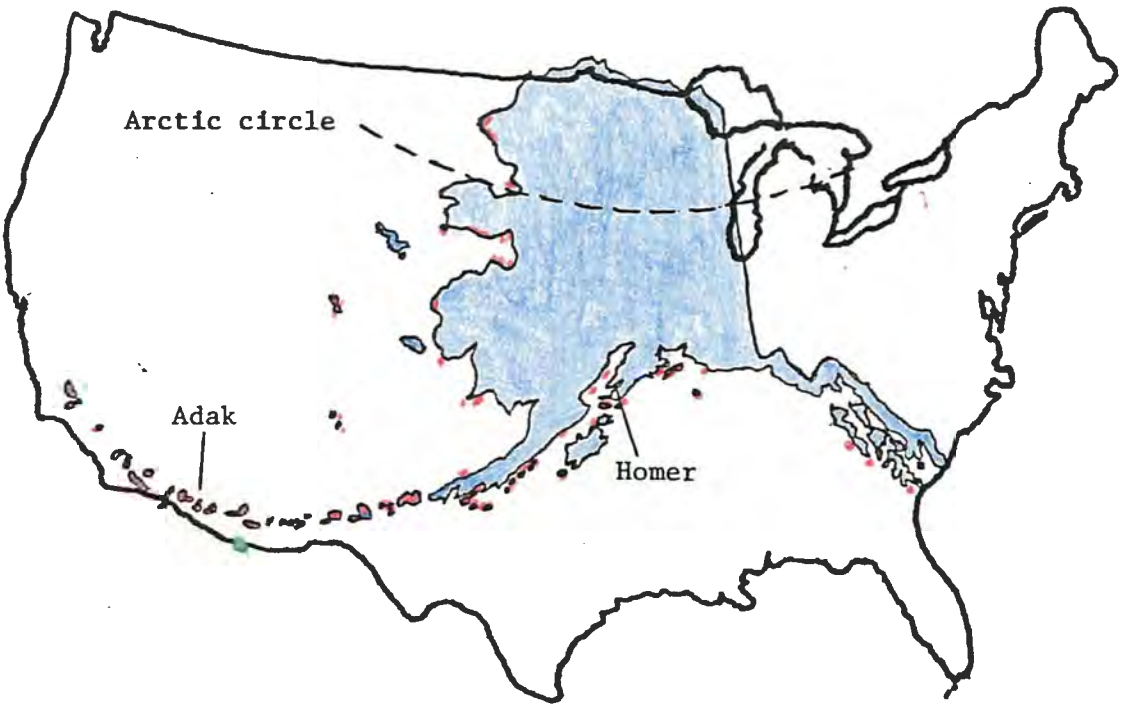
ALASKA MARITIME NATIONAL WILDLIFE REFUGE

HOMER, ALASKA

NARRATIVE REPORT - 1981



Alaska Maritime National Wildlife Refuge lands

The Alaska Maritime Refuge is made up of the: Chukchi Sea Unit, Bering Sea Unit, Aleutian Islands Unit, Alaska Peninsula Unit, and Gulf of Alaska Unit. The headquarters for the entire Maritime Refuge is located in Homer, Alaska. The Aleutian Island Unit is presently the only unit with its own headquarters (in Adak). The narrative has been divided into the Aleutian Islands Unit and the other units.

Although "small" in acreage (by Alaska standards) the Alaska Maritime NWR probably offers the greatest challenge in logistics. Travelling between the eastern, western, and northern extremities of the refuge is equivalent to flying from Georgia to California and then northeast to North Dakota. While the sea is common to all areas, the units range from Spruce covered islands in the "southeast", to treeless islands in the "chain", to the cliffs and headlands above the Arctic Circle.

ALASKA MARITIME NATIONAL WILDLIFE REFUGE

Homer, Alaska

ANNUAL NARRATIVE REPORT

Calendar Year 1981

U.S. Department of the Interior
Fish and Wildlife Service
NATIONAL WILDLIFE REFUGE SYSTEM

Personnel

3 1 2

1. John L. Martin, Refuge Manager, GS-13, PFT, EOD 12-21-81
2. Tom J. Early, Assistant Refuge Manager, PFT, EOD 8-23-81, GS-11
3. Edgar P. Bailey, Refuge Biologist, PFT, GS-11, EOD 10-1-81

Review and Approvals

John L. Martin 1 March, 1982 — 5/17/82
Submitted By Date Regional Office Date

RC 4/15/82

B. Climatic Conditions

Attempts are being made to gather weather data from several sources and locations in the various refuge units under AMNWR. Representative weather stations will provide needed phenological data. There are scattered weather stations throughout Alaska including several small offshore floating stations in the Bering Sea which transmit temperature and wind data to the National Weather Service via a satellite system. This information will be useful to determine potential threats to seabird and marine mammal populations in the event of the discharge of oil or other pollutants or to severe storm conditions.

C. Land Acquisition

3. Other

The AMNWR contains about 3.2 million acres and consists of about 2,500 islands and islets,which are used by large numbers of marine birds and mammals. Only 460,000 acres were new lands established through the Alaska National Interest Lands Conservation Act (ANILCA), and the remaining lands were existing refuges. Some key areas were not included in the refuge because of Native or State selections or other prior ownership while other areas included in the refuge have little or no value for wildlife. In the Fox Island group of the Aleutian Islands, for example, the refuge owns mostly scattered mountain tops, while Native corporations own most of the lowlands and surrounding islets used by seabirds. This creates inumerable administrative problems.

A small bird cliff on Rocky Point in Norton Sound within the AMNWR (T.E. 1981)

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I. EQUIPMENT AND SUPPLIES

J. OTHER ITEMS

K. FEEDBACK

A. Highlights

- The first personnel assigned to the new Alaska Maritime National Wildlife Refuge (AMNWR) arrived in Homer August 23. The main office for AMNWR opened its doors to the public on October 20. (Section E.1)

- St. Matthew Island wilderness under attack. (Section F.12)

Cape Unalishagvak on the south side of the Alaska Peninsula is within the Alaska Peninsula Unit. This is typical murre nesting habitat in the productive Puale Bay area surveyed in 1981. (E.B. 1981)

Puale Bay murre nesting cliffs with concentrations of murres offshore. (E.B. 1981)

The Regional Office Reality Division will soon compile maps showing land ownership status of refuge lands. These data correlated with wildlife distribution, abundance, and species composition should be used to pursue desirable land trades. There are many islands in the refuge which are predominately refuge-owned, but on which there is a small proportion of Native lands. This may result in cattle, sheep, or other exotic mammal introductions to previously ungrazed or undisturbed islands. Conversely, the refuge retains lands on some islands which are partly Native-owned, and many such areas should be offered to Native corporations in exchange for inholdings they own elsewhere.

The following is a list of islands wholly or partially selected by the Natives or the State which have high wildlife values. We should attempt to retain or acquire fee title to all of the islands through appropriate exchanges:

Alaska Peninsula (islands on south side)

Semidi group
Sutwik
Ugaiushak
Hydra
Central
Unnamed (2) in Nakalikok Bay
Unnamed islets between Unavikshak and Kumlik Islands
Spitz
Brothers (2)

Fox Islands - Eastern Aleutians

Egg (Unalaska)
Tanginak (Akun)
Kaligagan and 7 islets north of Tigalda
Debrin (Tigalda)
Poa (Tigalda)
Tangik (Tigalda)
Unnamed islet in Trident Bay
Unnamed islet in Akun Strait
Baby (6)
Ogangen (Unalaska)
Emerald (Unalaska)
Ship Rock (Umnak Pass)
Pustoi (Umnak Pass)
Kigul (8) (Umnak)
Ogchul (Umnak)
Vsevidof (Umnak)
Adugak (Umnak)

Kodiak Island Vicinity

Flat
Tugidak
Triplets
Ladder

Bering Sea

Walrus Islands (4)
King
Fairway Rock
Egg (Norton Sound)

Gulf of Alaska

Barwell
Cape Resurrection
Nuka
Middleton

Islands which are entirely or partially within the AMNWR, but which have little or no wildlife value and should be exchanged for more productive wildlife lands.:

Fox Islands (eastern Aleutian)

Umnak
Unalaska
Unalga
Akutan
Akun
Sedanka
Tigalda
Avatanak

Alaska Peninsula (islands on south side)

Unga
Popof
Guillemot
Chernabura
Long (Sanak)
Leader
Deer
Mitrofania
Navy
Poltava
Flat
David
Ashiiak
Unnamed islands in Agripina Bay
Lone Rock
Goloi
Kilokak Rocks
Imuya Bay islets
Titcliff and adjacent unnamed islets north
Hartman
Terrace and adjacent islets
West Channel
East Channel
Channel Rock
Inner Iliasik
Outer Iliasik
Dolgoi
Wosnesenski
Poperechnoi
Ukolnoi

Bering Sea

Hagemeister

Gulf of Alaska

Granite

D. Planning

1. Master Plan

AMNWR is the last refuge in Alaska scheduled for the Comprehensive Plan as mandated by ANILCA. This effort is scheduled to actively begin in 1984 and be completed in 1987. This planning process encompasses the entire refuge and will incorporate the Master and Management Plans.

5. Research and Investigations

Personnel from Wildlife Operations and Research, FWS, Anchorage, visited Middleton Island on two separate occasions, 14-24 June and 12-17 August, 1981. The primary purposes of the visits were to 1) assess the population and breeding status of nesting seabirds, 2) obtain data on hatching and fledging success of nesting seabirds, 3) begin a program of monitoring reproduction of seabirds breeding on the island and, 4) simultaneously conduct beached bird and mammal and coastal surveys of wildlife around the island. The results were printed in two separate reports which are in the refuge files entitled "Reproductive Ecology of Seabirds at Middleton Island, Alaska, 14-26 June 1981" by Patrick J. Gould and Amy E. Zabloudil, July 1981, and also, under the same title but for the 12-17 August 1981 time frame by Patricia A. Baird and Donald J. Shields (edited by John L. Trapp), January 1982. The second visit was later than originally planned and most species and individual birds had fledged and departed the island making final reproductive survey results questionable. Highlights of results include the establishment of five permanent seabird monitoring plots, nine nesting seabird census areas and six beached bird and mammal census areas. The results of most nesting surveys on Middleton Island were fairly similar to surveys conducted in 1976 and 1978:

Species	1976	1978	1981
Pelagic cormorant (# nests)	1,919	2,341	2,474
Black-legged kittiwake (# nests)	42,458	75,247	82,885
Murres (both sp.) (# nests)	5,851	6,803	5,521
Tufted puffin (# birds)	885	1,320	732
Totals	51,113	85,711	91,612

Refuge Biologist Ed Bailey has been involved since 1974 with reconnaissance of seabird and marine mammal breeding areas as part of the planning effort of the AMNWR. During the month of July, Ed surveyed seabirds and marine mammals along the south coastline of the Alaska Peninsula from Kanatak Lagoon in Portage Bay northeast to Nordyke Island in Kamishak Bay. All of the coastline and adjacent islets were surveyed, although the AMNWR only has lands in or near Puale Bay and on the adjacent Kekurnoi Islets within the survey area. Significant seabird concentrations on refuge lands include colonies totalling nearly 40,000 pairs of Common Murres and 1,100 pairs of Red-faced Cormorants between Cape Unalishagvak and Puale Bay. There were several species of seabirds totalling about 300 pairs in the Kekurnoi Islets along with 1,600 northern sea lions.

Portage Bay headland on the south side of the Alaska Peninsula. Besides being esthetically spectacular it contains the second largest comorant colony along the south side of the Peninsula. (N. Faust 1981)

Under a research grant from the University of Washington in Seattle, Dr. P. Dee Boersma is conducting a study to determine the incidence and level of chlorinated hydrocarbons in Fork-tailed Storm Petrels. Much of her work is being done in the Barren Islands which are included in the refuge. Analysis of these birds show about 50 percent have chlorinated hydrocarbons in their systems. The birds show effects of oil spills that go undetected by the U.S. Coast Guard and this species could be used as an excellent international "detective" to locate oil spills. Oil residues can be obtained from the petrels by using their natural defense of regurgitation, thus not sacrificing the birds. Oil can also be analyzed further to determine the origin and age.

E. Administration

1. Personnel

Staffing of the new AMNWR Headquarters began fairly slowly but with a magnitude of quality. On August 23, Tom Early arrived from Adak where he served as Assistant Refuge Manager and began assuming the duties in Homer as Acting Refuge Manager. Ed Bailey, a biologist in the Anchorage Regional Office on the planning staff for the coastal refuges, arrived in Homer on October 19, and is fulfilling the duties as refuge biologist. John Martin, who was the Refuge Manager at Adak, arrived just in time to spend Christmas in Homer. John is the Refuge Manager for the entire complex. All personnel either bought or built homes in the Homer area.

The Headquarters staff is planned to gradually increase, depending on funding, as responsibilities grow and are shifted. Presently, we are in desperate needs for an administrative officer and/or clerk-typist position, as several person-days per week are required attempting to muddle through these tasks.

2. Funding

Present funding levels do not begin to cover the scope of our responsibilities and needs. FY 1982 funds (first year) are distributed as described below for the AMNWR - Homer Office:

1210	1220	1400	TOTAL
131,000	99,000	31,000	261,000

It is estimated that it would cost over $2 million (1982 dollars) annually to adequately fund our needs for the entire refuge complex. FY '82 total funds (including the AIU) for the AMNWR were $692,000 or about 35% of that needed. The bulk of the costs, excluding personnel, would be "sunk" into a support vessel at about $600,000 annually. The capability to initially survey, continually assess, and monitor wildlife populations and also respond to habitat threats depend greatly on a

support vessel and manned substation capabilities. The logistics involved may best be represented through figure 1.

3. Safety

Several safety meetings were held but no safety officer has been appointed to date. No accidents have occurred during the reporting period.

5. Other Items

The lease on our Homer office headquarters began October 20, after several delays in office requirements and construction. Early worked from his house until the office was completed.

F. Habitat Management

1. General

Most refuge lands are managed to maintain undisturbed wildlife populations and natural wildlife diversity. Man's presence is becoming increasingly evident in and around our land areas and we are attempting to reduce or mitigate these impacts as much as possible. Due to the logistics involved and the diverse land areas to be covered, one of our greatest obstacles is the assessment and monitoring of wildlife and habitat on the refuge. Present personnel at the AMNWR are familiar with a sizable portion of the refuge complex. Martin and Early are both quite familiar with the Aleutian Islands Unit and Bailey is very familiar with the Alaska Peninsula Unit and certain parts of the Gulf of Alaska, Aleutian Islands, and Bering Sea Units. To become more familiar with portions of the Bering Sea and Chukchi Sea Units, Early accompanied the 303' NOAA vessel "Oceanographer" during cruises from September 1-12 and September 26 through October 15 from Dutch Harbor to Barrow and from Nome to Kodiak, respectively. A great deal of near-shore work was conducted during the Nome to Kodiak leg of the trip and many observations were made of refuge habitat and wildlife.

3. Forests

Through ANILCA, it appears we own an undetermined amount of timber acreage on Delphin and Discoverer Islands north of Kodiak. We are attempting to get this clarified, but we may have to issue cooperative agreements for timber harvesting by the Natives. Legal description and maps are being requested from the Regional Reality Office.

7. Grazing

Presently the AMNWR, excluding the AIU, is administering 112,428 acres of grazing lands through four leases and two Special Use Permits. The leases were under the Bureau of Land Management (BLM) but were transferred to us through ANILCA and the Refuge Administration Act. The breakdown of grazing, excluding the AIU, is:

ISLAND	ACREAGE	NO. CATTLE	RATE	LEASE TYPE	EXP. DATE
Simeonof	10,850	438	.05/AUM*	SUP	10/31/82
Caton	4,000	80	2.40/AUM*	SUP	5/31/82
Bear-Harvester	430	NTE 30	25.00/YR.	BLM LEASE	12/31/83
Chernabura	7,248	100±	120.00/YR.	"	12/31/83
Wosnesenski	7,500	65	45.00/YR.	"	12/31/82
Sanak	30,000	NTE 400	240.00/YR.	"	12/31/82
TOTAL	60,028	1,113			

* $4.00/AUM for each animal unit exceeding the quota (275 on Simeonof and 85 on Caton Island)

As the above table shows, there is quite a discrepancy in rates charged. Some of this is because of politics, some due to honoring BLM lease agreements, and one is a result of refuge policy. In 1980, an unbiased appraisal was conducted to determine "fair market value" of grazing on refuge lands in Alaska. The findings indicated the value of $2.40 per AUM to be "fair market value."

As a general rule, cattle are placed on an island and left to their own with occasional culling of the herd by the lessee, his caretaker, or a passing fisherman. Not many are actually sold due to transportation and meat inspection problems. As a rule mild maritime winters allows some replacement stock to survive and in several cases even expand to fairly high numbers.

