ALEUTIAN ISLANDS UNIT
ALASKA MARITIME NATIONAL WILDLIFE REFUGE

Narrative Report
1980

BOGOSLOF NATIONAL WILDLIFE REFUGE

ALEUTIAN ISLANDS UNIT
ALASKA MARITIME NATIONAL WILDLIFE REFUGE
Adak, Alaska

ANNUAL NARRATIVE REPORT
Calendar Year 1980

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

Personnel

1. John L. Martin, Refuge Manager, GS-12, EOD 3-28-76, PFT
2. Tom J. Early, Assistant Refuge Manager, GS-11, EOD 4-10-77, PFT
3. Kent F. Hall, Assistant Refuge Manager, GS-11, EOD 8-28-77, PFT
4. Barry Reiswig, Assistant Refuge Manager, GS-9, EOD 11-4-79, PFT
5. Beverly P. Minn, Assistant Refuge Manager, GS-7, EOD 10-7-79, PFT
6. Carol Hagglund, Administrative Officer, GS-7, EOD 5-7-79, PFT
7. Amelia K. Alesna, Refuge Clerk, GS-4, EOD 3-12-79, Resigned 4-4-80 Career Seasonal
8. Debbie E. Broderick, Refuge Clerk, GS-4, EOD 4-1-80, Career Seasonal
9. Lorraine E. Craw, Clerk-Typist, GS-4, EOD 8-7-78, Resigned 5-3-80, PFT
10. Jon V. Gravning, Biological Technician, GS-5, EOD 1-28-79, transferred to Hawaiian Is. NWR 3-21-80, Career Seasonal
11. James L. Cox, Maintenance Mechanic, WG-10, EOD 1-28-79, PFT
12. Richard Algie Hasha, Laborer, WG-3, EOD 11-11-77, Career Seasonal
13. Kurt Holmgren, Laborer, WG-3, EOD 4-23-79, Term 4-21-80, TPT

Young Adult Conservation Corps

14. Toni Turner, YACC, EOD 2-7-80, Term 6-24-80
15. Monica Reiswig, YACC, EOD 2-2-80, Term 12-6-80
16. Kevin Brennan, YACC, EOD 2-25-80, Term 2-24-81
17. Patricia Heglund, YACC, EOD 4-15-80
18. B. Leslie Slater, YACC, EOD 5-23-80
19. F. Jack Arnold III, YACC, EOD 5-23-80
20. John Mueller, YACC, EOD 5-27-80
21. Elisabeth Wojtowych, YACC, EOD 6-6-80, Term 7-11-80
22. Ray Hightower, YACC, EOD 6-23-80
23. Jana Matson, YACC, EOD 11-26-80

Review and Approvals

John L. Martin

Submitted By Date Regional Office Date

Larry F. Calvert 6-26-81

Aleutian Islands Unit, Alaska Maritime National Wildlife Refuge

John Martin, Refuge Manager

Tom Early, Assistant Refuge Manager

Kent Hall, Assistant Refuge Manager

Barry Reiswig, Assistant Refuge Manager

Bev Minn, Assistant Refuge Manager

Carol Hagglund, Administrative Officer

Jim Cox, Maintenance Mechanic

Debbie Broderick, Refug Clerk

1980 YACC Crew: left to right; Top row: John Mueller, Pat Heglund, Kevin Brennan, Jack Arnold, Jana Matson; Bottom Row: Rusty King (On-the-Job-Training High School Program), Monica Reiswig, Ray Hightower.

UNIFORM COMMENT

The present uniform is nice to wear in a warm office. However, the uniform is cold when worn in a 65° F office. The official sweater which is needed up here, must be purchased with personal funds.

The synthetics are not adequate for wearing outside in the Aleutian climate. From our narrative photographs, it is obvious that we must wear non-uniform components to keep dry and warm. For those of us that walk or bicycle to work the inadequacy of the office uniform is apparent. Hopefully, the service will come up with adequate field clothing which will keep us dry and warm.

JOHN L. MARTIN

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I GENERAL

A. Introduction

On December 2, 1980, the Alaska National Interest Lands Conservation Act was signed into law. It officially designates "the existing Aleutian Islands and Bogoslof National Wildlife Refuges, and all other public lands in the Aleutian Islands," as the Alaska Maritime National Wildlife Refuge. At this point in time we are unsure of the exact acreage involved, but it appears as though public lands on Tigalda, Akun, Akutan, Unalaska, Umnak, and several reefs are included.

B. Climatic and Habitat Conditions

The maritime climate provides for moderate winter and summer temperatures, with means from 30°F to 50°F, respectively. The Naval Weather Station on Adak lists the maximum temperature in 1980 at 68°F, on July 26, and the minimum at 10°F, on January 19. The lowest average chill temperature was -6°F, on January 17, when average air temperature was 23°F and average wind speed was 20 knots.

Annual precipitation of 67.4 inches, was not significantly different from previous years. Measurable precipitation was noted on 314 days. Snowfall amounted to 132.9 inches, with March recording the most at 48 inches. Some 47.3 inches of rain fell, with 14.3 inches coming down in December, making it the wettest month of the year. Winds were predominantly from the southwest, averaging 15 knots. However anemometers registered between 50 and 76 knots on 15 days. As the late and famous Alaskan bush pilot Bob Reeve said, "You can't forecast weather in the Aleutians, you merely report it."