The refuge is making sporadic attempts to count animals and assess habitat damage on these areas. Distance and weather limit most aircraft support, and until we can utilize an ocean-going vessel, our surveillance of these operations will be greatly limited. Two islands have been identified to date for the termination of grazing permits - Simeonof and Caton. Things appear to be going smoothly, so far, in ceasing Caton Island's operation, but this is not so with the lease on Simeonof Island. Simeonof was established as a refuge in 1958, and PLO 1749 gave grazing responsibility to the BLM. A 20-year grazing lease was issued for 275 cattle. In 1976, the island was designated as Wilderness and then the Refuge Administration Act transferred grazing responsibility from the BLM to FWS. The lessee was informed as early as 1977 that the lease probably would not be renewed when it expired in 1980. In 1978, as many as 728 cattle were counted on the island with moderate to severe overgrazing and resultant erosion. The lessee has

issued verbal and written appeals and requests to his State and U.S. Senators and even the Secretary of Interior with successful results. After many setbacks and delays the latest permit states his cattle are to be removed by September 30, 1982.

We expect more problems from other grazers as BLM leases expire and our rates go into effect. We will attempt to notify each grazer early of the rate change and try to soften the impact.

12. Wilderness and Special Areas

We administer 2,576,302 acres of wilderness from the AMNWR complex. The Aleutian Islands Unit (AIU) handles 2,210,175 of these acres. A total of 2,460,000 acres of wilderness was established on the refuge complex as a result of ANILCA. The complete breakdown follows:

LOCATION (ISLAND)	ACREAGE	DATE WILDERNESS DESIGNATED
Aleutian Islands	1,300,000*	1980 (ANILCA)
Bogoslof	175	10/23/70
Unimak	910,000	1980 (ANILCA)
SUB TOTAL	2,210,175	
Simeonof	25,855*	1/19/1976
Semidi Group	250,000	1980 (ANILCA)
Tuxedni	5,548*	10/23/70
St. Lazaria	65	10/23/70
Hazy	32	10/23/70
Forrester	2,832	10/23/70
Chamisso	455	1/3/75
Bering Sea NWR	81,340	10/23/70
SUB TOTAL - OTHER	366,127	
GRAND TOTAL	2,576,302	

* Portion(s) of these islands are excluded from wilderness designation. Acreage shown is amount designated as wilderness only.

A true wilderness area is the Bering Sea NWR which is now in the Bering Sea Unit of the AMNWR. Due to its location, isolation, and weather, relatively few humans have ever set foot on the island (See figure 2). Yet this area supports one of the largest seabird nesting areas in the northern hemisphere, supporting a minimum of 1.5 million to as many as 5 million nesting birds. Before they were shot off early in this century, it also supported the greatest concentration of denning polar bears in the world. It was estimated that no less than 250-300 bears inhabitated the area. Walrus, sealions, and seals haul out on the island while gray whales feed extensively along the shorelines. The rare McKay's Bunting

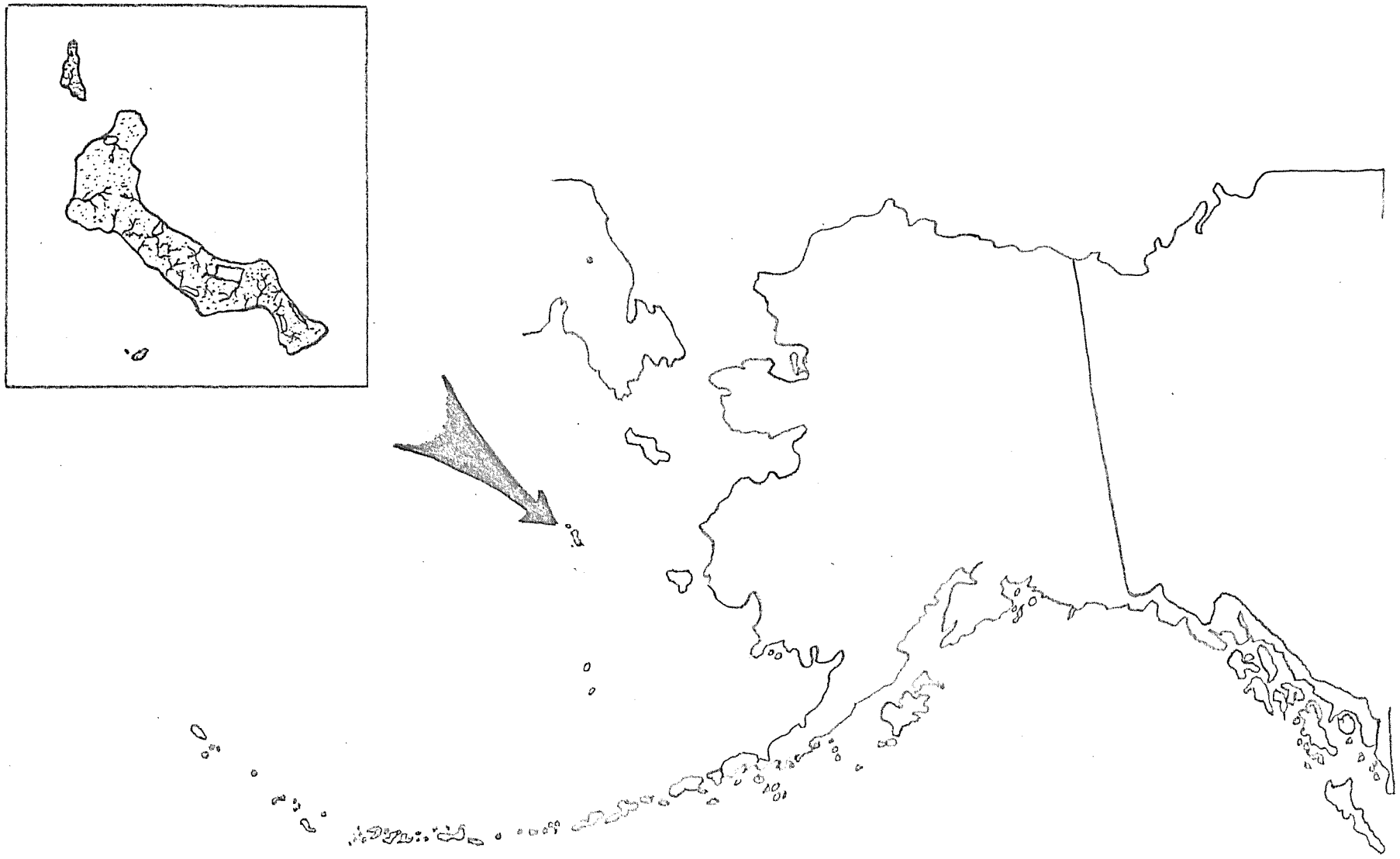

Figure 2. Location map of the Bering Sea NWR

only breeds on this island.and the habitat would suggest it would be of major importance to migrating and wintering birds and marine mammals.

In September 1981, Cook Inlet Region, Inc. (CIRI) proposed an exchange for land inholdings within the Kenai NWR for 2,560 acres of St. Matthew Island (See figure 3). Section 1302 of ANILCA allows the exchange of refuge lands with Native Corporations. However, CIRI is acting as a front for Atlantic-Richfield Company (ARCO) to develop support facilities on St. Matthew to aid in exploring and developing the presumed oil field in the Navarin Basin which is about 120 miles to the west. The lease sale is in 1984 but the "COST" well will be drilled in 1983.

The major events leading to this are outlined below:

1. March 31, 1981. ARCO first requested in writing their needs for St. Matthew to U.S. Geological Survey. Needs included: two 6,500' runways, harbor facilities, 500,000 ft^2 warehouse gravel pad, 1 1/2 miles of roadway and a camp. This would result in minimal environmental "change."

2. April 22, 1981. USGS responsed to ARCO stating the USFWS has jurisdiction over the area and the fact that it was a wilderness area. They recommended, however, they "pursue your proposed use of St. Matthew Island through the appropriate administrative channels and, should that fail, you might seek legislative relief." (emphasis added)

3. June 3, 1981. ARCO wrote Assistant Secretary Arnett (FWS) requesting land use permits to construct a shorebase facility on St. Matthew to aid in drilling the COST well.

4. July 14, 1981. ARCO received a Special Use Permit from the Regional Office to conduct surficial analysis on St. Matthew of the proposed support facility site.

5. July 21-22, 1981. ARCO conducted the above survey on St. Matthew.

6. July 24, 1981. Remote weather station placed on St. Matthew Island by Brown and Caldwell Environmental Consultant Firm at the proposed developement site. Assistant Manager Early accompanied the group to monitor the work.

7. August 26, 1981. The Sierra Club made inquiries to Assistant Secretary Arnett about the Special Use Permit issued and methods of the surficial analysis done on July 21-22.

8. September 29, 1981. The Cook Inlet Region, Inc. (CIRI) proposed

Figure 3. Area proposed for exchange by the Cook Inlet Region, Inc. on St. Matthew Island.

The proposed land exchange site on St. Matthew Island. View from the north side of the island westward from Cape Upright. Arctic fox, voles, McKay's Buntings, and Rock Sandpipers are common in this area. (T.E. 1981)

St. Matthew Island's proposed land exchange site from the south side of the island looking westward. This photo was taken at the base of Cape Upright. (T.E. 1981)

A group of about 110 walrus hauled out near Cape Upright, St. Matthew Island. (T.E. 1981)

A study in sleeping patterns and dental hygiene of walrus on St. Matthew Island. (T.E. 1981)

a land exchange with the FWS for unidentified lands within and near the Kenai NWR for 2,560 acres of St. Matthew.

9. October 30, 1981. CIRI's lawyers legal opinion showed the land exchange is legal through ANILCA Section 1302.

10. November 25, 1981. Freedom of Information Act request from the Sierra Club for all information available in the Regional Office relating to the land exchange on development of St. Matthew Island was answered.

11. Mid-December. Regional task force set up to evaluate the effects of development and determine mitigation measures needed. Nine people are included on the team: Martin and Early from the AMNWR, three from Realty, two from Ecological Services, one from Wildlife Operations and one from Research.

Early accompanied the Brown and Caldwell Consulting engineer firm aboard the 156' F/V Wizard to St. Matthew to monitor the installation of the remote weather station. During the entire trip stops and observatins we made in Norton Sound, St. Lawrence Island, the Navarin Basin and St. Paul Island. Numerous pelagic seabird and marine mammal transects were conducted also.

The remote weather station installed on St. Matthew Island.
(T.E. 1981)

G. Wildlife

2. Endangered and/or Threatened Species

Refuge Manager John Martin continues to function as the Aleutian Canada Goose Recovery Team Leader. More is discussed in the AIU section.

We are attempting to charter a vessel for the 1982. On December 4th, the AMNWR held a meeting in Anchorage with Wildlife Operations, Endangered Species, Research, and CGS to discuss financing and problems of chartering a vessel. We plan to cooperatively charter a vessel and combine work from the vessel in an effort to attract more and better vessels for a longer time period.

7. Other Migratory Birds

Seabird populations are yet to be assessed on many islands and coastal headlands of the refuge. Most of the Gulf of Alaska and Alaska Peninsula Units are surveyed, but the bulk of the eastern Aleutians, the Bering Sea, and Chukchi Sea Units have not been surveyed during the seabird nesting or marine mammal pupping season.

A total of 153 pelagic seabird transects was conducted during the two cruises Early accompanied aboard the Oceanographer. These data give pelagic bird species and densities in offshore waters. Each transect consists of a 10-minute time block during which time the boat travels at a constant rate and direction. All birds observed within 300 meters from the ship's bow to 90° off either the starboard or port beam are recorded and density per square kilometer is obtained. The most numerous species, shearwaters (Sooty and Short-tailed), were recorded in 67 percent of the total transects. Black-legged Kittiwakes were seen in 56 percent of the transects. Northern Fulmars were numerous south of 67°38'N and tended highly to the light phase north of 63°N. All transects were recorded on forms to be entered and stored in the Regional Office computer.

9. Marine Mammals

Marine mammials known to haul out on the AMNWR are the sea lions, harbor seals, walrus, sea otters, and fur seals. Observations of marine mammals are made in conjunction with pelagic bird transects and are also computerized.

On the first leg of the Oceanographer's trip from 1-12 September, Early conducted pelagic transects on a not-to-interfer basis with oceanographic work. A total of 135 such transects was conducted, resulting in 30 different marine mammal sightings. Individuals seen totalled 10 killer whales, 31 gray whales, 4 fur seals, 13 other unidentified seals, about 1,550 walrus and 1 adult polar bear. All

killer whales were seen in one pod about 100 miles north of Dutch Harbor, and they appeared to be feeding on a group of fur seals. Gray whales were seen only above about 65°N latitude and all the way up to the ice. About 50 percent of the walrus seen were hauled out on the ice and the remainder in the open water, all above 70°54N latitude.

The second leg Early accompanied with the Oceanographer, was concerned primarily with collecting seals as part of the Outer Continental Shelf Evaluation Program (OSCEP). The chief scientist and most of the personnel involved with the project were with the Alaska Department of Fish and Game (ADF&G). Early assisted with all phases of counting, collecting, transporting, and necropsying the seals. A total of 38 spotted and harbor seals was collected from Nome south to Akun Island, in the eastern Aleutians. Seals were analyzed for reproductive history, feeding habits, blubber thickness, and other items. Observations were made of most near coastal refuge lands from Norton Sound south to the Aleutians and excellent liason between the State and FWS was achieved.

A rare moment of playful frivolity among sea lions is captured by the camera lens. (T.E. 1981)

10. Other Resident Wildlife

There was a herd of buffalo introduced on Popof Island in the Shumagins about 30 years ago. They were brought from Montana with the intention of ranching them in the islands, but it never worked out. The present population on the island is about 20-25 animals. We own a small amount of land on the extreme south end of the island, but no one presently claims the buffalo.

11. Fishery Resources

Survey and stream assessment work needs to be initiated to meet the establishing objectives set in ANILCA. Presently no work has been done and there is no funding allocated to this program.

14. Scientific Collections

Special Use Permit AM-24-81 was issued by the Regional Office to the ADF&G for collection of pinnipeds above mean high tide (refuge boundary). This work is described in detail under item 9 above. No collection under this permit was done on AMNWR lands. However, five seals were taken within boundaries of Nunivak and Togiak NWR's.

H. Public Use

1. General

Since the Homer office opened just recently and no money is programed for public use at this station, very little occurred. Several people stopped by the office, asking general questions etc. and the general attitude of the local populace is positive for the refuge.

6. Interpretive Exhibits/Demonstrations

We were unofficially contacted by a member of the Alaska State Park staff as to our ability and eagerness to help fund and partially furnish exhibits for a building they plan at the head of the Homer Spit. It would be a good opportunity to present ourselves to the public at this site where "the land ends and the sea begins," however, until funding can be provided such projects are not possible.

17. Law Enforcement

At the Homer office, only Early has attended FLETC.

I. Equipment and Supplies

4. Equipment Utilization and Replacement

We are presently utilizing a vehicle surplused from the YACC program.

6. Energy Conservation

The leased office space has electric heat with a photo-electric cell coupled to the thermostat which lowers the temperature automatically 10° when it's dark. In addition, we have been keeping the office at or near 65-68°F and turn the thermostat to 50° when rooms are not being utilized for any length of time.

7. Other

We are leasing approximately 725 square feet of space for the AMNWR office. The building is located in downtown Homer immediately next to the Post Office. The location is fine, but the space soon won't be adequate for the supplies we need to store and personnel needed. The office is rented from a realty firm for $7,395/year.

J. Other Items

2. Items of Interest

The locatin of the headquarters of the AMNWR has been discussed in the Regional Office for several years. Homer was decided on due to a combination of factors: port facilities, easy and timely logistics to other cities, central location in relation to most of the AMNWR lands, U.S. Coast Guard, State Fish and Game Offices in town, and potential for the community and facilities to grow. All personnel on the headquarters staff enjoy Homer, its people and scenery. From what we've discovered already, there's a very positive response to our presence in town. The only drawbacks we've found are two: no refuge lands nearby for an occasional "censusing or habitat evaluation drive" and we're too damn close to the Regional Office.

3. Credit

The AMNWR complex narrative (excluding the AIU section) was written by Assistant Manager Tom Early. The report was edited by both Manager John Martin and biologist Ed Bailey.

K. Feedback

1. Denver Service Center

We have been dealing with the Denver Service Center (DSC) for nearly 10-years with continued promises of better service. Since its conception, we have had unreasonably slow turnaround payment on bill and travel vouchers averaging about of 6 weeks. Already we are getting a list of disgruntled vendors (including our office lessor) for delays in processing payment requests. Dealing with the individuals at the DSC is usually very productive, but often the big stumbling blocks appear to be the policies they work under. For instance, why can't DSC call our office if there is a question on a billing (especially utility bills) instead of sending it back to the orginating office and costing valuable time. All payments, in our opinion, shouldn't take longer than 3 weeks from the date the TDS is submitted to DSC.

2 CGS-Alaska

We have not had a great deal of positive results in dealing with the Regional Contracting and General Services Office. A prime example is the attempt at chartering a vessel for transplanting and introducing the Endangered Aleutian Canada Geese in the Aleutians this past July and August. They appear to have their own set of regulations which are all designed to say "it can't be done" instead of "how it can be done." Precious time, money, and wildlife resources are lost to these policies every year.

3. Regional Administrative Office Support

This is probably the place to commend the administrative and secretarial personnel in the Regional Office for their great help and assistance given to us when we were setting up our office. They had a positive attitude and answered a multitude of questions for us.

ALEUTIAN ISLANDS UNIT
ALASKA MARITIME NATIONAL WILDLIFE REFUGE

Adak, Alaska

ANNUAL NARRATIVE REPORT

Calendar Year 1981

U.S. Department of the Interior
Fish and Wildlife Service
NATIONAL WILDLIFE REFUGE SYSTEM

Personnel

Permanent

1. John L. Martin, Refuge Manager, GS-12, PFT, EOD, 3-28-76, Transferred 12-18-81.
2. Tom J. Early, Assistant Refuge Manager, GS-11, PFT, EOD 4-10-77, Transferred 8-23-81.
3. Kent F. Hall, Assistant Refuge Manager, GS-11, PFT, EOD 8-28-77, Transferred 6-28-81.
4. Beverly P. Minn, Assistant Refuge Manager, GS-9, PFT, EOD 10-7-79, Transferred 6-28-81.
5. Barry Reiswig, Assistant Refuge Manager, GS-9, PFT, EOD 11-4-79.
6. Carol Hagglund, Administrative Officer, GS-7, PFT, EOD 5-7-79.
7. Kathy Karcheski, Clerk-Typist, GS-3, PPT, EOD 10-5-81.
8. James Cox, Maintenance Mechanic, WG-10, PFT, EOD 1-28-79, Retired 1-28-81.
9. Richard Algie Hasha, Laborer, WG-3, CS, EOD 11-11-77, Resigned 1-14-81.
10. Debora E. Broderick, Refuge Clerk, GS-4, CS, EOD 4-1-80, Resigned 3-6-81.
11. Ronny Bowers, Maintenance Mechanic, WG-10, PFT, EOD 6-28-81.

Temporary

12. Susan Walton, Clerk-Typist, GS-3, Intermittent, 6-2-81 to 8-22-81.

Young Adult Conservation Corps

13.	Kevin Brennan	02-25-80 to 02-24-81
14.	Patricia Heglund	04-15-80 to 04-09-81
15.	B. Les Slater	05-23-80 to 10-01-81
16.	F. Jack Arnold	05-23-80 to 05-23-81
17.	John Mueller	05-27-80 to 05-21-81
18.	Ray Hightower	06-23-80 to 01-30-81
19.	Jana Matson	11-26-80 to 04-17-81
20.	Lori Gan	02-01-81 to 06-03-81
21.	Patty Beach	01-12-81 to 01-12-82
22.	Donna Kafka	10-30-81 to Present
23.	Anna Martinez	08-13-81 to 01-04-82
24.	Veneta O'Rourke	06-08-81 to Present
25.	Steve Kendall	03-02-81 to 12-29-81
26.	Jean Savage	04-20-81 to Present
27.	Justine Logan	06-01-81 to Present
28.	Mark Masteller	04-13-81 to Present

On-the-Job Training Students

1. Rusty King
2. Tanya Varnell
3. Cam Matson

Refuge Volunteers

1. Rusty King - general
2. Martha Terry - caribou range study
3. Thed Tobish - ptarmigan survey, Attu Island
4. Rod Poole - Historical Reconnaissance of Attu Battlefield
   Preparation of National Register Nomination
5. Les Slater - general

Review and Approvals

Submitted By	Date	Regional Office	Date
John L. Martin	1 March, 1982		

Rare calm in Kuluk Bay, Adak Island. (J.L. 1981)

John Martin, Refuge Manager
(P.B. 1981)

Assistant Refuge Managers
Kent Hall and Bev Minn
(S.K. 1981)

Assistant Refuge Manager
Barry Reiswig
(D.K. 1981)

Assistant Refuge Manager
Tom Early
(R.H. 1981)

Ron Bowers,
Refuge Maintenance Mechanic
(M.M. 1981)

Kathy Karcheski
Clerk/Typist
(M.M. 1981)

Carol Hagglund, Administrative Officer
(J. Robinette 1981)

YACC Receptionist Jean Savage,
YACC Maintenance Helpers Veneta O'Rourke, Anna Martinez
(M.M. 1981)

YACC Biologist Donna Kafka
(M.M. 1981)

YACC Biologists Steve Kendall,
Patty Beach, Mark Masteller,
Justine Logan, Leslie Slater
(T.Miller 1981)

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G. WILDLIFE

H. PUBLIC USE

I. EQUIPMENT AND FACILITIES

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J. OTHER ITEMS

K. FEEDBACK

Nothing to report

A. HIGHLIGHTS

- A release of Aleutian Canada Geese was conducted in August when 358 birds were released on Nizki Island after shipment from the Northern Prairie and Patuxent Wildlife Research Centers. (SE-12d. 520) (Section G.2)

- A movement and breeding biology study of bald eagles was initiated on Adak Island. (MNB-18b. 650)(G.6)

- A major study on the biological control of Arctic foxes in the Aleutian Islands was contracted to the University of California-Davis, and work began during the summer. (MB-32i. 530)(Section G.15)

- The Korean processing vessel Dae Rim, ran aground near Point Wrangell on Attu Island and was carrying more than 100,000 gallons of fuel. Manager Martin participated in the Federal response dealing with the situation. (MB-33a. 100)(Section J.2)

- A study of caribou productivity and range was initiated on Adak Island. (MNB-18b. 650)(Section G.8)

- Two duplexes were constructed on the "Outside" and shipped to Adak to augment the refuge housing situation. (Section I.1)

- Film crews from the local TV station accompanied refuge personnel on a variety of field assignments and produced segments on topics ranging from marine bird studies to banding bald eagles. (Section H.1)

- Major rehabilitation was completed on the interiors of the refuge manager and mechanic residences. (Section I.2)

- The Adak Island "Outdoor Recreation Guide" was completed in cooperation with the Alaska Natural History Association and was a popular item with the public. (Section H.19)

- A study and review of the Attu Island battlefield site was completed by Volunteer Historian Rod Poole. The study resulted in a proposal for the battlefield to be nominated to the National Register of Historic Places. (Section F.12)

B. CLIMATIC CONDITIONS

The year proved to be considerably drier than most with a total of only 44.0 inches of precipitation recorded. This is much less than the 67.4 inches recorded last year which was about average. Measurable precipitation occurred on 265 days of the year. June was extremely dry with only a trace of precipitation recorded for the entire month, almost unheard of in the Aleutian Islands. No exceptionally severe storms occurred during the year and the peak high wind gust was 67 knots, much less than many yearly highs which generally range well over 100 knots. Table 1 gives a detailed account of the year's weather. It has often been said the Aleutians endure the world's worst weather. Even on a "dry" year such as 1981, we can only agree.

Table 1. 1981 Weather Summary - Adak

Temp. (°F)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
Av. Max.	35.5	37.4	37.7	43.7	46.1	51.3	56.4	58.8	55.2	49.7	43.5	39.7	
Av. Min.	25.1	29.4	29.7	35.5	37.1	42.1	47.1	47.5	44.6	40.6	34.1	29.8	
Av. Daily Temp.	31.2	34.2	34.3	39.2	41.6	45.7	51.0	52.7	49.7	45.1	39.3	35.4	
Precip. (in.)													
Snow	26.97	7.20	12.80	2.20	1.80	0	0	0	0	3.50	16.10	12.70	83.3
Rain	0.60	3.43	1.74	3.58	1.23	T	1.41	5.07	2.87	4.59	7.95	5.02	37.5
Total Precip.	1.94	4.24	2.93	3.80	1.41	T	1.41	5.07	2.87	4.59	9.40	6.29	44.0
Days with precip.	31	26	30	27	29	1	14	21	15	23	25	23	265

C. LAND ACQUISITION

3. Other

Little was accomplished during the year on a proposed land exchange between the Service and the Ounalashka Village Corporation of Unalaska (MB-31e. 831). The Corporation seeks to acquire the 22G rights to approximately 195 acres on the south side of Amaknak Island. In return they have offered an area of approximately equal size along the north shore of the island. The Service rejected this offer, and instead, a proposal developed by Research Division biologists Forsell and Nysewander would exchange the 22G rights on Amaknak for a number of small islets and rocks of high value to marine birds in the Unalaska Island area. The proposal is currently being reviewed at the Washington Office level and must be approved before negotiations can begin. The Corporation is extremely anxious to acquire the rights to Amaknak because of its tremendous value as a commercial fish processing site. Corporation officials cannot understand why the Service is taking so much time in developing an offer and acting on the trade, and are becoming frustrated by the Service's inaction.

D. PLANNING

5. Research and Investigations

Biological control of Aleutian Islands populations of introduced canids. University of California at Davis under contract to the Fish and Wildlife Service. Dr. Robert Rudd and Dr. Edward West (MB-32i. 530). Arctic foxes introduced by trappers many years ago have decimated species of birds on islands where they have been introduced and are principally responsible for the near extinction of the Aleutian Canada goose. There is evidence to indicate that red foxes will compete with and eventually eliminate Arctic foxes from ranges which both species inhabit. This study is designed to determine whether red foxes will eliminate Arctic foxes, and the number of red foxes required to remove a given number of Arctic foxes. The investigators will introduce sterilized red foxes to Kagalaska Island and attempt to determine the effect on the Arctic fox population. During the summer of 1981, Dr. West and his wife Kathy attempted to locate Arctic fox dens on Kagalaska and develop a population estimate of Arctic foxes on the island.

A long delay in receiving radio collars prevented any telemetry work from being completed. Problems with funding and a lack of study coordination by the Service led to a suspension of the project in late summer. A meeting of Refuges personnel in December appears to have ironed out the problems and the study is scheduled to continue in January.

The movement and breeding biology of bald eagles on Adak Island. Fish and Wildlife Service, Aleutian Islands Unit (FY81 MNB-18b. 650). A large population of bald eagles inhabits the Adak Naval Station on Adak Island. The study will determine the movement of birds from the Station area in winter to eyrie sites and will determine basic breeding parameters for eagles on Adak. A detailed discussion of the year's results is given in Section G.6.

Caribou productivity and range use on Adak Island. Fish and Wildlife Service, Aleutian Islands Unit (FY81 MNB-18b. 650). Virtually nothing is known about the caribou herd on Adak Island which was introduced in 1958-59. The herd appears to be increasing rapidly and despite harvests may soon surpass the point where sport harvest can control the population level. The study seeks to develop information on production parameters. Increasing requests are made concerning introductions of reindeer to the Aleutian Islands. Little is known about current herd impacts of Atka and Umnak herds on tundra range. The study seeks to gather basic information about effects and parameters of grazing on maritime tundra range by using the Adak herd as a model. A lack of effective transportation has prevented studies on other islands where reindeer herds exist or where requests have been made for introduction. Results of study will provide guidelines for management of other herds on refuge lands. An extensive discussion of this year's results is given in Section G.8.

Rock ptarmigan survey, Adak and Attu Islands. Fish and Wildlife Service, Aleutian Islands Unit (FY81 MNB-18b. 650). This study was developed to attempt a method of indexing ptarmigan populations on islands where sport hunting occurs yet little is known about population levels. An extensive literature search was conducted and a method was developed for carrying out a survey. The Attu Island portion of the study was not completed due to a lack of transportation to that island at the proper time. Results of the survey are discussed in Section G.10.

Population dynamics of the Eurasian green-winged teal (Anas crecca nimia) on Adak and Amchitka Islands. Fish and Wildlife Service, Aleutian Islands Unit (FY81 MB-39d. 700). This was the last year of a study started in 1977 with the objectives to determine base populations, hunting mortality and inter-island movement of the Eurasion green-winged teal. Results of this year's work are discussed in Section G.3. Development of a final paper on the study has begun.

Aleutian Arc magmatism in space and time: a geochemical and petrologic study. Cornell University, Department of Geological Science, Dr. R. W. Kay. This study began in 1976 and focuses on the relationship between magmatic activity, uplift, subduction, and the physical state of the crust and mantle. The origin of the chemical characteristics or arc magmas is also being investigated.

Investigation of the sea-air exchange of chemical substance. University of Rhode Island, SEAREX Executive Committee, Dr. Robert A. Duce. This is the first year of a study in the Aleutian Islands as part of a world wide evaluation of the atmospheric concentrations and fluxes to the ocean of a variety of organic and inorganic substances. An air particle monitoring station was established on Shemya Island.

Census of fur seals and Stellars sea lions in the eastern Aleutians. National Marine Fisheries Service, Marine Mammal Laboratory, Seattle, Washington, Dr. Thomas Loughlin. A census of fur seals and sea lions was made in the Aleutian Islands east of Umnak Island. A number of individuals of both species were collected for stomach sample analysis. A final report on the census is pending.

The British Aleutian Islands Expedition. University of Cambridge, United Kingdom, Miles J. S. Clark. This group of adventurers was studying a variety of biological and anthropological resources on Atka Island. In addition they searched for the elusive sea monkey reported in the area by early explorers. A final report is pending.

Revegetation of disturbed tundra. University of Tennessee, Department of Botany, Dr. Cliff Amundsen. Work is continuing on a study to determine which introduced species are suitable for vegetation establishment on areas disturbed by military activities. Thus far, results indicate that introduced species can be maintained only at high cost. The use of native American dunegrass (Elymus mollis) shows far more promise as a recovery species.

E. ADMINISTRATION

1. Personnel

The year should be remembered as the "year of change" for the Aleutian Islands Unit. All employees transferred, retired, or resigned with the exception of Administrative Officer Hagglund and Assistant Manager Reiswig.

- Laborer Hasha resigned in January after being on LWOP status for several months.
- Maintenance Mechanic Cox retired in January after more than 30 years of government service.
- Refuge Clerk Broderick resigned in April after her husband's tour of duty with the Navy ended on Adak.
- Assistant Manager Early transferred to Homer to assume Acting Refuge Manager responsibilities for the Alaska Maritime NWR.
- Assistant Manager Hall transferred to King Salmon to assume Acting Refuge Manager responsibilities for the Alaska Peninsula NWR.
- Assistant Manager Minn transferred to King Salmon to work on the Bristol Bay Planning Team.
- Refuge Manager Martin transferred to Homer to become the Manager of the Alaska Maritime NWR.

Two individuals joined the staff during the year; Ronny Bowers transferred from Charles Russell NWR to become the Maintenance Mechanic, and Kathy Karcheski joined the staff as Clerk-Typist.

Staffing in recent years is depicted in Table 2.

Table 2. Refuge Staffing FY 79 - 82

	Permanent		
Year	Full-Time	Part-Time	Temporary
FY 79	5	8	9
FY 80	7	5	11
FY 81	7	1	1
FY 82	5	1	1

2. Youth Programs

Seven YACC positions which included five biologists, a receptionist, and a janitor, were initially allocated to the Aleutian Islands Unit during the year. This was later increased to nine positions and an attempt was made to hire two mechanic's helpers. One of these positions went unfilled primarily because we couldn't compete with the Navy which was offering laborer positions starting at $10.00 per hour, more than twice YACC wages.

The YACC program was critically important to the Unit program during the year. An intense effort was made to hire the best possible individuals available. With the transfer of three Assistant Managers, YACC's were given increased responsibilities for the collection of biological data, operation of the Interpretation and Recreation program, and maintenance duties. The results were generally excellent and these individuals made the difference between success and failure for many of the projects undertaken during the year. YACC Beach performed the duties of Outdoor Recreation Planner and was primarily responsible for the strongest I & R program the Unit has seen to date. Masteller developed and conducted the caribou study while Slater, Kendall, and Logan provided strong support biological programs. Savage did an excellent job as receptionist, and O'Rourke and Martinez kept the headquarters building clean and assisted in a variety of maintenance duties.

The loss of the YACC program will be a serious setback to the Unit and will particularly cripple efforts in collecting and analyzing biological data, facility maintenance and interpretation.

3. Other Manpower Programs

An On-The-Job Training program for high school seniors was continued with Bob Reeve High School of Adak. Three individuals, one in the 1980-81 school year and two in the 1981-82 school year were employed for 20 hours per week by the refuge. The salaries of the individuals were paid by the school. The students were exposed to a wide variety of refuge tasks in the biological, clerical, and interpretive areas of refuge management. Students assisted in surveys, neocropsies of eagles and the development of interpretive exhibits for the headquarter's visitor contact area. The refuge was fortunate in having fine individuals to work with and we are looking forward to a continuation of the program with the high school.

4. Volunteer Program

Five volunteers contributed approximately 1600 hours of time on a variety of projects to the Unit during the year. The most notable effort was that of Rod Poole, guidance counselor of Bob Reeve High School, who spent a portion of his summer tramping around the WWII battlefield site on Attu Island to gather basic information for nominating the site to the National Register of Historic Places. In all, Rod donated 1000 hours, much of which was spent researching the history of the battle and writing a detailed report on his findings. He did an outstanding job and serves as a shining example of the contributions volunteers can make to refuges.

Volunteer Historian Rod Poole poses beside 4-person tent that shrank after severe Aleutian rain storm. (B.R. 1981)

Volunteer Historian Rod Poole completed an extenisve survey of the WWII battlefield site on Attu Island in July and conducted library research on the battle in his spare time during much of the rest of the year in an effort to provide more complete documentation of the site for its nomination to the National Register of Historic Places. The Battle of Attu was the only major land battle of the war fought on American soil.

Rod visited the battlefield site for several weeks in July to delineate those specific areas and objects needing protection, and to gain a better understanding of the battle itself. Overall, Rod spent more than 1000 hours on the project and developed an excellent report and nomination justification.