The Aleutian Island habitat involves a terrestrial-maritime tundra ecosystem, well represented by heath, grass and composite families. There are three general plant communities associated with soil drainage and exposure levels. The beach community is dominated by beach rye (Elymus arenarius mollis), with secondary species of reedgrass (Calamagrostis nutkaensis), fescues and bluegrasses. The lowland tundra consists of wet and dry sites. The marshy areas contain sedges, reedgrass, bog blueberry, marsh marigold, horsetail, and rushes. The drier sites are covered with crowberry, reedgrass, mosses, caribou lichen, sedges, and prostrate willow. Lastly, the upland tundra is dominated by crowberry, willow, lichens, mosses and sedges. At higher elevations, the lichen layer thins out to become interspersed with bare rock and gravel.

C. Land Acquisition

1. Fee Title: Not applicable.
2. Easement: Not applicable.
3. Other: Under the Alaska National Interest Lands Conservation Act, the Alaska Maritime National Wildlife Refuge includes the Chukchi Sea Unit, the Bering Sea Unit, the Aleutian Islands Unit, the Alaska Peninsula Unit, and the Gulf of Alaska Unit.

D. System Status

1. Objectives

The 1913 establishing objectives for the Aleutian Islands NWR were "as a preserve and breeding ground for native birds, for the propagation of reindeer and furbearing animals, and for the encouragement and development of fisheries." With ANILCA, Service objectives for the Alaska Maritime National Wildlife Refuge are directed toward conserving fish and wildlife populations and habitats in their natural diversity, fulfilling international treaty obligations with respect to the fish and wildlife resource, providing the opportunity for continued subsistence use, providing for scientific research on marine resources, and ensuring water quality and quantity.

With these objectives in mind, the following is a brief look at what was accomplished at the station level in FY80. Under the Migratory Bird Program (1210), Adak and islands east to Atka, were circumnavigated to determine the abundance and distribution of raptors and seabird colonies. Routine coastal surveys were also conducted on Adak and Amchitka. The Mammals and Non-Migratory Bird Program (1220) involved censusing marine mammals and determining the status of arctic fox, in conjunction with our pelagic bird work. Rumen samples, jaw bones, harvest figures and aerial censuses were examined in monitoring the caribou herd on Adak. In addition, beached animal surveys and upland bird surveys are taken regularly on Amchitka and Adak.

From other programs, Interpretation and Recreation (1240) funds were directed toward interpretive displays and lectures, public use surveys, law enforcement, and an expanded environmental education program at the Adak Regional Schools. The Endangered Species Program (1400) involved the islands of Amchitka, Agattu, and Buldir, in an effort to propagate, band, and transplant Aleutian Canada geese.

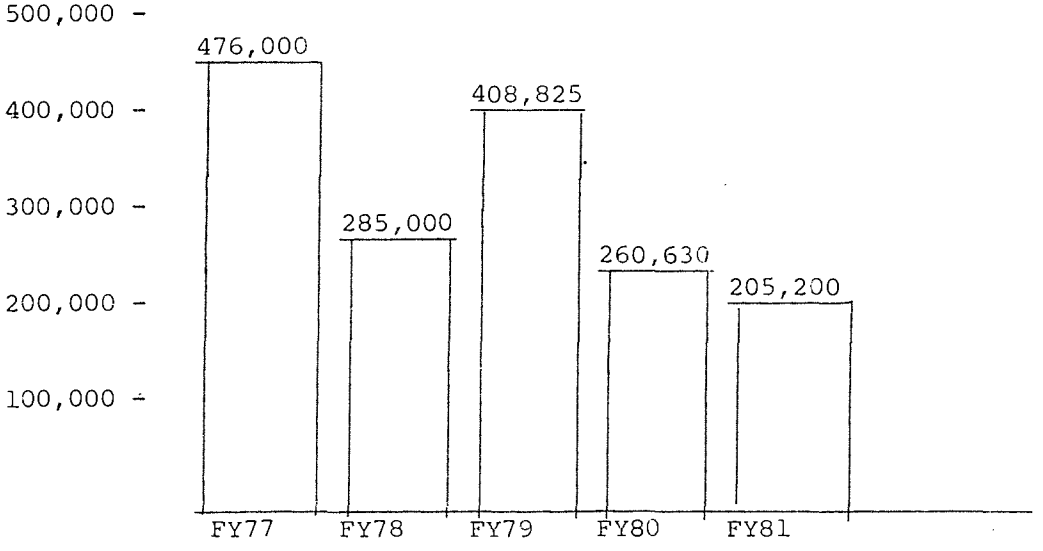
2. Funding

The following is a breakdown of funds by programs, in the last five years:

	FY77	FY78	FY79	FY80	FY81
1210	192,000	231,500	364,000	262,000	144,000
1220	45,000	51,500	51,500	30,000	60,000
1240	17,000	17,000	20,000	21,000	21,000
1400	222,000	242,000	307,000	282,000	155,000
TOTALS	476,000	542,000	742,500	595,000	380,000
BLHP			1,781,000	1,403,000	

Amazingly, with an annual 10 percent inflation rate, our FY81 budget turns out to be 43 percent of our FY77 budget (Fig. 1). Though we are no longer picking up the operating cost of the R/V Aleutian Tern or our Amchitka Station, with eight permanent full-time positions and a $1,987,995 office/shop/visitor complex (BHLP funds) to maintain, we wonder with some anxiety what and how much will be sacrificed in the even more austere times ahead.

Fig. 1. True budget table or buying power available from FY 1977 through FY 1981. Based on FY77 dollars and averaging 10 percent inflation/year.



II CONSTRUCTION AND MAINTENANCE

A. Construction

With groundbreaking ceremonies in April, it took only six months before we officially moved into our new headquarters on September 5 (Fig. 2,3). Individual offices, a reception area, and an enclosed shop and garage provided a much improved working atmosphere. The additional storage space was soon filled with property arriving from the shutdown of our Amchitka station in October.

B. Maintenance

Sometimes it is easy to get nostalgic and yearn for those days of filling a stoker with coal or opening a window for air. It is truly the sign of the times when a person needs a degree from the Honeywell Corporation to keep a building heated. Our new headquarters is being put through the Adak weather test of 360 degree winds and rain. The building is warranted for one year and so far only minor leaks have been noted around some windows, doors and ceiling.

At Amchitka, routine problems included repairing 17-year-old vehicles, electrical and plumbing breakdowns, and working on goose pens. The Bridge Creek goose-holding facility was remodeled, and the terminal and brooder buildings reroofed with corrugated sheet metal, as additional protection for equipment stored within.

C. Wildfire: Nothing to report.

Figure 2. Former headquarters was a remodeled Atomic Energy Commission trailer of early 1960 vintage. Early 1980.

Figure 3. New headquarters is eye-catching on the inside and out, in sunshine or cloudy weather. Early 1980.

III HABITAT MANAGEMENT

A. Croplands: Not applicable.

B. Grasslands: Not applicable.

C. Wetlands

Many islands have freshwater "potholes" which superficially resemble the prairie pothole country. A few areas have aquatic growth and support good populations of waterfowl. Management, at the moment, amounts to monitoring construction operations at military installations.

D. Forestlands: Not applicable.

E. Other Habitat

The possibility still exists for a cleanup operation of World War II buildings, ordnance and debris, on 22 islands, but the cost could run to over $100 million. There are definite pros and cons to a removal effort versus natural decay.

F. Wilderness and Special Areas

On December 2, 1980, President Carter signed the Alaska National Interest Lands Conservation Act which designated approximately 1,300,000 acres of the Aleutian Islands Unit as wilderness. Excluded are some 127,870 acres for military and lighthouse functions on Shemya, Attu, Amchitka, Adak and Ugamak Islands; and 200,000 acres selected by the Aleuts under the Alaska Native Claims Settlement Act.

Other special areas and/or designations existing within the refuge follow:

ISLAND	DESIGNATIONS
Agattu	Research Natural Area
Buldir	Research Natural Area
Kiska	National Historical Site (Nominee)
Attu	National Historical Site (Nominee)
Aleutian Islands Unit, AMNWR	Biosphere Reserve (MAB)

IV WILDLIFE

A. Endangered and 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 next year 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~~s~~.

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.

To fulfill these objectives, 75 Patuxent-reared geese were released on Amchitka in 1971. These birds, however, were not seen again. In 1974, 41 geese from Patuxent were released on Agattu with similar results. In 1976, two releases on Amchitka, totaling 22 birds, were unsuccessful because of bald eagle predation. In 1978, wild "guide birds" and 117 hand-reared geese were released on Agattu. Of these, 13 of the "wild birds" were seen in California that fall, but no propagated geese were observed. In 1979, 199 hand-reared birds, 27 wild guide birds, and 18 wild geese in family units were released on Agattu. That fall and winter, five wild transplants were sighted in California and two hand-reared geese were reported in the Marshall Islands.

A major problem in past releases has been the failure of wild birds to associate with propagated ones. "Guide birds" taken from Buldir and California were penned with propagated geese, but for unknown reasons, remained segregated.

This year, effort was re-directed toward mating and family bonding. Summer propagation methods at Amchitka were changed from human and machine rearing to natural goose incubation and rearing. The goals were twofold: 1) reduce personnel and production costs, and, 2) produce wilder birds with strong familial bonds.

Wild ganders were paired with propagated females and labeled "golden pairs" (Fig. 4). There were seven golden pairs out of 27 pairs at Amchitka. Of these seven, three successfully hatched goslings. In theory, the wild ganders would guide family members south along traditional migration routes. The goose would then bring the group back to the area of her first flight the following summer.

Expectations were high and the golden broods were increased with goslings from propagated pairs to form "superbroods." Golden broods were enlarged from 6 to 20 goslings, from 4 to 9 goslings and from 6 to 7 goslings. Critical factors in superbrooding appear to be size and age of new goslings in relation to the existing brood, and the individual tolerance of the parents in accepting additional goslings.

There were two release sites in 1980. On Amchitka, 121 geese--119 hand-reared, second-year birds and two wild females--were released at the west end of the island (Fig. 5). On Agattu, 112 geese were released from Aga Cove. At this second site, three golden pairs, 33 golden goslings, seven unattached female goslings, and two second-year females were brought out from Amchitka and released August 12. Eleven more adults and 52 locals were transplanted to Agattu from Buldir, on August 14-17.

By the end of the year, two (1.6 percent) of the Amchitka-released geese and 55 (49 percent) of the Agattu-released geese were seen in California. This amounts to 33 percent of the golden birds and 61 percent of the transplants being observed. We are anxious to get back to Agattu this coming summer to find out whether the geese will return.