There is growing sentiment among veteran's groups that the battlefield receive national recognition, although private groups from Japan and the United States have established small monuments honoring veterans of the battle.

Other volunteers assisted in the caribou range project and developed art work for interpretive displays in the headquarter's visitor contact area. One YACC biologist whose appointment had ended signed on as a volunteer and continued to do biological work and write up the results of summer field surveys.

5. Funding

The following is a breakdown of funds, (in thousands), for the Aleutian Islands Unit, by program, during the past six years.

	FY77	FY78	FY79	FY80	FY81	FY82
1210	192	231.5	364	262	144	192
1220	45	51.5	51.5	30	60	123
1240	17	17	20	21	21	31
1400	222	242	307	282	140	75
TOTAL	476	542	742.5	595	365	421

BLHP funding for FY79 was 1,781,000 and for FY80 it was 1,403,000.

6. Safety

Assistant Manager Hall acted as the Station Safety Officer until his departure in June. Administrative Officer Hagglund fulfilled those duties for the remainder of the year. Monthly safety meetings were held throughout the year. Topics included safe winter driving practices, personal winter safety, proper handling of rocket charges, structural fire safety, etc.

Numerous fire drills were held during the year to orient the staff with building evacuation procedures. The Acting Refuge Manager at the time of an alarm was assigned the task of ensuring all personnel were evacuated in case of fire and the fire department was notified.

Regional Safety Officer Hyatt conducted a station inspection of the Aleutian Islands Unit in June. The main problem areas noted were 1) fire alarm system not connected to Naval Station system; 2) large quantities of improperly stored items, 3) improper vehicle care and maintenance. Efforts were initiated with the Navy to connect the fire system. Components have arrived to complete the task, however, as the year closed the Navy was still waiting for conduit for some of the wiring. The arrival of a Maintenance Mechanic aided in the correction of items 2 and 3, although he has been so busy on a variety of projects, not all materials and supplies are properly stored at this time. Vehicle maintenance has improved markedly and all vehicles currently meet road standards.

The following safety training was completed during the year:

Course	Participants	Length	Instructor
Defensive Driving	All Staff	8 hrs.	Hyatt
Multi-media First Aid	All Staff	8 hrs.	Hyatt
Red Cross CPR Training	All Unqual. Staff	8 hrs.	Navy Corpsman
Defensive Driving Refresher	All Staff	1 hr.	Naval Station Safety Officer
Seasonal Orientation and Emergency Proc.	YACC Field Employ., Reiswig	16 hrs.	Early and Hall

The Seasonal Orientation and Emergency Procedures training taught by Early and Hall provided an excellent introduction to various safety procedures necessary in the Aleutian environment. Proper handling of the Whaler and Zodiacs, use of radios and EPIRB units, the use of a wide variety of safety and navigational equipment, and emergency and survival techniques were discussed at length and demonstrated.

All EPIRB and radio units were checked periodically throughout the year and a full range of safety equipment was carried on the Whaler.

An Emergency and Protection Plan was completed for the office and housing units during the year, and a Field Crew Emergency Plan was also completed and implemented.

On February 20, the dryer in the Refuge Manager's residence caught fire. The Naval Station Fire Department arrived several minutes after being contacted and extinguished what could have been a serious fire. The dryer was a total loss and some damage occurred to an adjoining wall.

No lost-time accidents occurred on the Station during the year.

F. HABITAT MANAGEMENT

2. Wetlands

Many of the islands have freshwater "potholes" which superficially resemble the prairie pothole country. A few areas produce aquatic growth which support limited populations of waterfowl. This is especially true of Amchitka, Kanaga, and Agattu Islands. Current management amounts to monitoring construction activities at military installations and attempting to steer development away from wetlands and lagoons. Thus far, the military has been quite sensitive to our suggestions.

12. Wilderness and Special Areas

The passage of ANILCA designated approximately 1.3 million acres of the Aleutian Islands Unit as Wilderness. Some notable areas of the Unit excluded from the designation are 127,870 acres for military and lighthouse purposes on Shemya, Attu, Adak, Amchitka and Ugamak Islands; and approximately 200,000 acres selected by Native Corporations under the Alaska Native Claims Settlement Act.

Other special areas or designations which occur or are proposed for the Unit are listed below:

ISLAND	DESIGNATION
Aleutian Islands Unit	Biosphere Reserve
Agattu	Research Natural Area
Buldir	Research Natural Area
Kiska	Battlefield nominated to National Register of Historic Places
Attu	Battlefield nominated to National Register of Historic Places
P-38 G Lightning (Aircraft) - Attu Island	National Register of Historic Places
B-24 D Liberator Bomber (Aircraft) - Atka Island	National Register of Historic Places

G. WILDLIFE

2. Endangered and/or Threatened Species

The Aleutian Canada Goose is designated an Endangered Species. Historically, their breeding range extended from the eastern Aleutians to the Kurile Islands, wintering either in Japan, or from British Columbia to California. Geese were common in the western Aleutians until the turn of the century. The reason for their decline is speculative, but the introduction of fox to the Aleutians is considered a primary cause. Hunting pressure and loss of wintering habitat are also of importance in the overall picture.

Since the late 1940's refuge personnel have conducted a program to eliminate fox on selected islands. Amchitka was designated fox-free in 1960, and likewise for Alaid and Nizki Islands in 1976. Agattu will likely receive this status soon as the presence of fox was last noted there in 1979.

Buldir was one of the few islands to escape fox introductions, and with a remnant population of about 300 geese in 1963, goslings were captured in 1963, 1972, and 1975, to initiate a captive breeding program. Propagation facilities were established at Patuxent Wildlife Research Center, Amchitka Island, and Northern Prairie Wildlife Research Center.

The Aleutian Canada Goose Recovery Team was formed in 1975, and established two main objectives. The first is to maintain a minimum wild breeding population at the 1977 level of 1160 geese. Secondly, self-sustaining populations, i.e., a minimum of 50 breeding pairs, are to be re-established in three former breeding locations.

As part of a continuing effort to meet these objectives, field crews were flown via turbine Goose to Amchitka and Agattu Islands in early May to search for returning geese, and in the case of Agattu, to check for signs of Arctic foxes (SE-13e. 530,700). No geese were sighted on either island although fresh goose droppings were observed on Agattu. No sign of fox was observed on Agattu and because permission to continue their use had not yet been received from the EPA, all remaining M-44's were removed from the island.

Because CGS failed to contract a suitable vessel, the trap-transplant project which involved the transfer of family groups from Buldir to Agattu was cancelled (SE-12c. 520). The planned effort to release propagated geese on Agattu also had to be cancelled (SE-12d. 520) and instead, a release was planned on fox-free Nizki Island, which is in the close proximity of the Air Force Base on Shemya Island, and allowed for air transport of the geese.

Propagated geese produced at the Patuxent and Northern Prairie Wildlife Research Centers were shipped via commercial air freight to Anchorage after being held up for a week by the air traffic controllers strike. These geese included surplus birds no longer essential to the project, yearling birds which were not released in 1980, and "golden" family groups produced at Northern Prairie. These golden broods consisted of a wild-caught gander which was force-paired with a captive female and their resultant broods which were enlarged by adding goslings from other captive broods. The table below gives a listing of the release birds.

Table 3. 1981 Nizki Island Release - Aleutian Canada Geese

Origin	Type	Number Shipped
Northern Prairie	Golden Pair Adults	31
Northern Prairie	Golden Goslings	85
Northern Prairie	Misc. Surplus Adults	165
Patuxent	Goslings	103
		384

The geese arrived via commercial air freight in Anchorage on August 13 and departed hours later on the OAS turbine transport, Argosy, bound for Adak, but the aircraft was forced to spend the night in Cold Bay because of bad weather in Adak. On the morning of the 14th the Argosy managed to slip in to Adak but again bad weather prevented its departure for Shemya. Each of the birds had to be individually "tubed" with a high-protein food supplement, a process which took hours.

Aleutian Islands Unit staff members preparing to "tube" Aleutian Canada geese in Navy hanger after fog delayed flight to Shemya AFB. (J.L. 1981)

Finally, on the afternoon of the 15th the Argosy flew to Shemya and landed in marginal fog conditions.

Anchorage Volunteer Mercurio and Assistant Manager Reiswig unload crates of geese at Shemya AFB in preparation for Zodiac transport to Nizki Island. (C.H. 1981)

Heavy seas and impending darkness prevented the transfer and release of the geese that evening to nearby Nizki Island and again each goose had to be tubed.

Finally, on the morning of the 16th, sunshine and calm seas were the order of the day and birds were successfully transferred, via Zodiacs, to Nizki and released, ending for them a long and difficult journey.

Maintenance Mechanic Bowers and Anchorage Volunteer Mercurio look on as Assistant Manager Reiswig pulls Zodiac ashore on Shemya Island to load more crates of geese bound for release on Nizki Island. (C.H. 1981)

Zodiacs loaded with geese approach the shores of Nizki Island. (C.H. 1981)

Twenty-six of the birds (6.8%) died before release, a figure which is not surprising considering many had been crated for nearly 100 hours. The birds were extremely lethargic immediately after release and didn't even bother to fly away but walked to a nearby stream for long, cool drinks.

Approximately one month later, on September 15, Refuge Manager Martin and YACC Biologist Beach visited Nizki Island to monitor the success of the release. Although the worst was feared, only one goose carcass was found and about 150 birds were observed during the short visit. Various flocks of from 20 to 50 birds were also observed on neighboring Shemya Island. None of the golden geese were sighted however.

A flock of Aleutian Canada geese observed on Nizki Island in mid-September. (P.B. 1981)

Aleutian Canada geese released on Nizki Island appear to have recovered from their marathon shipment and release one month earlier. (J.M. 1981)

According to reports from Dr. Paul Springer, FWS Research Biologist, by year's end 14 of the Northern Prairie birds and 17 of the Patuxent birds had been observed on the California wintering grounds along with 28 birds transplanted from Buldir to Agattu Island in 1980. Three of the observed Northern Prairie birds were golden goslings.

3. Waterfowl

A Unit study concerning the status and mortality of Aleutian green-winged teal (Anas crecca nimia) was concluded during the year although the final report was not completed. Nest searches were conducted in late May and early June on Adak Island in the vicinity of the Naval Station using dogs and a rope drag.

One of the first Aleutian green-winged teal nests found on Adak. (J.L. 1981)

Data were collected on various nest and egg characteristics. Nests were later revisited to determine hatching success.

Waterfowl banding was quite successful during the year on Adak by Aleutian standards. A total of 210 ducks were banded (Table 4).

Table 4. Summary of Waterfowl Banding at Clam Lagoon, Adak Island, 1977-1981

	1977	1978	1979	1980	1981
Eurasian green-winged teal	133	3	164	72	83
Pintail	25	4	38	33	112
Mallard	5	1	-	20	14
Garganey teal	-	-	1	-	-
European wigeon	-	-	1	-	-
Shoveler	-	-	-	-	1
TOTALS	163	8	204	125	210

YACC Biologist P. Beach baiting waterfowl trap on a rare calm Aleutian morning. (J.L. 1981)

Four swim-in bait traps were set for a total of 248 trap-days. Nine measurements were taken of each captured bird. Five ducks were recaptured from 1980 (Table 5) and additionally five returns on ducks banded in the Aleutians were reported from the Bird Banding Laboratory (Table 6).

YACC Biologists Logan and Kendall taking measurements of Aleutian green-winged teal during waterfowl banding. (M.M. 1981)

Table 5. 1981 Recaptures; Waterfowl banding, Clam Lagoon, Adak Island, Alaska.

Band no.	Species	Sex	Location of recapture	Date	Place of banding	Age	Date
967-57304	Mallard	F	Clam Lagoon	09/04/81	Clam Lagoon	HY	09/18/80
756-14338	Pintail	F	Clam Lagoon	09/12/81	Clam Lagoon	HY	09/28/80
967-57306	Mallard	F	Clam Lagoon	09/14/81	Clam Lagoon	HY	09/19/80
756-14317	Pintail	F	Clam Lagoon	09/15/81	Clam Lagoon	HY	09/16/80
756-14318	Pintail	F	Clam Lagoon	09/17/81	Clam Lagoon	HY	09/16/80

Table 6. Waterfowl Band Recoveries, Adak Island, Alaska, 1980-81.

Band No.	Species	Sex	Date/Location of encounter	Date/Location of banding	Distance traveled
876-80187	Pintail	M	10/18/80 Willows, CA	08/01/80 Constantine Hbr. AK	5350 km
756-14325	Pintail	F	12/80 Tillamook Bay, OR	09/21/80 Adak, AK	4450 km
756-14320	Pintail	F	01/03/81 Grizzly Island, CA	09/18/80 Adak, AK	5010 km
756-14078	Pintail	F	02/11/80 Tone River Chiba, Japan	09/29/79 Adak, AK	4375 km
997-17531	Mallard	F	05/02/81 Near Kipnuk, AK	10/21/77 Amchitka Island, AK	1385 km

5. Shorebirds, Gulls, Terns and Allied Species

Nesting plots for glaucous-winged gulls were established during the summer on North and Crone Islands in the immediate vicinity of Adak Island, and on East and West Islands in Lake Betty on Adak Island to develop information on long-term nesting trends on these colonies.

6. Raptors

Although the most prominent raptors in the Aleutian Islands are the bald eagle and Peale's peregrine falcon, other species such as the short-eared owl, snowy owl, gyrfalcon and occasionally rough-legged hawks can also be found. Individuals with the commercial birding tour, Attours, which travels to Attu Island each spring have regularly reported seeing the Steller's sea eagle. A Scops owl was found on Amchitka Island several years ago, a North American first for that species. A Eurasian kestral was observed along the main road near the Adak air terminal on January 31st. This is the first sighting of this species on Adak and only the second in Alaska with the first sighting being on Shemya Island.

Our National Emblem is a common sight on the Adak Naval Station. Here, an adult soars past observer above Finger Bay. (B.R. 1981)

A population of from 200-300 bald eagles winter on the Adak Naval Station and during the summer about 50-55 pairs of eagles establish nests. In order to develop baseline information on the island's eagles, a study to monitor movements and gather baseline data on breeding biology was initiated. Of special interest is the effect of the Station's garbage dump on population numbers.

Some of the "regulars" at the Naval Station garbage dump. Current studies seek to learn more about the dump's effects on Aleutian birds. (J.L. 1981)

Bald eagles were captured in late January and February by the use of a rocket net and padded leg-hold traps. A bow-net trap proved to be unsuccessful and a modified noose carpet was used for only one day. One unlucky individual was captured at the garbage dump with a dip net after it had gorged itself on food scraps and was unable to fly! A total of 39 individuals were captured (Table 7) primarily by the rocket net which was set in the headquarters parking lot and baited with meat scraps from the Naval Station butcher shop. No injuries were inflicted on the eagles by the use of the rocket.

Table 7. Summary of Bald Eagle Capture Methods, Adak Island, 1981.

Trap	Eagles captured Immature	Mature	Total	Trap days	Eagles captured that day
Bow-net	0	0	0	9	0
Padded leg-hold	0	3	3	23	.13
Rocket	25	10	35	16	2.19
Modified noose carpet	0	0	0	1	0
	25	13	38*	49	

*An additional individual was captured with a hand net at the garbage dump.

View of rocket net and birds immediately prior to shot. (R.H. 1981)

BOOM! The rocket net zooms over a group of unsuspecting birds. (R.H. 1981)

Adult eagle and young at nest site.
(J.L. 1981)

YACC Biologist Slater bands an eaglet. (P.B. 1981)

Refuge Manager Martin and YACC Biologist Mueller band an immature eagle caught with the rocket net. (R.H. 1981)

A variety of measurements were taken on captured birds and all individuals were banded with standard FWS aluminum bands and prenumbered red, plastic leg bands. The tails of adults were marked with red or green dyes to allow for later identification. A scheme was developed which divided the 12 tail feathers into 3 sections of 4 feathers each. The sections were dyed in various patterns to allow for identification. The only disadvantage to the technique is that the marking only lasted until the tail feathers were molted in late summer. From January to October, 43 observations of marked adults were made along with 17 observations of banded immatures.

The last observations of a color-marked adult was made on August 8. Only one marked adult was seen on a nest during our nest search of Adak Island in April. Six neighboring islands to the east were also searched for eagle nests. Though six nests were located, none had marked adults. One banded immature eagle was observed at Atka village on Atka Island, which is 105 miles east of Adak.

Once the tail feathers are dyed, the bird can be easily identified. This adult, red-red-white, had its nest near the Naval Station. (B.R. 1981)

A bald eagle nesting survey on Adak Island was conducted during nine days in April and June using a 13' Zodiac and a 22' Boston Whaler as a support vessel. Surveys were conducted directly from the Whaler where shoreline conditions allowed, with remaining shoreline surveyed on foot. Forty nests were located on Adak during the spring survey and eight additional nests were discovered later in the summer. When nests were located, two observers went ashore, flushed the adult and attempted to count the eggs. Data on clutch size were collected from 28 of the 48 nests located, with an average clutch size of 2.29 eggs per nest. Locations of the nests are noted on Figure 1.

Bald eagle at eyrie during spring nesting survey. (B.R. 1981)

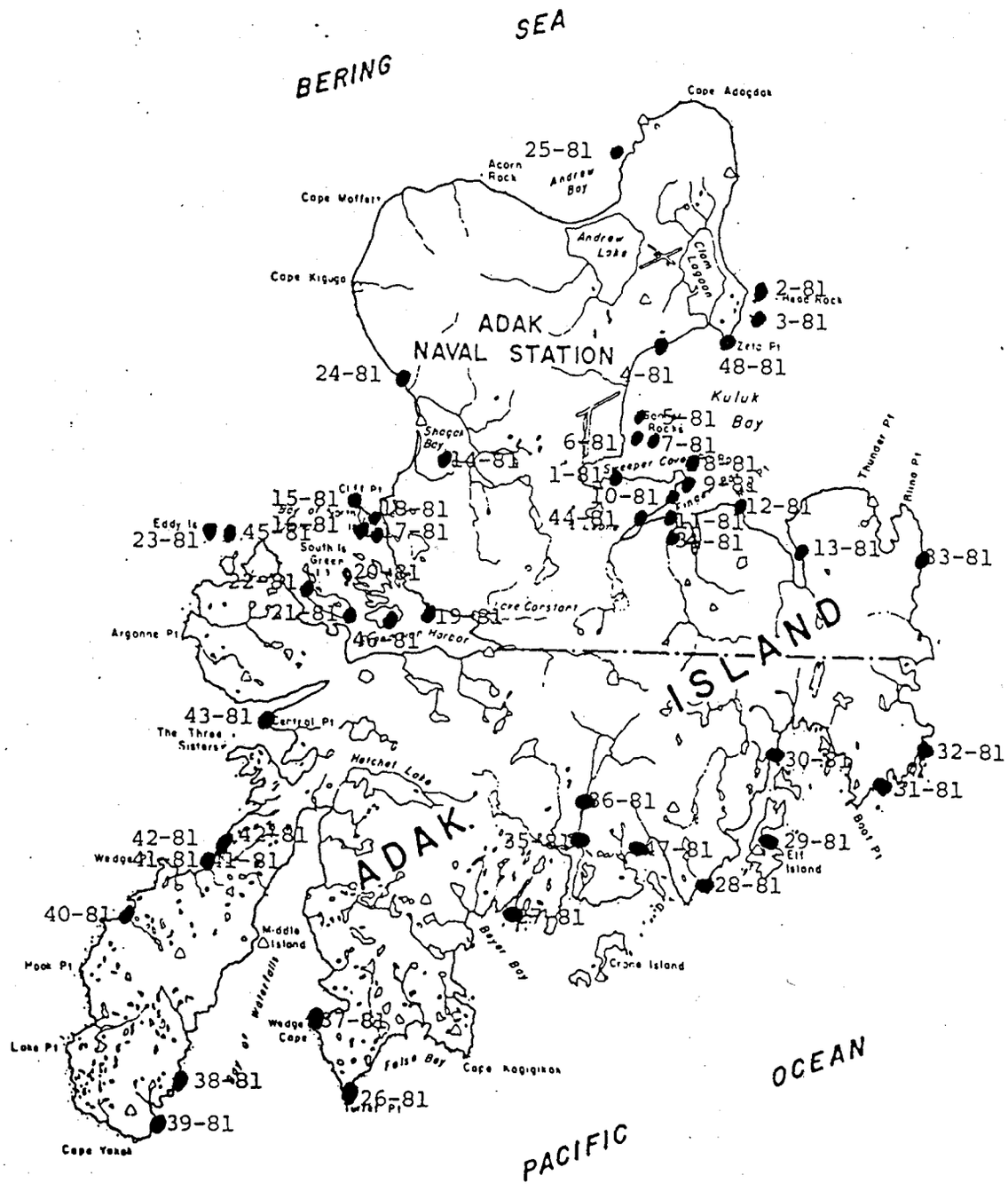


Fig. 1

Location of Bald Eagle nests. 1981

ADAK ISLAND

YACC Biologist Masteller prepares to band eaglet as adult makes strafing run. (J.L. 1981)

This bill measurement is one of ten measurements taken of each eaglet. (J.L. 1981)

Assistant Manager Reiswig taking tarsus measurement of eaglet. (J.L. 1981)

YACC Biologist Masteller and Assistant Manager Reiswig weighing eaglet in nest. (J.L. 1981)

A pre-flight nestling count was conducted during 12 days in June and July. All but six known nests were visited, unless the nest was known to have previously been abandoned. The number of young per nest were counted and, if accessible, measured and banded. A total of 32 eaglets were measured and banded with interlocking FWS bands on the right leg and prenumbered red, plastic bands on the left side.

Irate parent keeps a close watch over nest while biologists check fledglings. (J.L. 1981)

A fledgling count was conducted in late July. Nests were visited and young birds in or near the nests were counted. All the young counted were completely feathered at this time. A decrease from 2.29 eggs per nest to 1.38 birds fledged per nest attempt, and 1.69 fledged per nest fledging birds, was noted.

Bald eagle electrocutions continue to be a problem on Adak. Individuals are occasionally killed by high-voltage power lines when attempting to perch on poles. The installation of perches by the Navy on key poles has reduced the total loss by about 50%. Twenty-five eagles were electrocuted in 1981 as compared to 28 in 1980, 30 in 1979 and 50 in 1978. Several radio and television spots were aired this fall to encourage Island residents not to feed eagles or leave garbage unattended which attracts them to the base and increases their use of hazardous poles. This will be a continuing effort until the situation improves.

7. Other Migratory Birds

The Aleutian Islands serve as important breeding and wintering grounds and offer refuge to an international list of migratory birds. Although North American birds are more abundant, some Asiatic species have been sighted and/or breed regularly on some islands. We currently have 225 species on our refuge bird list.

Several uncommon sightings were made on Adak during the year. A Steller's eider was observed May 5 at the Zeto Point Bering Seawall. On May 31, a black-headed gull was observed at Clam Lagoon and a pectoral sandpiper was seen at close range, feeding on the southwest corner of Clam Lagoon on September 28.

The Aleutians are well known for the abundance and diversity of pelagic birds. Island investigations to monitor trends in breeding populations continued this year in efforts to locate and census pelagic bird colonies (FY81 MNB-38b. 700). Six puffin and petrel plots were established or checked in June and July on Ulak, Aziak, Asuksak and Crone Islands.

8. Game Mammals

Caribou were introduced to Adak in 1958 and 1959. The herd has grown rapidly due to relatively mild winters, lush vegetation, and lack of predators and biting insects. Many islanders hunt caribou, and the world's record bull, weighing over 700 lbs., was taken here in 1968. The management goal, set by the Alaska Department of Fish and Game, is a post-season population of 150-240 animals. The danger of over-population is a very real and major concern of the Unit.

A herd of caribou seen during the October peak-of-rut count. (S.K. 1981)

This year we initiated a major caribou productivity and range investigation to develop an estimate of range carrying capacity on the island (FY81 MNB-18b. 650). During the hunting season YACC biologists accompanied hunters to collect rumen samples and reproductive tracts from harvested animals. They also took total length and hind leg measurements.

YACC Biologist Slater takes the total length measurement of a large bull. (J.L. 1981)

To date, 12 rumen samples have been sent to the University of Alaska for intensive analysis (Table 8). The winter range on the island, totalling 31634 ha, (78, 135 acres), was mapped, (Fig. 2), and YACC biologists backpacked to selected areas to determine the different vegetation types within the winter range (Table 9) and percent coverage (Table 10). Vegetation transects were then run in each type to determine frequency, percent cover and production of each species. Bad weather prevented us from doing all of the necessary transects. The seashore type covers only a small part of the winter range, so production was computed for only the four major vegetation types (Table 11).

Table 8. Summary of Rumen Sample Analysis (using the Van Soest procedure), For Both Washed and Unwashed Rumen Samples.

	Washed		Unwashed	
	$\bar{x}$	s	$\bar{x}$	s
% Dry matter	94.3	1.2	95.4	0.4
Average % NDF	48.3	5.9	48.9	7.0
Average % ADF	17.6	3.4	14.6	3.4
Average % cellulose	9.9	2.5	8.2	2.5
Average % ash	0.9	0.6	0.7	0.7
Average % lignin	6.8	0.9	5.8	1.2
% nitrogen	2.9	0.3	2.9	0.6
% phosphorus	2.1	0.3	2.0	0.3
% calcium	0.28	0.13	0.30	0.13

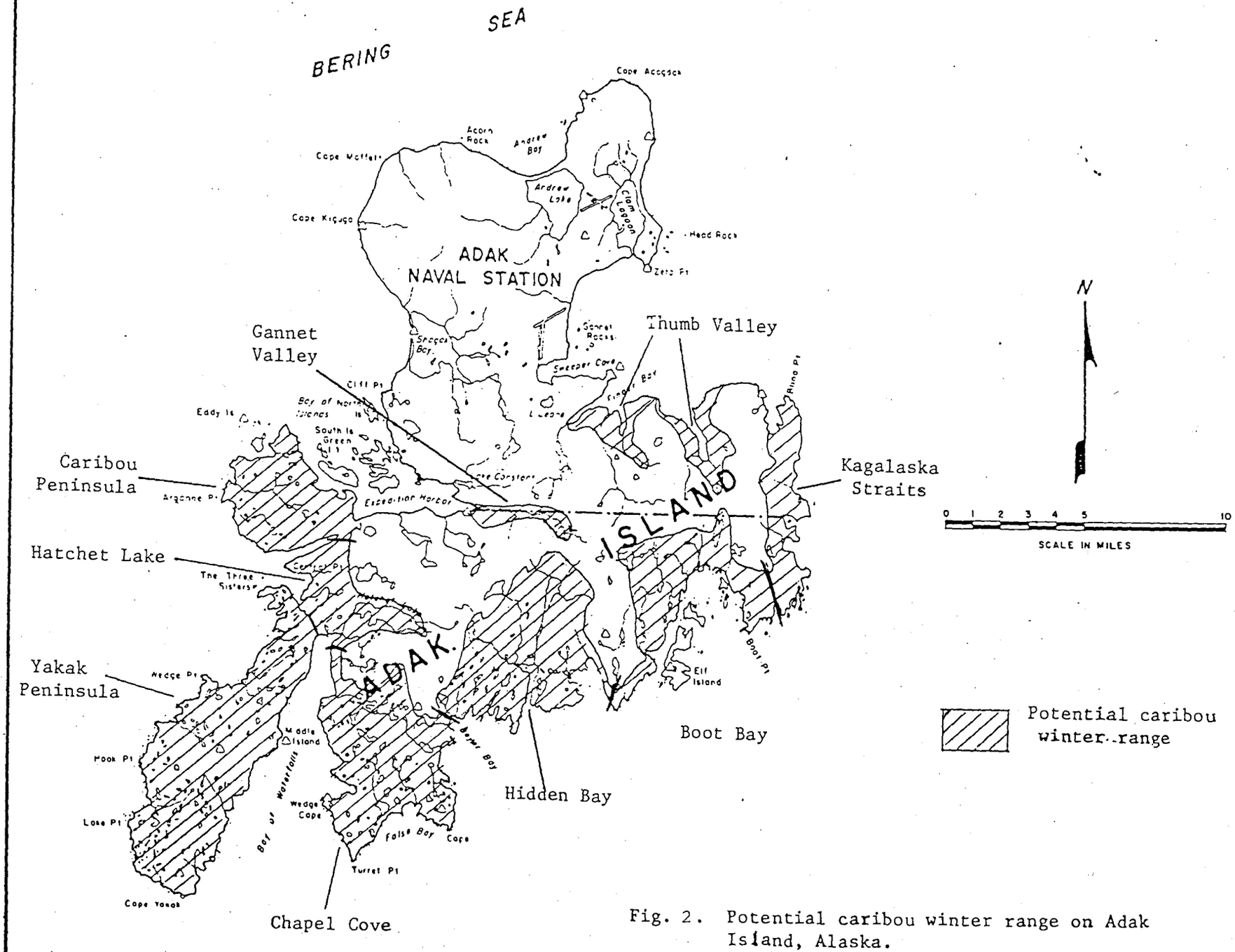


Fig. 2. Potential caribou winter range on Adak Island, Alaska.

Table 9. Description of the Five Vegetation Types Identified on the Caribou Winter Range, Adak Island, Alaska.

1. Seashore - Elymus mollis and Calamagrostis spp. are dominant grasses, with Heracleum lanatum the dominant forb. Vegetation may reach up to 150 cm in height. Found near the ocean, along low-elevation lakes, and in steep moisture seeps.

2. Lowland Meadow - Calamagrostis spp. and Carex spp. are dominant. Other grasses include Poa spp., Phleum spp. and Agrostis spp. Vegetation up to 60 cm in height, covering low meadows and hillsides. May contain Empetrum nigrum but it is not a dominant species.

3. Heath - Empetrum nigrum, Carex spp. and Cladonia (lichen) spp. are dominant. Many forbs (Anemone spp., Lupinus spp., Geum spp.) as well. Vegetation up to 40 cm tall. This is the most common vegetation type on the island.

4. Fen - Carex spp. dominate, along with various rushes (Juncus spp. and Luzula spp.). Many forbs also, but vegetation generally not over 30 cm tall. Found on flat or gently sloping wet areas. May contain Empetrum nigrum but the type is distinguished by its wetness.

5. Alpine Meadow - Empetrum nigrum mixed with Vaccinium spp. and sparse Carex spp. Some low-growing forbs as well (Anemone spp., Lupinus spp., Campanula spp.). Vegetation rarely over 20 cm in height. Found generally above 80 m elevation, on hilltops. On Yakak Peninsula Salix spp. is much more abundant than Vaccinium spp.

Table 10. Percent of the Caribou Winter Range Occupied by Each Community Type (as determined by random vegetation point sampling).

Community Type	Percent Winter Range and Area Sampled: Caribou Peninsula	Yakak Peninsula	Chapel Cove	Hidden Bay	% of total wint. range	Hectares in winter range
Seashore	9.3	6.6	2.6	1.2	4.9	1550
Lowland Meadow	32.0	22.6	4.0	10.0	17.0	5378
Fen	13.3	6.6	8.0	11.2	9.8	3101
Heath	28.0	38.6	37.3	48.7	38.5	12177
Alpine Meadow	12.0	13.3	32.0	18.7	19.0	6011
Open Water	5.3	8.0	9.3	6.2	7.2	2278
Inland Bedrock	0	4.0	6.6	3.7	3.6	1139
						31634

Table 11. Average Annual Net Production[a] for the Four Major Vegetation Types in the Caribou Range, Adak Island, Alaska.

	Average Annual Net Production (kg/ha): Lowland Meadow (9 plots) $\bar{x}$	Alpine Meadow (6 plots) $\bar{x}$	Heath (9 plots) $\bar{x}$	Fen (9 plots) $\bar{x}$
Grasses	1090	50	370	30
Sedges	310	110	450	980
Lichens	110	4390	460	130
Forbs	220	10	110	250
Sub-shrubs	180	2040	2660	210
Mosses	640	820	950	340
Ferns	10	-	-	-

[a]Production for lichens is not annual production. Lichens were clipped at ground level; with their slow growth rate this may have been 30 years worth of production.

A reference collection of plants was developed for food habits analysis of rumen samples, which will be completed this winter. Plants in the reference collection will be analyzed by the University of Alaska Experiment Station at Palmer for mineral content.

Another part of the caribou project is the repair of range exclosures built by the Alaska Department of Fish and Game (ADF&G). Six exclosures were originally established, and three were repaired during the year.

Refuge personnel became human packhorses when they hauled materials to repair caribou range exclosures. (J.L. 1981)

Assistant Manager Reiswig tightens a corner post on an exclosure being repaired. (J.L. 1981)

It is difficult to accurately census the herd on Adak, due to rugged terrain, bad weather and lack of suitable aircraft. On an aerial census with a Turbine Goose flown May 7, 144 caribou were observed. A spring calving survey was conducted from May 18-23 in the Hidden Bay area, during which 14 cow-calf pairs were seen. No twins or yearlings with calves were observed. During October 14-20, we conducted a peak-of-the-rut count, stationing YACC biologists in three different locations on the island. A minimum of 316 animals were seen, and this was after a harvest of approximately 70 animals.

Caribou cow and calf seen during the May calving survey. (B.R. 1981)

With no predators or biting insects to worry about, this young sprout has only the fierce Aleutian wind to avoid. (B.R. 1981)

The hunting season is from August 10 to March 31, with a limit of two caribou per season. The number of caribou harvested has apparently not been adequate. Although the harvest has increased over the years (Table 12), it has not maintained the herd at the desired level. Mountainous terrain and typical Aleutian weather combine to keep hunting pressure low. A proposal has been submitted to the Game Board to increase the limit to four with no closed season. This would allow hunters with boats to get around the island during the summer, when the seas are calm. During the current season (1981-82) 116 caribou have been harvested thus far. Jaws from 70 of these animals have been aged by ADF&G; 51% are from yearlings and calves. The large number of young anumals in the harvest indicates a growing population. The sex of 112 caribou harvested this season is running about 55% female.

Table 12. History of Harvest, Adak Caribou Herd.