Back on Buldir Island, 49 geese were captured, banded, and released, from August 15-17 (Fig. 6,7,8). An additional 20 Amchitka-reared ganders were turned loose as replacements for those removed from the population for captive breeding purposes.

The Amchitka operation was terminated in October because of reduced budgets, increased operating costs, and difficult logistic support. Most of the summer and especially following the release of the geese, time was spent storing, moving and "winterizing" equipment. On October 6-7, an OAS Argosy aircraft made three trips from Amchitka to Adak with supplies (Fig. 9). On the last trip, 109 breeding geese were taken to the Northern Prairie Wildlife Research Center.

Figure 4. A "golden pair" (wild male and propagated female) with brood of four on Amchitka. Reiswig 1980.

Figure 5. The release of Aleutian Canada geese at the west end of Amchitka. Reiswig 1980.

Figure 6. T. Early, K. Brennan, and B. Minn on the lookout for geese on Buldir Island. Arnold 1980.

Figure 7. T. Early and K. Hall returning to camp on Buldir Island with a "backpack" of geese. Reiswig 1980.

Figure 8. Forrest Lee, Biologist from Northern Prairie Wildlife Research Center aboard the R/V Aleutian Tern during our Buldir expedition. Reiswig 1980.

Figure 9. Offloading the OAS Argosy at Adak with "goodies" from Amchitka. Minn 1980.

As a followup for fox control, M-44's were rebaited on Agattu once again. Furthermore, a cooperative agreement with the University of California at Davis, has been approved for a study using introduced sterile red fox as a biological control for arctic fox. Research has shown a high degree of interspecific competition, with red fox replacing the arctic fox in insular areas of Alaska. Field work should begin in spring 1981.

B. Migratory Birds

The Aleutian Islands are important to many species of migratory birds, and serve as breeding and wintering grounds. Most remarkable are the enormous numbers of pelagic or marine birds found here. Ornithologists consider the Aleutians a "melting pot" for avian species from Asia and North America. We presently have some 225 species on our refuge bird list.

Several uncommon bird sightings were recorded in 1980. A flock of five bramblings were seen near the office for a week in mid-May. A brant was seen on October 4, in Clam Lagoon, and on October 27, a merlin was observed near the airport runway. A couple of gyrfalcons were also seen by the runway in fall and 10 whooper swans were seen during aerial surveys for caribou. During the Christmas Bird Count, a western grebe (a first for the Aleutians) was sighted in Scabbard Bay. Just after the Christmas Count, a Chinese spotbill duck was observed for the third consecutive year.

Since 1977 we have surveyed the refuge to determine population estimates and locations of nesting and roosting birds (Fig. 10). It poses a challenge considering logistics, the weather, and the fact that reliable counts can only be made from June through early August. Most islands west of Atka have been completed for a total shoreline distance of 1190 miles.

This summer, we circumnavigated 20 islands (Table 1) in close proximity to Adak primarily because of the lack of large vessel support. We set up a field camp at Scripps Bay, Little Tanaga Island, receiving daily weather reports and sea conditions from the Adak Naval Weather Station. Surveys were conducted using a 13-foot inflatable Zodiac and 21' Boston whaler. The whaler is equipped with an HF radio for communication with Adak and other field camps, and a VHF radio for communication with the Zodiac (Fig. 11).

Three permanent seabird nesting plots were established on Ulak and Aziak Islands. One permanent beached animal survey was established on Umnak Island, and 20 pelagic bird transects were taken from Kodiak Island to Kiska Island. Information from the nesting plots and transects will assist in determining wildlife population trends.

Out of some 775 waterfowl banded in fall, 125 were banded on Adak and 375 banded on Amchitka. All were caught in funnel traps. Most band returns are a result of waterfowl hunting on Adak. However, in the past four years, with some 1800 birds banded, returns have come from Japan and the Soviet Union as well as the Continental lower 48 States.

Figure 10. Peale's peregrine falcon near an aerie at Amchitka. Reiswig 1980.

In the past, bald eagle electrocutions on Adak have resulted in 50 deaths a year. After perches were installed on major use poles in late 1978, electrocutions dropped considerably. Only 13 eagles were killed in 1980, compared to 30 in 1979.

Table 1. Population estimates of migratory birds on major islands surveyed in 1980.

SPECIES	Adak	Kagalaska	Little Tanaga	Umak	Igitkin	Ulak	Chugul	Anagaksik	Kasatochi	Great Sitkin	Species Total
Common Loon	8			20							28
Pelagic Cormorant	271	116	76		25	4	97	4			593
Red-faced Cormorant	186	68	26	20	5	252	6			2	547
Cormorant Sp.	1862	289	274	112	189	22	93	30	98	300	3269
Mallard	75		5								80
Common Teal	250	40	6		12					100	408
Harlequin	2450	300	200	10	125	30	65	5	10	125	3230
Common Eider	625	75	100	45	65	25	35	2		220	1187
White-winged Scoter	30										30
Greater Scaup	35										35
Red-breasted Merganser	260	8	10								278
Bald Eagle	210	35	20	3	10	3	4			17	302
Peregrine Falcon	15	3	24	2	3	3	3	3	3	6	65
Black Oystercatcher	54	14	28	2	2		6			10	116
Parasitic Jaeger	2										2
Glaucous-winged gull	1513	230	327	265	47	73	146	124	157	546	3428
Black-legged Kittiwake				4					3		7

Table 1. Population estimates of migratory birds on major islands surveyed in 1980. (Con't.)

SPECIES	Adak	Kagalaska	Little Tanaga	Umak	Igitkin	Ulak	Chugul	Anagaksik	Kasatochi	Great Sitkin	Species Total
Aleutian tern	99										99
Arctic tern	3										3
Common murre	106		152	28		2390					2676
Thick-billed murre	106										106
Murre Sp.	96		56	24	3		98	35	4142	34	4488
Pigeon guillemot	3512	1040	972	234	466	44	506	30	36	748	
Horned puffin	1110	1500	1486	280	706	2346	496	770	56	1026	7588
Tufted puffin	6656	610	316	190	306	456	730	1206	90	378	10938
Crested auklet			20	1					17500		17522
Least auklet									4000		4000
Whiskered auklet			4	1							5
Parakeet auklet			6			2		1	533	1	543
Kittlitz's murrelet	4										4
Ancient murrelet	330	32	22		1				1	108	494
Common raven	167		3	2	2	2	5	1	1	11	194
TOTAL	20,017	4,360	4,127	1,243	1,967	5,652	2,291	2,211	26,630	3,632	72,131

Figure 11. Getting ready for the field means survival suit training too. Early 1980.

C. Mammals and Non-Migratory Birds and Others

1. Game Mammals

The Adak caribou herd, introduced to the island in 1958 and 1959, is somewhat of a mixed blessing. Though we doubt the wisdom of the introduction, the animals do provide recreational hunting, sightseeing, and that feeling of something big, beautiful and wild over the hills. The herd and habitat are unique in several ways--relatively mild and open winters, lush summer vegetation and lack of harassing insects and parasites. The world's record caribou was taken in 1968 and weighed over 700 lbs. From 1972 to 1979, an average of 97 animals per season have been harvested (Table 2). A study emphasizing range condition, breeding biology, and herd dynamics is in the final stages on planning and will begin in 1981.

Hunting season is from August 10 to March 31, with a limit of two caribou per season. Our management goal is a post-season population of 240 animals. The danger of overpopulation is very real and a major concern of the refuge. Hunting pressure is not heavy, as terrain weeds out all but the most dedicated hunters. We are working closely with the local command of the Naval Station to increase the number of tug trips transporting hunters to the southside of Adak.

Obtaining a reliable count of caribou on Adak is a hurdle we have yet to clear. There are several reasons for this---inhospitable weather, mountainous terrain, and lack of our own aircraft. Three survey flights were conducted in 1980. The first count on August 2, tallied 241 animals. A second in late November recorded 30 caribou, and a third on December 1, counted 297 animals. On October 21, ground counts in several locations totaled a minimum of about 345 animals. This included a herd of 235 animals verified by a series of slides. Combining the ground counts with the fact that 44 caribou had already been harvested, a revised, minimal pre-season population came to about 400 animals. So far, 98 caribou have been harvested. We hope the hunters can control the herd size or we may have to initiate steps to do so during the off season.

Table 2. 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	Season ends March 31, 1981

Reindeer were introduced to Atka Island in 1913 and 1914, and today the herd is essentially wild. It is unlikely the Aleuts, through subsistence hunting, harvest enough animals to maintain the herd at optimum levels. A Special Use Permit was issued to the Atxam Corporation of Atka to harvest reindeer antlers. Some were harvested and sent to the Orient where the market value is quite high.

The Atxam Corporation also wants to establish a herd of reindeer on their Amlia Island lands. There, the reindeer would be more accessible to Atka village than the western end of Atka where most are now located. The refuge is against this proposal, but should the animals be introduced, the corporation will be required to fence the herd in, to keep them off adjacent refuge land.

With passage of ANILCA in December, we have gained control and responsibility of upland portions of Umnak, Unalaska, and Akutan Islands. This will definitely elicit cattle, sheep and reindeer management considerations.

2. Other Mammals

Steller's sea lions, sea otters, and harbor seals are commonly seen and use the Aleutian Islands as breeding grounds and haulout sites. Other species of marine mammals in the area are the northern fur seals, harbor porpoise, Dall's porpoise, killer whales, and Minke whales.

Three Stejneger's beaked whales were found stranded at Clam Lagoon in late July. One was dead, but the other two were pushed to deeper water and eventually swam away. Another dead beaked whale was found on Amchitka in May. Photos and samples of the dead whales were sent to the Smithsonian Institution.

The main thrust of the marine mammal work involves censusing populations throughout the Chain (Table 3). The sea otter population may be at carrying capacity in portions of the Rat and Andreanof Islands. Surveys around Adak reveal one pup per seven adults, whereas, at Attu Island, where populations are expanding, the ratio is one pup per two adults.

The Fish and Wildlife Service has legal jurisdiction over sea otters and the National Marine Fisheries Service maintains jurisdiction over pinnipeds. There is currently no harvest of pinnipeds except for Native subsistence purposes. There are no provisions allowing for the harvesting of otters.

Fifty-eight beached animal surveys were conducted on Buldir, Amchitka, and Adak. Of 92 carcasses discovered, 60 percent were avian species--mostly glaucous-winged gulls, and 34 percent were sea otters.

Table 3. Population of Marine Mammals Census on major islands in 1980.