YEAR	REPORTED HUNTING MORTALITY
1964	5
1965	10
1966	21
1967	25
1968	58
1969	51
1970	53
1971	48
1972	98
1973	108
1974	93
1975	96
1976	106
1977	67
1978	74
1979	132
1980	129

The other game mammal on Adak is the Arctic blue fox, which is also an introduced species. Fox trapping is popular; 34 permits were issued for the season beginning August 10, 1980 and ending April 30, 1981. The average harvest was 2.25 fox per trapper. The current season started September 1, 1981, and 29 permits have been issued to date. The season has also been extended to allow trapping year-round.

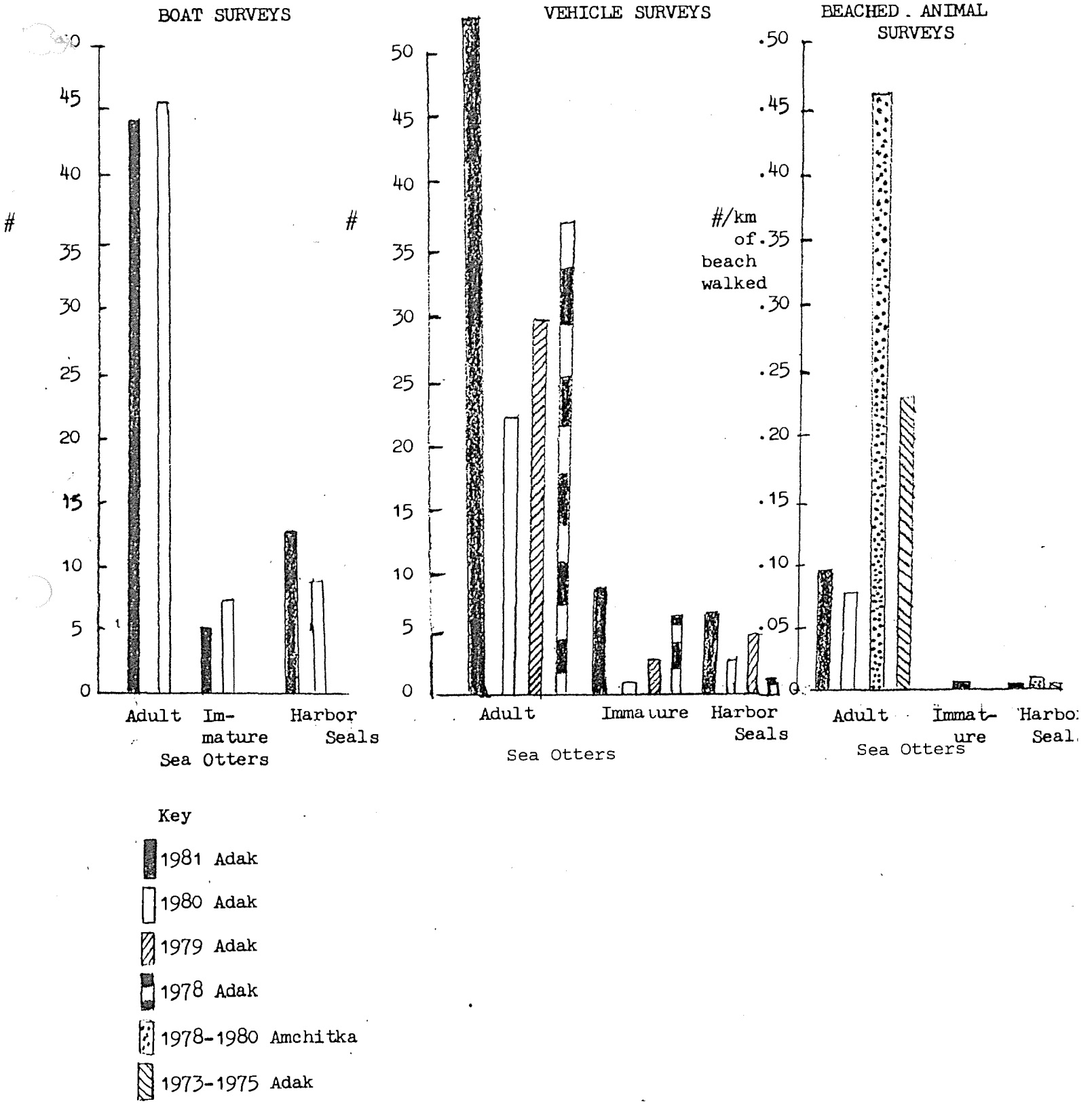
9. Marine Mammals

Marine mammals were censused monthly in the waters around Adak during 1981. This was done on 21 vehicle surveys (FY81 MNB-19f.750), 19 boat surveys (FY81 MNB-19f. 750), and 41 beached animal surveys (FY81 MNB-19e. 700). Sea otters and harbor seals were the most abundant species observed (Fig. 3). Steller's sea lions are also common in the Aleutians but were only seen occasionally since surveys are limited to areas near the Naval Station where there are no haul-out or rookery sites. Occasional Minke whales, killer whales, Dall porpoise and harbor porpoise were observed.

Harbor seals, like this "hauled-out", adult and pup, were observed frequently on various surveys. (B.R. 1981)

A study to determine the diurnal rhythm attendance patterns of Steller's sea lions was conducted on a non-breeding colony on Little Tanaga Island. Counts were done on June 5, 6 and 15, 16, at 2 hour intervals from 0800-2200 on both count periods. The maximum count occurred at 1600 and the minimum count at 2200 (Table 13).

Fig. 3
Sea otter and harbor seal observations on boat, vehicle and beached animal surveys.



Three goose-beaked and two Stejnegers beaked whales were found in late July and early August. One of the Stejnegers was stranded in Sweeper Cove and entangled in kelp. Measurements and photos were taken before it was aided by Fish and Wildlife personnel into deeper water, where it eventually swam away. Measurements, samples and photographs were taken of all dead whales, except one goose-beaked, and were sent to the Smithsonian in Washington.

This Stejnegers beaked whale, which was entangled in the kelp in Sweeper's Cove, was aided by FWS personnel in its return to the open ocean. (J.L. 1981)

Measurements, samples and photographs were taken of three beached whales. Four of the YACC Biologists are measuring one of the goose beaked whales beached at Clam Lagoon. (M.M. 1981)

Table 13. Sea Lion Counts, Little Tanaga Island - June 8,9,18,19, 1981.

TIME	JUNE 8,9			JUNE 18,19			AVERAGE JUNE 8,9 & 18,19			TOTAL AS % OF HIGHEST COUNT	FACTOR OF HIGHEST COUNT
	F	M	TOT	F	M	TOT	F	M	TOT		
0800	265	9	265	488	12	500	372	10.5	385.5	68.4	1.46
1000	434	16	450	532	12	544	483	14.0	497.0	88.8	1.12
1200	489	13	502	500	15	515	494.5	14.0	508.5	90.9	1.10
1400	407	43	450	494	13	507	450.5	14.0	463.5	82.8	1.20
1600	542	24	566	538	15	553	540	19.5	559.5	100.0	1.0
1800	477	18	495	500	12	512	488.5	15.0	503.5	90.0	1.11
2000	503	17	520	393	10	403	448	13.5	461.5	82.5	1.21
2200	170	14	184	120	7	127	145	10.5	155.5	27.8	3.60

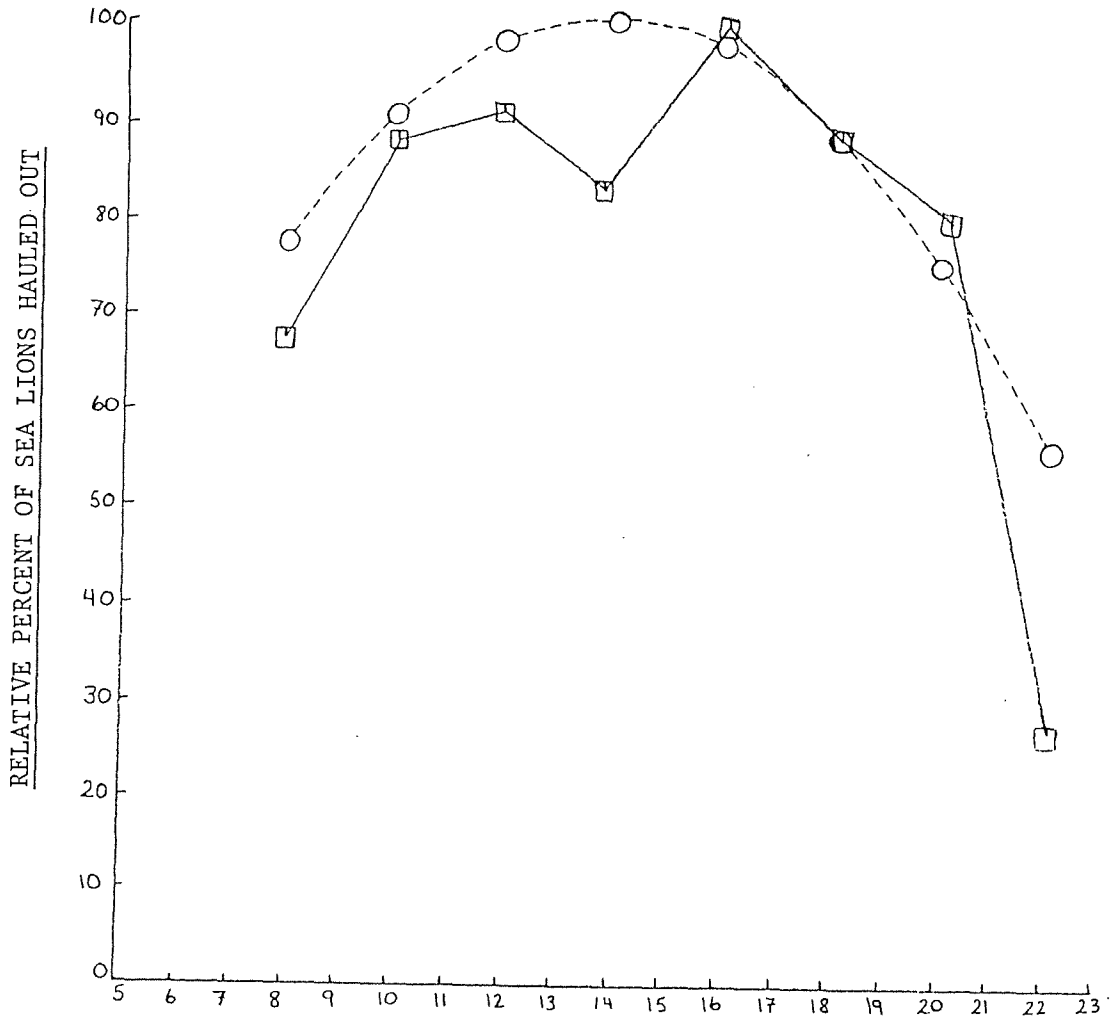
These results will be applied to future population surveys. It was recommended that population surveys on rookery and haul-out sites be conducted between 1000 and 2000 during the summer months. Eighty percent of the peak daily population occurred during this time on Little Tanaga, which compares favorably to studies conducted on Ugamak Island by the National Marine Fisheries Service in 1977 and 1978(Figure 4). The factors of the peak count from the table can be used in determining population levels, depending on the time the count is conducted.

Ground and aerial counts were conducted on Steller's sea lion colonies on the eastern one-third of Amchitka Island (Table 14). The site count was 2,056 from the ground and 1,571 from the aerial. These sea lions are very mobile which may account for some of the difference.

Aerial counts were taken on sea lion colonies on the eastern one-third of Anchitka Island. (B.R. 1981)

Fig. 4

PERCENT OF SEA LIONS HAULED OUT PER TIME OF DAY
AT LITTLE TANAGA ISLAND, ALASKA, JUNE 8,9 & 18,19, 1981



□ TIME VERSES OBSERVED 8 VALUES

○ TIME VERSES MODEL* 8 VALUES

* As compared to model developed by David Withrow (pers. comm.).

Table 14. Ground and Aerial Counts of Sea Lions Colonies on Amchitka Island.

Site	5/4/81 Ground Count	5/9/81 Aerial Count	1980 Ground Count
East Cape	138	72*	
Ivakin Point	80	28	
Oceanside Beach	725	139*	
Pluton Point	0	0	
Omega Point	303	165	
St. Makarius Pt.	810	1147	
TOTAL	2056	1551	1250

*Incomplete photo coverage

Plastic litter surveys were conducted during 1981 simultaneously with beached animal surveys. The litter, which is deposited mainly from fishing vessels in the North Pacific and Bering Sea, is believed to pose a threat to marine mammals and birds. It is a source of entanglement, toxic substances and possibly PCB's. Autopsies on Adak's electrocuted bald eagles show the PCB levels near the mean levels found in eagles throughout the U.S., including Alaska (Table 15). Because of the remote location of Adak, these PCB's are believed to be from a local source. One possibility is their movement through the food chain from the plastic litter to the eagles via microorganisms, crustaceans and rats.

Table 15. Mean PCB Levels in Eagles.

	# of eagles	Mean PCB levels (ppm in carcass)	Range	Mean PCB levels (ppm in brain)	Range
			ADAK ISLAND		
1973	0				
1974	0				
1975	0				
1976	6	13.41	7.0 -23.0	1.5	0.87-3.3
1977	2	1.7	0 - 3.4	0.28	0.26-0.29
1978	7	2.5	0.40 - 5.5	0.22	0-0.61
1979	4	10.9	1.8 -18	1.38	0-1.6
1980	1	10.0		12.0	
			NATIONAL		
1973	34	23.01		7.5	
1974	50	9.9		1.6	
1975	49	7.7		1.2	
1976	50	12.0		2.2	
1978	67	5.5		1.5	
1979					
1980					

There tends to be a large difference in plastic deposition and accumulation depending on the exposure of the beach to the currents, winds and land forms.

A total of 247.75 kg of plasitc/km of beach walked was found, which compares to 121.64 kg/km, 156.42 kg/km and 345.42 kg/km on Amchitka Island beaches in 1972, 1973 and 1974, respectively.

Four otters found on Adak were autopsied at the National Wildlife Health Lab. in Madison, Wisconsin (FY81 MNB-19f. 750). Of these, one died of emaciation and drowning, one of mural thrombus of the right AV valve, one of hemorrhagic enteritis, parasitism and unilateral blindness (trauma) and one from undetermined causes.

10. Other Resident Wildlife

This spring a permanent census transect was established on Adak Island to survey territorial male rock ptarmigan (FY81 MNB-18b. 650). This will provide baseline information and long term trend data on ptarmigan populations. The census was conducted during May 13-15, and involved an intensive search of the entire census area. We found a density of three males per km^2, which is much lower than the 6-7 males per km^2 reported on Amchitka Island in 1969 and 1970. The difference may be due to the presence of blue fox on Adak; fox were eradicated from Amchitka by 1960. Also, ptarmigan populations are cyclic in mainland Alaska, and may be in the Aleutians as well.

Two other islands were surveyed for ptarmigan, gray-crowned rosy finches, Lapland longspurs, snow buntings and rock sandpipers using Emlen transects. Three permanent transects were established on Great Sitkin Island in early July, and four transects that were previously established (in 1980) on Little Tanaga Island were completed in late June. These surveys provide trend data and rough population estimates (Table 16).

Table 16. Results of Inland Bird Transects on Little Tanaga and Great Sitkin Islands, 1980 and 1981.

	Average number of birds per km^2				
	Rock ptarmigan	Lapland longspur	Snow bunting	Rosy finch	Rock sandpiper
Little Tanaga 1981	6.32	91.70	4.74	1.58	3.16
Little Tanaga 1980	2.22	22.04	2.18	0	1.14
Great Sitkin 1981	0	316.05	17.28	12.35	0

11. Fisheries Resources

Stream surveys were conducted on some of the major salmon spawning streams on Adak and Kagalaska Islands. Runs of pink, silver and red salmon occur in the Aleutians from August through September in most of the larger streams. Chum and king salmon have been reported in some streams. Two 25 pound king salmon were caught in Finger Bay on Adak.

A record high count of 25,000 to 28,000 pink salmon were counted in Finger Bay. This compares to 2,300, 14,000 and 7,059 found in 1977, 1978 and 1980 respectively. This supports a prediction by ADF&G that salmon populations in the North Pacific have been and will continue to increase over the next few years.

There is some commercial fishing, mostly at the eastern end of the chain. This year the halibut fishing was quite successful, but commercial king crab fishing was slow. Subsistence fishing is quite popular on Adak. King crab and salmon are the most sought after species.

15. Animal Control

During the year, the Air Force requested assistance in dealing with gulls which had invaded one of the active runways on the Shemya AFB and were posing a serious hazard to aircraft.

Armed with a permit, cracker shells, and an old double barrel shotgun, Refuge Manager Martin flew to Shemya to deal with the situation. Apparently, gulls were dropping urchins on the runway to break the shells before alighting to eat them. Young birds were also roosting on the runway causing planes to be delayed by as much as a half hour until the gulls could be chased off with pickups.

Martin held a gull control workshop, advising Air Force personnel on how to deal with the situation. He then controlled some 70 gulls before the rest got the hint. After that point the cracker shells were effective and the problem has since abated. The Air Force ordered a shotqun for gull control and should be able to control the problem without direct Unit support.

The introduction of blue phase, Arctic foxes to the Aleutian Islands many years ago by Russian and American trappers has caused a serious reduction in the numbers of marine and other bird species on many islands, and is one of the principle reasons for the decline of the Aleutian Canada goose, an Endangered Species.

This year an intensive research project (MB-32i. 530) was initiated on Arctic foxes by Dr. Robert Rudd with field investigators Dr. Edward West and Kathy West of the University of California at Davis under contract to the Fish and Wildlife Service. The study is designed to test the feasibility of a biological control technique which calls for the introduction of sterilized red foxes to Kagalaska Island and the monitoring of their interaction with the blue phase, Arctic foxes.

Fox researchers, Ed and Kathy West, of the University of California at Davis. (M.M. 1981)

There is evidence red foxes will eliminate blue foxes from ranges which both species occupy. If this technique is successful it will provide a new tool for the removal of blue foxes from the islands by a biologically acceptable method. Ed and Kathy spent the first summer of the study developing a population estimate of foxes on Kagalaska and locating den sites. They planned to attach radio collars to some individuals to learn more about movements and home ranges, however, the collars proved unsuitable in tests at refuge headquarters and were not used. The use of a different transmitter is planned and foxes will be captured during the winter of 1982 for collaring.

Budget reductions and lack of coordination by the Service resulted in the study being temporarily suspended during the latter portion of the year. Problems with study coordination were resolved at a Regional Office meeting in December and the project is back on track with slightly reduced funding. Plans are underway to release foxes on Kagalaska during the spring of 1982.

16. Marking and Banding

A short summary of banding efforts on the Unit is noted here, and more detailed reports of banding are included in appropriate sections listed in Table 17.

Seven ravens were also banded incidental to capture of bald eagles in the rocket net.

Table 17. Summary of Banding and Marking on the Unit During 1981.

Species	Number Banded	Number Marked	Section Reference
Ducks	210	-	G.3
Geese, A.C.	384	384, Blue Leg Band	G.2
Ravens	7	-	-
Bald Eagles	71	71, Red Leg Band 15, Colored Tail	G.6

H. PUBLIC USE

1. General

Most of the people currently living in the Aleutian Islands are active duty military personnel and their dependents. The Adak Naval Air Station is located on Adak Island and consists of approximately 5000 people. The Shemya Air Force Base and the Coast Guard Station on Attu Island add approximately another 1000 military personnel to the Islands' population. Four Native villages, Unalaska/Dutch Harbor, Akutan, Nikolski and Atka contain another 600 individuals.

The average tour of duty for military personnel is generally 1-2 years. This provides a unique opportunity for the Unit to contact a continually changing population with interpretive, educational and informational resources.

View of a portion of the Adak Naval Station from a nearby ridge. The Station provides excellent opportunities for interpretive and environmental education activities. (B.S. 1981)

The rugged Aleutians provide opportunities for unmatched wildlife oriented and non-wildlife oriented outdoor recreation. (S.K. 1981)

The most intensive I & R program to date was conducted during the year. This was due to the availability of a visitor contact area in the new headquarters, sufficient office space to allow for the development of interpretive displays, and the availability of YACC's to develop and present the various elements of the program.

Weekly articles were published in the Naval Station newspaper "Eagles Call" on a variety of topics, and additional monthly articles dealing with items of special interest such as seabirds and specific hunting opportunities were published.

The local TV station showed a great deal of interest in refuge operations and filmed five 10-minute segments on topics such as sea lion biology, seabirds, eagles, and caribou cookery. Refuge Manager Martin participated in a one hour special on sport fishing in the Adak area. These segments utilized both studio and on-site locations for production. The Unit also participated in producing a weekly 2-3 minute segment on the nightly news program "Island Update" during which a wide variety of subjects such as Christmas bird count results, ptarmigan biology, waterfowl banding, procedures for reserving a public-use cabin and others were discussed. These forums provided an excellent opportunity for the Unit to make the public aware of special refuge events and regulations, and to provide some basic information on Adak Island outdoor opportunities.

Assistant Refuge Manager Early and Navy cameraman are shown filming an on-location segment about sea lion biology at Little Tanaga Island. (J.L. 1981)

With the exception of several films shown at Shemya Air Force Base while refuge personnel were conducting the gull program, no interpretive activities were conducted at other inhabited locations in the Aleutians, mainly due to the lack of transportation to these remote locations.

Public use surveys were conducted twice a month (I&R-9b. 120). The public recorded an estimated 16,946 visits. Consumptive users totaled 26,568 activity hours, and non-consumptive use was estimated at 28,799 activity hours.

Indoctrination talks were presented twice monthly to incoming military personnel on Adak. Hiking, hunting and fishing opportunities, regulations, and other recreation were discussed.

2. Outdoor Classrooms - Students

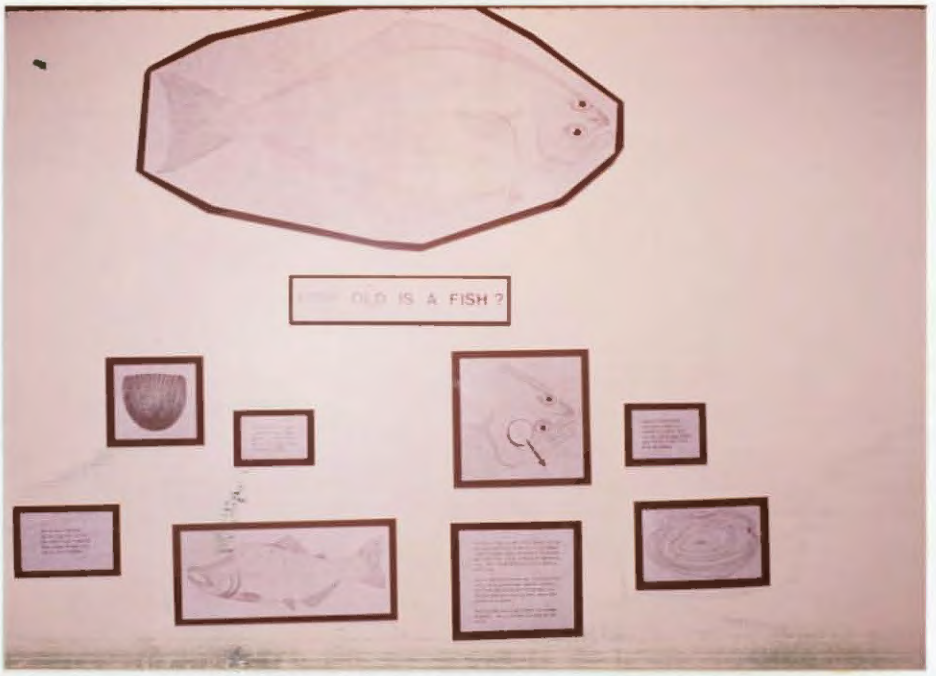
The most popular field trip for local elementary and high school students was of spawning salmon at Finger Bay (I&R-9c. 380). A total of 410 students participated. Fresh and saltwater were given a taste test, water temperature was taken, adult salmon were counted and dissected, a male and female salmon were caught and ferilization was demonstrated. The children were overwhelmed by the fact that thousands of the fish will soon die. Other field trips included tundra adaptations and beach, ocean and tidepool ecology walks.

3. Outdoor Classrooms - Teachers

A teachers' workshop was held to explain Adak's salmon ecology and its importance to the community (I&R-9c. 380). The lesson plans and all activities were demonstrated. The teachers then led their classes on field trips to the salmon stream in September. A total of 30 teachers participated. The workshop was quite successful and more are planned.

6. Interpretive Displays and Demonstrations

No funds were available for professionally designed interpretive displays for the new headquarters visitor contact area. Six temporary exhibits were designed this year for display, and two more are on the drawing table. These displays are rotated throughout the year. Themes of these displays include caribou, salmon, Aleutian Canada geese, Arctic fox, bald eagle, and most popular, the sea otter.



The "How Old is a Fish" display uses the halibut to illustrate fish aging. (F.A. 1981)

The salmon display illustrates the life cycle of red, pink and silver salmon. (M.M. 1981)

7. Other Interpretive Programs

The World War II battlefield on Attu Island was nominated to the National Register of Historic Places. Refuge Volunteer Historian, Rod Poole, twice presented slide talks on "The Battle of Attu." The presentation and accompanying display at Refuge headquarters attracted over 200 people.

In conjunction with National Wildlife Week in March, over 30 wildlife related programs, tours and demonstrations were presented both at the refuge and the Adak Regional School System to more than 300 people. We sponsored a poster/essay/song contest and awarded 25 prizes at the refuge's open house, which over 1200 people attended. The event was very successful.

YACC Beach presents talk to elementary school students during National Wildlife Week. (K.H. 1981)

A waterfowl identification workshop was presented in November and has great potential as an annual event. High school career workshops were very popular. Oceanography, biology and wildlife management careers were discussed. Six films were shown this year on various Alaskan topics, which approximately 300 people attended. The films were also offered to the school for viewing.

8. Hunting

In addition to being a Federal Reserve, the Aleutian Islands Unit is also a State Game Refuge under regulations promulgated by the Alaska Department of Fish and Game, and therefore the entire refuge is closed to hunting with the following exceptions: Umnak, Atka, Unalaska, Akun, Akutan, Sanak and Tigalda Islands are open to hunting. Shemya, Attu and Great Sitkin Islands are open to waterfowl and ptarmigan hunting. Adak Island is open to waterfowl, ptarmigan and caribou hunting. Table 18 provides a breakdown of hunting visits and activity hours.

Table 18. Visits and Activity Hours for Adak Consumptive Uses Including Trapping.

	Visits	Act. Hours
Hunting		
Caribou	1795	10,770
Ptarmigan	752	1,504
Waterfowl	403	1,612
Total Hunt	2950	13,886
Fishing	3762	11,286
Clamming	698	1,396
Total	7410	26,568

The Navy provides tug service to the hunting cabins on Adak Island's south side for active duty military personnel who are caribou hunting during the fall and winter months with the exception of December and January. Approximately two-thirds of the entire caribou harvest is in conjunction with tug support. Caribou hunting is generally considered to be quite good on Adak as is hunting for rock ptarmigan. Waterfowl hunting is spotty and has been attracting reduced interest in recent years.

Combining camping and caribou hunting in the great outdoors is a popular Adak activity. (J.M. 1981)

9. Fishing

Fishing continues to be the most popular consumptive use on the Unit (Table 18). Saltwater enthusiasts angle for halibut and set crab pots in nearby waters. Stream and lake fishermen concentrate on pink, red and silver salmon, and of course, Dolly varden. The more popular fishing holes around Adak; Finger Bay, Nav Fac Creek and Sweeper Creek, were shoulder to shoulder during the runs in August. Finger Bay stream has been designated "fly fishing" only, by Naval directive, to reduce fishing pressure on that popular spot. High quality wilderness fishing is also available for those willing to do some hiking.

The Recreational Services Division of the Naval Security Group Activity command on Adak purchased a recreational vessel which ferried six fishermen daily to the halibut "hotspots". Demand was incredible with the vessel being booked up months in advance. Reservations were taken on a first come basis. The vessel enjoyed good success during the summer which added to the demand.

National Marine Fisheries Service Enforcement Agent John Strahle from Kodiak presented a meeting on halibut regulations to a group of about 70 interested persons in May. An extensive question and answer session followed.

John Strahle of the National Marine Fisheries Service presents halibut fishing regulations to interested folks in refuge headquarters. (B.R. 1981)

10. Trapping

Trapping for Arctic fox is allowed on Adak Island. Permits are unlimited and free. Thirty-four trappers took part in the 1980-81 season and harvested an average of 2.25 fox per trapper per season. Most of the trapping is limited to the Adak area and sites near the hunting cabins.

11. Wildlife Observation

Landscape, wildflower, and wildlife photography buffs are in their glory on a clear Aleutian day. Bald eagles are common at the Naval Station and are favorites of the local folks. It is a bit more difficult to photograph the sea otter or caribou, however they are also highly regarded prizes with camera or binoculars.

The Great Sitkin volcano has become a real asset to film makers and processors as literally thousands of shots are snapped annually. (B.S. 1981)

Wildflowers abound throughout the Aleutians in mid-summer. White Anemone, yellow buttercups, and purple alpine lupine in full bloom on Great Sitkin Island. (B.S. 1981)

Bald eagles are real favorites among photographers and wildlife enthusiasts on Adak. A number of Adak eagle photos appeared in national publications. (J.L. 1981)

Table 19 outlines visits and activity hours for selected non-consumptive wildlife uses.

Table 19. Visits and Activity Hours for Selected Non-Consumptive Wildlife Uses.

Wildlife Observation	Visits	Activity Hours
Hiking	6462	19,386
Boat	566	3,396
Photography	999	2,997
Other	1510	3,020
TOTAL	9537	28,799

13. Camping

The entire Unit is open to camping, however most use occurs on Adak. Five FWS backcountry cabins are available for use on a first-come reservation basis. The cabins are receiving increased summer use by backpackers and fishermen and heavy use during fall and winter by caribou hunters.

16. Other Non-Wildlife Oriented Recreation

Cross-country skiing, sledding and tubing have become extremely popular winter activities with all 70 pairs of skis from the Navy's Recreational Services being rented out on good weekends. Hiking and beachcombing are other popular activities throughout the year.

17. Law Enforcement

At present, most enforcement work is limited to Adak Island. The lack of logistical support makes enforcement on other islands virtually impossible at this time. Due to the high staff turnover this summer, only limited law enforcement activities were conducted. Other duties absorbed staff time which normally would have been spent on this activity. As a result, only a few cases were made. Two individuals were cited for an overlimit of caribou; another caribou was seized from an individual for a "unit" overlimit of caribou, but the carcass was later returned when the State declined prosecution. It is interesting to note the State originally recommended the seizure.

A halibut long line was seized as were several monofilament gill nets set illegally for salmon. One juvenile was cited for hunting waterfowl with an unplugged shotgun.

Other violations such as snagging salmon in fresh water, off-road vehicling, and possession of bald eagle feathers were encountered on occasion. Most violations on the Naval Reservation were turned over to the Navy Command for prosecution. Off-reservation violations were handled either through Federal or State court depending on the offense.

One case is pending concerning the alledged theft of parts from wrecked WWII aircraft, primarily P-40 fighters. Two individuals chartered a Goose to Amchitka after arriving on Adak and picking up a SUP for recreational purposes. The Goose was unable to pick up the two, and several weeks later they were picked up by a charter craft from Cold Bay. Acting on a tip from a historical aircraft buff in Anchorage, Refuge Manager Martin, Mechanic Bowers, and Assistant Manager Reiswig seized a large quantity of the old parts from the local junk dealer who supposedly was hired to ship them to Indiana. At this time, the case is pending.

This case points out the potential difficulty of attempting to protect biological, archeological and historical resources on the Unit because of its size and the difficulty of transport to the various islands. Only the high cost of transportation frustrates the efforts of many, but not all, to visit the islands for various illegal reasons.

18. Cooperating Associations

The Alaska Natural History Association outlet in Adak grew substantially in 1981, primarily due to greatly improved visitor contact facilities, a widely expanded informational, educational and interpretive program, and the development of an inexpensive Outdoor Recreation Guide for Adak Island which proved to be a big seller.

The Alaska Natural History Association provides books for sale in our reception area of the refuge headquarters. (M.M. 1981)

Sales increased from $230.55 in 1980 to $3196.34 this past year. A variety of books and pamphlets such as the Alaska Geographic volumes on the Aleutians, volcanos and whales; and several wildflower and bird books were sold. The biggest seller by far was the Outdoor Recreation Guide which sold 1600 copies in 7 months, and this on an island with only 5000 inhabitants.

Profits from Association sales were used to purchase materials for the construction of temporary interpretive displays and exhibits on a variety of subjects ranging from the Attu Battlefield site to salmon of the Aleutian Islands.

All in all, we felt it was a successful year and that the Association cooperated greatly in the success of the interpretive/educational program of the Unit. The only drawback to the program is the large volume of paperwork required to conduct the Association's business.

I. EQUIPMENT AND FACILITIES

1. New Construction

Two new duplexes were completed and signed over to the Service in July at a cost of $525,000. Each duplex contains one, three-bedroom and one, two-bedroom apartment. The duplexes were built on the "Outside" and shipped to Adak via Foss barge from Seattle. Each duplex was transported to the housing area in two units and was set on a wooden platform before being joined together.

Half of a duplex arrives at the Unit housing area. (J.M. 1981)

A new duplex being hauled into place.
(J.M. 1981)

A duplex "half" being lowered into place. (J.M. 1981)

The duplexes have proven to be quite suitable as living quarters thus far with a couple of major exceptions. In an effort to reduce the project cost, only primer was applied to the apartments' interiors. Thus, the final interior painting had to be completed force account which required a great deal of effort since all trim had to be taped and carpets covered. A design flaw which located the furnaces under the units has caused almost unending problems in one of the duplexes. Since a crawl space about two feet deep was dug under the duplexes and since this had to be deepened even more to accommadate the furnaces, they are located at the lowest points under the structures. Refuge Manager Martin predicted a flooding problem and urged that sump pumps be installed. A contract was issued and the work was completed. The fall rains came in abundance and the furnaces in one of the duplexes flooded anyway. It seems pumps were improperly installed, and were not installed as deep as the furnaces. Mechanic Bowers spent several hundred hours attempting to correct the situation and keep the units heated. He has been successful, most of the time, but a maintenance monster has been created which will likely be with us for the life of the buildings.