SPECIES	Adak	Kagalaska	Little Tanaga	Umak	Tanaklak	Tagadak	Igitkin	Chugul	Ogladak	Kasatochi	Tagalak	Great Sitkin
Steller's Sea Lion												
Bulls	44	1	15	0	0	0	0	0	0	62	0	7
Pups	0	0	0	0	0	0	0	0	0	269	0	0
Other	292	45	495	0	0	0	0	2	128	950	12	73
TOTAL	336	46	500	0	0	0	0	2	128	1281	12	80
Harbor Seals												
Adults	623	94	81	43	8	16	37	73	41	2	169	84
Pups	16	5	0	3	0	0	2	4	5	0	18	16
TOTAL	639	99	81	46	8	16	39	77	46	2	187	100
DENSITY/KM SHORE	1.9	1.0	0.8	1.0	.8	2.0	1.3	2.8	5.8	.2	8.3	1.5
Sea Otters												
Adults	2172	616	763	301	101	109	283	209	139	20	338	456
Pups	341	84	146	60	12	36	57	39	11	5	46	82
TOTAL	2513	700	909	361	113	145	340	248	150	25	384	538
DENSITY/KM SHORE	7.4	7.0	9.5	8.1	11.3	18.1	11.0	9.1	18.8	2.6	17.1	7.8

3. Resident Birds

Song sparrows, gray-crowned rosy finches, snow buntings, rock ptarmigan, and rock sandpipers are common throughout the Aleutians. Six new Emlen transects were established for inland bird species, including the non-resident Lapland longspur. Previously established beach bird surveys were carried out for shore species. These surveys provide trend data and rough population estimates (Table 4).

Table 4. Results of Inland Bird Transects on Little Tanaga and Umak Islands, 1980.

AVERAGE NUMBER OF BIRDS PER 100 HECTARES*

	Lapland Longspur	Snow Bunting	Rock Sandpiper	Rock Ptarmigan
Little Tanaga	22.04	2.18	1.14	2.22
Umak	35.45	--	2.56	3.71

*Number of birds equals average of all transects on island (Little Tanaga--4, Umak--2).

4. Other Animal Life

To date, little work has been funded or attempted, for enhancement of fisheries on the refuge. Rainbow trout were introduced into Smith Pond, North Lake, and White Alice Reservoir in 1974-75, and steelhead trout are sometimes caught in the streams of Shagak Bay on Adak. Excellent pink salmon runs occurred this year on most major streams from August through September. Silver, red and chum salmon are known to spawn here too, but in smaller numbers. King salmon inhabit ocean waters around Adak and Atka, but no records exist of them spawning in the Aleutians. Dolly Varden are commonly found in streams and larger interior lakes.

The U.S. Air Force Base on Shemya Island inquired about planting salmon in several lakes and streams for recreational purposes. It was determined the only fish practical would be native Dolly Varden. We are waiting for a request for fingerling Dolly Varden to be made from our Regional Office to the Alaska Department of Fish and Game.

Commercial fishing activity is generally confined to the easternmost islands for salmon, halibut, and crab. Offshore fisheries in the central and western Aleutians is dominated by Japanese vessels.

V. INTERPRETATION AND RECREATION

A. Information and Interpretation

1. On-Refuge

Most of the people who come to the Aleutians are active duty military or dependent personnel. The total population of military bases located on Adak, Shemya, and Attu Islands is about 6,000 people. Four Native Aleut villages at Atka, Akutan, Unalaska, and Nikolski have a combined population of about 500 people.

The military bases offer a unique situation for the refuge to present its policies. Normal tour-of-duty for military personnel is one year if unaccompanied, and two years if accompanied by dependents. This means that between 2000 to 3000 people are rotated in and out of the Aleutians every year. Many of those assigned here have never been confronted with a wilderness situation and would not voluntarily choose this confrontation. On Adak, there is a golden opportunity to reach this "captive" audience, hungry for information after viewing soaring bald eagles, curious sea otters, and hearing tall caribou tales.

The refuge provides two to three half-hour orientation slide shows every month at military and civilian briefings for newcomers to Adak. Hiking, hunting, and fishing opportunities, and regulations are discussed.

Our new office has much to offer in expanding our public relations and educational efforts. A Visitor Center Interpretive Plan, submitted to Regional Office for approval and funding, provides for a series of eight permanent exhibits to be rotated periodically throughout the year. Thus far, we have used our local talents and resources to create exhibits for public viewing.

The Regional 1240 Program Coordinator met with the school board, superintendent, principals, and faculty of the Adak Regional Schools to set up a pilot program where the Fish and Wildlife Service provides environmental educational materials. We are fortunate to be able to work closely with the schools, conducting field trips and class lectures (Fig. 12). The most popular field trip is of spawning salmon at Finger Bay. Fresh and saltwater are given a taste-test, water temperatures taken, adult salmon counted and dissected, and fertile eggs found in loose gravel. Most of the children are overwhelmed with the fact that between 15,000 and 20,000 fish will soon die.

2. Off-Refuge: Nothing to report.

Figure 12. K. Hall with group of elementary children at Adak Regional Elementary School. Minn 1980.

B. Recreation

In 1980, people were involved in 23,370 recreational outings. Consumptive users totaled 49,225 activity hours (Fig. 13), and non-consumptive use was estimated at 12,150 activity hours.

1. Wildlife/Wildlands Oriented

The refuge offers a wide range of wildlife/wildlands oriented recreation. Though only a few islands are open to hunting, all are open to fishing. A Special Use Permit is required for access, use, and recreation on all islands, except Adak, Attu, Atka, and Shemya. Very little recreation occurs on uninhabited islands, except Great Sitkin, as the Navy Tug provides transportation there in the summer months. Fishing interest centers on pink salmon and Dolly Varden. Fishing is possible at Adak on a shoulder-to-shoulder basis, or, for those willing to hike a few miles, in pristine mountain streams.

Figure 13. Dora Cox won the refuge staff big fish contest with a 125 lb. halibut. Cox 1980.

Adak is open to waterfowl, rock ptarmigan and caribou hunting. Attu is open to waterfowl and ptarmigan hunting, and on Atka, Natives can take game and fur animals, except sea otters. Though hunting seasons are long with liberal bag limits, demand tapers rapidly after the opening weeks. A total of 132 caribou were reported harvested on Adak during the season from August 10, 1979, to March 31, 1980.

For winter enthusiasts, cross-country skiing on Adak has increased in the last several years. This is attributed to increased popularity in the lower 48 States, availability and quality of ski rental equipment, and ski lessons being offered by the University of Alaska Extension Center. In addition, about 30,000 acres, or half of the military reservation on Adak, are open to snowmobiling.

The fox trapping season is from August 10 through April 30. Thirty-five Special Use Permits were issued for fox trapping on Adak. An amendment was submitted through Regional Office to Alaska Department of Fish and Game to open all islands to fox trapping for additional revenue to local people and to reduce fox populations.

2. Non-Wildlife/Wetlands Oriented: Nothing to report.

C. Enforcement

Most enforcement work is limited to Adak. Major types of violations involve salmon snagging, off-road vehicling, hunting without a license, and over-bag limits (Fig. 14). Most violations are turned over to the local Navy Command as they occur on the military reservation (Table 5).

Figure 14. K. Hall, T. Early and J. Mueller examine 96 king crabs seized from nine individuals. Manager Martin ponders the relationship with the Naval Station Commanding Officer, who had acquired a taste for king crab. Minn 1980.

All violations which occur off the reservation are handled through appropriate state or federal courts. One violation involved a non-resident hunter, who shot two caribou off the military reservation without a license. Under Title 50 CFR, he could be cited only for hunting without a license and fined $50.00. In Alaska, a non-resident pays $60 for a hunting license and $200 for a caribou tag. So legally, it would have cost him $460 to kill two caribou. All things considered, it is definitely tempting to chance hunting without a license. This case was referred to state court where liquidation damages are being charged.

Table 5. Citations on Adak in 1980.

DATE	VIOLATION	DISPOSITION
7/4/80	Off-road vehicling	Turned over to Navy
7/4/80	Off-road vehicling	Turned over to Navy
7/4/80	Off-road vehicling	Turned over to Navy
7/4/80	Off-road vehicling	Turned over to Navy
7/4/80	Off-road vehicling	Turned over to Navy
7/4/80	Off-road vehicling	Turned over to Navy
7/30/80	Illegal taking of fish	Juveniles--oral reprimand
7/30/80	Fishing w/o license	Juveniles--oral reprimand
8/1/80	Fishing w/o license	Juveniles--oral reprimand
8/1/80	Illegal taking of fish, fishing w/o license	$75.00 fine
8/6/80	Fishing w/o license	Turned over to Navy
8/22/80	Fishing w/o license	Turned over to Navy
8/25/80	Illegal taking of fish	Turned over to Navy
8/27/80	Overlimit of fish	Turned over to Navy
8/29/80	Violation of fox trapping permit	Revoked permit
9/5/80	Fishing in closed area	Juvenile--oral reprimand
9/12/80	Overlimit of fish	Turned over to Navy
9/24/80	Taking caribou w/o license	Pending
10/3/80	Overlimit of king crab	Turned over to Navy
12/13/80	Off-road vehicling	Turned over to Navy

VI OTHER ITEMS

A. FIELD INVESTIGATIONS

1. Summer diets of glaucous-winged gulls and common eiders in relation to sea otters--Oregon Cooperative Wildlife Research Unit, Oregon State University, David Irons. The feeding patterns of gulls and eiders around Amchitka, with a high sea otter population, is being compared to Attu, where fewer otters are found.

2. 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 of arc magmas is also being investigated.

3. A study of late quaternary glacial history of Atka Island--University of Connecticut, Dr. Robert Black. This study focuses on geologic changes and related sea levels, gathered from the glacial history of Atka.

4. Baseline study on geothermal systems in the State of Alaska--Alaska Department of Natural Resources, Division of Geophysical Surveys, Roman Motyka and Ross Schaff. Reconnaissance of geological formations is being done on Unalaska, Umnak, Chuginadak, Kagamil, Bogoslof, and Rootok Islands to determine geothermal energy.

5. Revegetation of disturbed tundra areas--University of Tennessee, Department of Botany, Dr. Cliff Amundsen. Work indicated introduced species can be maintained only at great cost and intense fertilization. The use of native American dunegrass (Elymus mollis), as a recovery species is very promising.

6. Population dynamics of the Eurasian green-winged teal (Anas creccia nimia) at Adak and Amchitka Islands, Alaska--Aleutian ~~Islands Unit,~~ AMNWR. Work involves determining base populations, hunt mortality, and movement patterns in the Aleutians. Band returns indicate a portion of the population may move to the Kamchatka Peninsula in fall.