2. Rehabilitation

The interiors of the refuge manager's residence and the mechanic's residence were rehabilitated during the year. Water damage which occurred to walls and ceilings before the new roofs were installed, fire damage to the utility room in the manager's residence, and other damage to walls and ceilings was repaired. Walls and ceilings were textured and painted. Problems with the plumbing and electrical wiring were also repaired prior to repainting.

3. Major Maintenance

Mechanic Bowers transferred to the Aleutian Islands Unit in July and a familiar scene on Alaska refuges was on hand to greet him, namely, a huge backlog of maintenance duties. Approximately six months had passed since the former Mechanic had retired and a large number of items needed attention.

Vehicles needed repair work, the 22 ft. Whaler required large amounts of time and attention after two summers of fine performance, the new shop was totally unorganized and needed to have work benches and storage facilities developed, the new housing units needed interior paint and the old ones needed to be remodeled, and the list goes on.

Bowers jumped into the task with both feet and the backlog has been shrinking, but months, if not years, will be required to bring Unit facilities and equipment to high standards of maintenance and performance.

At present, YACC labor is responsible for basic janitorial services in the new headquarters building and for providing assistance to the Mechanic. The shutdown of the YACC program will require additional Service funding and ceilings to continue high maintenance standards at the headquarters site.

After two summers of flawless performance, the 22' Boston Whaler developed chronic engine problems. Both 100 horsepower Johnson outboards are scheduled for replacement in FY82. (P.B. 1981)

Maintenance of new facilities, such as the headquarters shown above, is becoming increasingly difficult. With the shutdown of the YACC program, janitorial services will be lost, and additional personnel will be required to continue high maintenance standards. (P.B. 1981)

4. Equipment Utilization and Replacement

Two new Dodge 4WD pickups were received during the year and the blue Chevrolet Suburban and blue Dodge 4WD pickup will be excessed as soon as the paperwork is completed. Mechanic Bowers purchased a number of needed items for the shop such as an arc welder, drill press, radial arm saw, horizontal band saw and others during the year.

5. Communications Systems

Concrete bases were completed for antennas which will be used as the base station at Refuge headquarters. Crates of antennas arrived before word was received no more money was available for the time being to continue construction of the station. The project is currently in limbo.

6. Energy Conservation

With an energy bill for calendar year 1981 of $40,100, or what amounted to about 11% of the Unit's entire FY81 budget, energy conservation has become extremely important.

Vehicle mileage was a bright spot in the energy conservation picture as mileage was 31.6% below the Unit's quota set in 1980. However, a dismal average of 8.19 mpg was recorded by the Unit's vehicles. This is partially due to the "stop and go" type driving encountered on Adak, having vehicles with high horsepower, and until July, poor maintenance. Two compact pickups were ordered as replacement vehicles and would have been excellent for the type of conditions encountered on Adak. However, we were told we had to purchase a vehicle of American manufacture and ended up with the Dodges. Staff members showed excellent cooperation in holding the line on driving during the year.

With a large office/shop and four new housing units on line, energy use on the Unit can be expected to grow and information on energy use levels was collected throughout the year to aid in setting reasonable limits on use in the future.

A large wall chart depicting energy use as compared to quotas was displayed throughout the year to give staff members an idea of how the Unit was doing. Turning thermometers down and shutting off unnecessary lighting was stressed.

Office fuel requirements for calendar year 1981 was 5,444 gallons of JP-5 at a cost of $7371 and the electric bill $6627.14. The housing units, some of which are electrically heated, tallied up an electric bill of $20762. The older units are poorly insulated and lose large amounts of heat through the windows, walls, doors and everywhere else. The new units have better insulation and tight windows, but lack insulation under the floors. Future housing rehabilitation should be directed toward solving these problems.

J. OTHER ITEMS

2. Items of Interest

In early March, the Korean processing vessel Dae Rim ran aground near Wrangell Point of Attu Island. The vessel, carrying 120,000 gallons of fuel oil, had been abandoned in a storm and was later taken in tow by a Soviet vessel and cut loose near Attu's shore before it drifted in. As luck would have it, Wrangell Point holds more than 3000 sea lions and 20,000 marine birds during the summer months.

Aerial view of Dae Rim. Note the extent of fuel oil pollution, which was being driven into the beach by heavy surf. (J.M. 1981)

Refuge Manager Martin participated with Coast Guard and Navy personnel in dealing with the problem. Because of heavy seas and bad weather, what normally would have been a three day response lasted more than two weeks.

The Dae Rim as seen from a small boat. Heavy swells precluded Navy divers from going under the vessel. The water was covered with a light film of oil at this point. (J.M. 1981)

Efforts were made by Navy explosives experts to blow the fuel tanks open and ignite the fuel as it exited the tanks. Because of the heavy surf and current action in the area, this was an extremely difficult and dangerous undertaking which was only partially successful. Most of the tanks were blown but the fuel failed to ignite and instead spilled into the sea. The final tank was blown with a Coast Guard 5-inch gun after the Navy ran out of explosives. The heavy surf action combined with the light nature of the fuel caused it to dissipate rapidly. A fly-over of the site several months later revealed no oil slick remained in the area and the pounding surf had broken the 400 ft. vessel in half.

The Navy detonations vented all but the starboard and started a fire on the vessel which burned until March 14. (J.M. 1981)

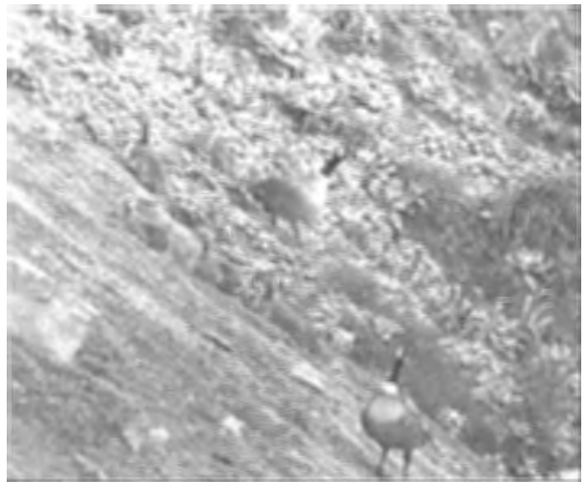
An individual from Colorado attempted to secure a permit to live-capture ten peregrine falcons from Amchitka Island for use in propagation facilities. The individual's motives and past record made Federal and State officials reluctant to issue the permit and a storm of controversy arose over the situation. In the end, the Regional Director's decision prevailed, but the individual has vowed to return to try again next year.

The eruption of a volcano in the Soviet Union caused an ash cloud to pass over the Aleutians in late April and early May. Aircraft were grounded at Shemya AFB for several days. Naturally, this coincided with the Unit's attempt to search for returning Aleutian Canada geese on Agattu Island, and since Shemya was the support base for aircraft operations, the project was delayed temporarily, but was successfully completed when the cloud passed.

Although volcanic ash from Siberia makes for impressive sunsets, aircraft were temporarily grounded until the ash cloud passed. Kanaga volcano in distance. (P.B. 1981)

3. Credits

Layout, typing, and understanding confusing rough drafts were completed by Kathy Karcheski. The report was written by B. Reiswig with the following exceptions; numbers 3-7 of Section G., Justine Logan; numbers 8 and 10 of Section G., Mark Masteller; numbers 9 and 11 of Section G., Steve Kendall; and numbers 1-16 of Section H., Donna Kafka.



Aleutian Canada geese on the steep slopes of Buldir Island.

weasels are scarcely to be found west of Unimak.

Foxes have an interesting history in the islands. Formerly, the blue phase of the arctic fox was found only on Attu, and the red fox from Umnak east. Principally during the 1915-25 period and later, blue foxes were introduced on most of the Aleutians, converting them into a commercial fur farming enterprise utilizing wildlife for food. Complete removal of the introduced foxes is necessary to restore native bird life. This has already been done on Amchitka, Agattu, and Alaid-Nizki Islands with a prompt and striking increase in wildlife of the islands.

Another unfortunate result of modern occupation of the islands has been the introduction of Norway rats on many islands, probably chiefly during World War II. These voracious rodents have a serious effect on nesting birds. The possibility of eliminating them seems remote.

The most obvious feature of Aleutian wildlife is the large quantities of colonial sea birds. Hundreds of thousands, perhaps millions, congregate in vast nesting rookeries — fulmars, two species of petrels, three species of cormorants, black-legged kittiwakes, glaucous-winged gulls, guillemots, murres and murrelets, six species of auklets, and two species of puffins. Three species of loons are easily found — common, arctic, and red-throated.

Great numbers of waterfowl winter in and among the islands, mostly oldsquaws, king eiders, and harlequin ducks. Of all the emperor geese in the world, about half winter on the refuge. During the summer, common teal (a Eurasion bird), mallards, pintails, greater scaups, mergansers, and common eiders nest on the islands. Formerly the Aleutian Canada goose lived on all the islands from Amlia west; now it is found only on tiny Buldir Island, which escaped fox introductions. It is now one of the world's rarest birds, but habitat restoration is progressing toward ultimate restocking of its former breeding range.

The bald eagle is resident in substantial numbers. The peregrine falcon is common, and some gyrfalcons are to be found. Some shorebirds nest in very large numbers, primarily black oystercatchers, rock sandpipers and northern phalaropes. The rock ptarmigan is found throughout the refuge, and there are willow ptarmigans on Unimak. Among the small land birds, winter wrens, gray-crowned rosy finches, Savannah, fox and song sparrows, Lapland longspurs, and snow buntings are abundant. A number of Asiatic birds have been found including the whooper swan, falcated teal, Steller's sea eagle, wood sandpiper, black-tailed godwit, slaty-backed gull, black-headed gull, oriental cuckoo, eyebrowed thrush, arctic warbler, Siberian rubythroat, gray-spotted flycatcher, white, gray and yellow wagtails, brambling, and rustic bunting.

Streams issuing from the islands are used by large numbers of spawning salmon, and make a significant contribution to the numbers of these

Thick-billed murres are among the sea birds that nest abundantly on the Aleutian Islands.

Sea otter mother and pup.

valuable food fish.

Owing to their isolation and the lack of commercial travel service, the Aleutian Islands are difficult to visit. There is scheduled air service to Cold Bay, Dutch Harbor, Adak, Shemya, and Attu. Hotel and restaurant accommodations are found at Cold Bay, and Dutch Harbor.

Military clearance is necessary to visit defense installations. Information concerning the refuge not available in this leaflet may be obtained from the Refuge Manager, Aleutian Islands Unit, Alaska Maritime National Wildlife Refuge, Box 5251 NAVSTA, FPO Seattle WA 98791.

BOGOSLOF NATIONAL WILDLIFE REFUGE, established in 1909, is administered from the Adak headquarters. It consists of two rocky islands totaling 390 acres lying about 30 miles north of Umnak Island. It has a northern sea lion herd of about 800 animals and contains important sea-bird rookeries.

All photographs by Karl W. Kenyon, BSFW.

In its assigned function as the Nation's principal natural resource agency, the Department of the Interior bears a special obligation to assure that our expendable resources are conserved, that renewable resources are managed to produce optimum yields, and that all resources contribute their full measure to the progress, prosperity, and security of America, now and in the future.

758-82

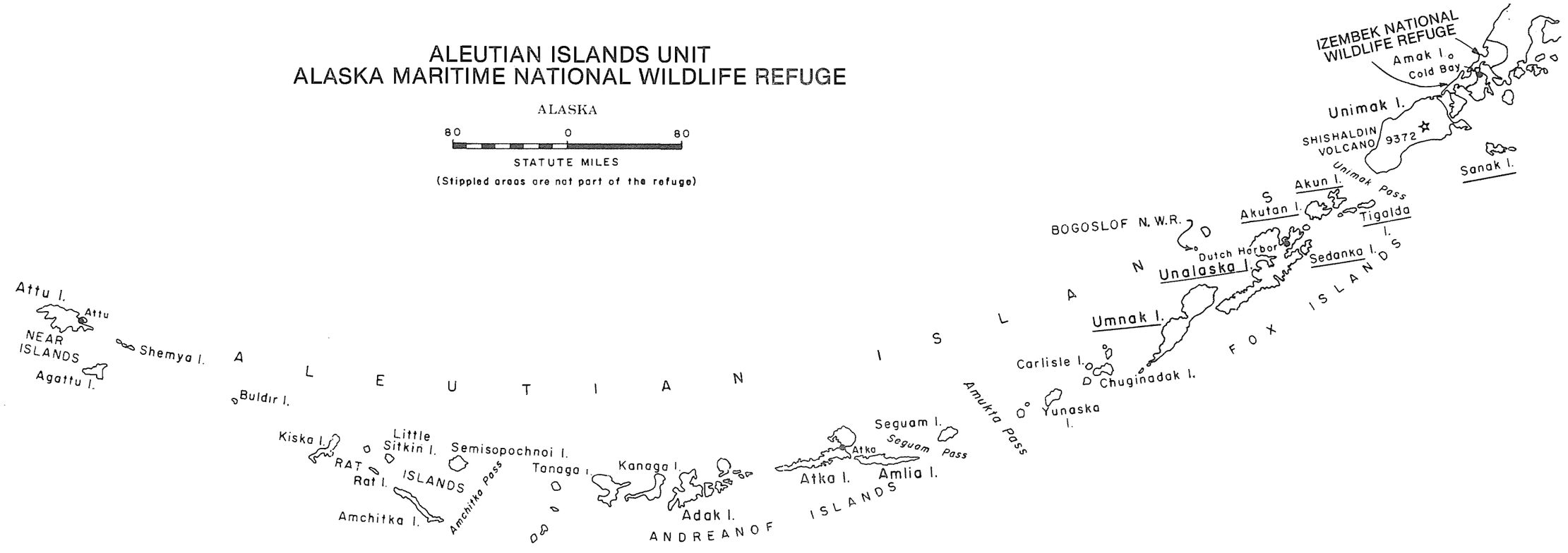
ALEUTIAN ISLANDS UNIT

ALASKA MARITIME NATIONAL WILDLIFE REFUGE

Upper—Mount Gareloi, an active volcano on Gareloi Island (west of much larger Tanaga Island).
Lower—Northern sea lions on Sea Lion Rock, Amak Island.

UNITED STATES DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE

Washington • Issued 1966 • RL-522



ALEUTIAN ISLANDS UNIT OF THE ALASKA MARITIME NATIONAL WILDLIFE REFUGE consists of that chain of steppingstone islands reaching out from the Alaska mainland for a thousand miles into the North Pacific toward Kamchatka Peninsula of the Soviet Union. The nearly 80 named islands in the refuge make it one of the largest units in the Alaska Maritime National Wildlife Refuge. The refuge was established in 1913 by Executive Order of President William Howard Taft.

Most of the islands are mountainous, the emergent peaks of a submarine mountain range. Many have active volcanoes towering into the arctic sky; one of these Shishaldin on Unimak Island, reaches a height of more than 9,000 feet. The larger islands are dotted with lakes and cut by streams. Irregular shorelines have boulder beaches, sand beaches, rocky cliffs, and offshore islets and reefs.

The climate is characterized by fog and clouds; a day with sunshine is almost a rarity. Rain in summer is abundant. The Aleutian Islands are noted for frequent and violent wind squalls that make boating hazardous. Summer temperatures range only into the sixties; in winter the temperature generally hangs near the freezing point but sometimes drops to below 10 degrees Fahrenheit.

Snow is prevalent in winter, although it is apt to be wet and slushy except at higher elevations.

The Aleutians are treeless, supporting a dwarfed flora of willow and alder and alpine heaths and meadows. Some taller shrub growths occur on Unimak and Attu. A stand of beach grass marks shorelines, and offshore waters support great beds of kelp. Copious summer rains keep the islands emerald green at that season; in spring and fall the vegetation is brown and sere.

The Aleutian Islands Unit is largely an uninhabited wilderness. Once the home of thousands of Aleuts, it now has only two villages, Atka on Atka Island and False Pass on Unimak Island. Disease decimated these people following the arrival of the Russian pioneers, and many of the survivors disappeared or left during American and Japanese military occupation of the islands in the Second World War. There are a few active military installations, but they occupy little of the refuge's space.

Some of the islands have large areas covered by abandoned military installations-hundreds of Quonset huts, miles of roads, old landing strips, warehouses, telephone lines, and piles of trash of every description. Attu, Shemya, and Adak still have active military installations.

The Aleutian Islands are rich in wildlife. Birds especially are much in evidence at all times. The easternmost islands have a fauna typical of the Alaskan mainland to the east; the western islands have Asiatic features. Olaus Murie described the Aleutians as a "melting pot for faunal elements from two continents not yet reaching an equilibrium."

The sea otter, a marine mammal that bears the world's most valued fur, makes its principal home in the waters off islands in the chain. Once almost extinct from years of overhunting, strict protection has brought its numbers back to nearly 20,000. Another and much larger sea mammal, the northern sea lion, is common.

Unimak Island, an ecological extension of the Alaska Peninsula, is a closely managed stronghold of the brown bear. The island has over 1,000 caribou, and wolves and wolverines are common. Mammals like voles, shrews, lemmings, ground squirrels, and