7. Audubon Christmas Bird Count--Aleutian Islands Unit, AMNWR. The count was conducted on December 20, on Adak Island. Thirty-one species were seen, amounting to about 3500 individual birds. Of special interest was the sighting of a western grebe--a first record for the refuge.

B. COOPERATIVE PROGRAMS

1. Ecological monitoring. One sea otter was sent to the National Fish and Wildlife Health Laboratory for necropsy. This was a specimen found dead at Clam Lagoon, Adak Island. The diagnosis for cause of death was left open.

2. Young Adult Conservation Corps. The refuge is very much indebt to the YACC program for enabling us to accomplish our work advices this summer. It takes a dedicated person to accept the Aleutian wind, rain, fog, and $340 airfare from Anchorage to Adak, for minimum wages. But, by the end of the summer, the seven people who did, succumbed to the charm of the Aleutian Islands.

   Working on Amchitka Island, with the Aleutian Canada goose propagation effort, were Kevin Brennan, Pat Heglund, Monica Reiswig, and Beth Wojtowych. They are to be commended for a job well done!

   Working out of Adak, censusing marine mammals and birds, were Jack Arnold, John Mueller, and Leslie Slater. These workers were not only dependable biological assistants, but great field cooks, too.

Two local residents were hired, with Ray Hightower replacing Toni Turner half-way through the year. They assisted in the time-consuming, yet necessary, daily janitorial tasks at headquarters.

The summer season closed with YACC's helping with the catching, banding, and transplanting of Aleutian Canada geese on Buldir and Agattu Islands. After summer, they continued to assist in the permanent closure of the Amchitka station, the move into the new headquarters building on Adak, monitoring caribou and eagle populations, conducting boat and overland surveys for birds, running salmon spawning counts, organizing our specimen collection and photo file, and helping with interpretive programs.

All in all, the refuge is pleased with the highly compatible, indispensable nature of this YACC crew.

3. Miscellaneous Special Use Permits were issued for bird watching on Attu Island; use of hunting cabins on Adak; camping, fishing, and hiking on Great Sitkin; military studies on Amchitka, Kiska, and Attu Islands; importing chickens for Navy Chief initiations; filming downed WWII aircraft; harvesting reindeer antlers; Alaska State dam survey; installation and maintenance of seismic monitoring instruments on seven islands; surveying and disposing of live and dangerous ordnance on Tanaga and Attu Islands.

C. ITEMS OF INTEREST

1. Amelia K. Alesna, Refuge Clerk, resigned April 4, but is still in the neighborhood cooking for us.

2. Debra Broderick, Refuge Clerk, came aboard April 1, as a replacement for Amey and was converted to permanent full-time.

3. Lorraine Craw, Clerk Typist, resigned May 30, to accompany her husband to San Diego, California.

4. Jon Gravning, Biological Technician, transferred to Hawaiian Islands N.W.R. (Tern Island-Kauai Island) on March 21.

5. Kurt Holmgren, a temporary full-time laborer, at Amchitka, was terminated April 21.

6. The entire Amchitka Field Station was closed October 6. This decision was based on cost of operations, logistic support considerations, and because a similar propagation effort is underway in North Dakota.

7. Assistant Manager Barry Reiswig and Maintenanceperson Jim Cox moved to Adak after the Amchitka station closed.

8. R. Algie Hasha, a career-seasonal laborer stationed at Amchitka, was placed on LWOP status October 1980, due to the Amchitka close-down and lack of funds.

9. A Letter of Commendation was presented to Tom Early, Kent Hall, Bev Minn, and Barry Reiswig for their hard and successful work in capturing and transplanting Aleutian Canada geese from Buldir to Agattu.

10. Lorraine Craw received a Special Achievement Award and a monetary award of $200, for being worth more than twice what we paid her.

11. Carol Hagglund successfully completed the mid-level Refuge Management Training Course from April 14-May 2, at Beckley, West Virginia.

12. Tom Early attended the Federal Law Enforcement Training Center's four-week course at Glynco, Ga., in mid-March.

13. Bev Minn attended the OPM course entitled "Introduction to Supervision" from Nov. 17 to 21.

14. As a footnote, Kent Hall and Bev Minn were secretly married on a mountaintop in Hawaii on January 1, 1981. This occurred after a whirlwind secret romance--apparently on Adak. Congratulations to both.

15. Narrative was written by Tom Early and Bev Minn. The editors were John Martin, Kent Hall, Carol Hagglund and Bev Minn. Typing and collating credits go to Jean Savage, Lori Gan, Justine Logan and Bev Minn.

BOGOSLOF NATIONAL WILDLIFE REFUGE
Adak, Alaska

ANNUAL NARRATIVE REPORT
Calendar Year 1980

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

1980 Summary Narrative for Bogoslof National Wildlife Refuge

Bogoslof National Wildlife Refuge consists of two islands totalling 390 acres, located approximately 30 miles north of Umnak Island in the Aleutian Island Chain. It was established in 1909 and is administered by the Aleutian Islands Unit. While currently in a preserve status, there are no ongoing programs. In 1968, it was registered as a National Natural Landmark for its unique volcanic formation. The last recorded eruption was in 1931, and it is still considered a "hotspot" volcanically. In 1970, Bogoslof NWR received a Wilderness Area designation. The refuge was not visited in 1980.