

U.S. Fish and Wildlife Service  
Anchorage, Alaska



REFUGE NARRATIVE REPORT

FY 75

KODIAK NATIONAL WILDLIFE REFUGE

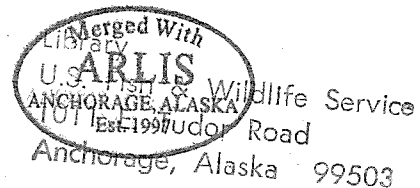
KODIAK, ALASKA

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US FISH & WILDLIFE SERVICE--ALASKA

1974  
1975



KODIAK NATIONAL WILDLIFE REFUGE

NARRATIVE REPORT

July 1, 1974 to June 30, 1975

Kodiak, Alaska

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Department of the Interior  
U. S. Fish and Wildlife Service  
Kodiak, Alaska

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# KODIAK NATIONAL WILDLIFE REFUGE

## NARRATIVE REPORT

July 1, 1974 to June 30, 1975

### I. GENERAL

#### Weather Conditions

This reporting year started out in Kodiak's best banana belt tradition. Temperatures soared to the mid-80's which was very unusual and the warm, sunny weather continued on through August. Lawns were even being watered, an unheard of phenomenon for the island. Fall reverted to the typical pattern: rain, fog, high winds and an occasional intermittent sunny day. During the new year's first month a record low of -8°F. was established and at the same time 16 inches of snow accumulated. The rest of the winter and spring were cold with deep snow. Karluk Lake sustained its ice cover into mid-May.

#### Habitat Conditions

Water. Water levels in lakes and streams were below normal because of the warm, dry summer in 1974. Low temperatures also retarded snow melt in the spring of 1975.

Food and Cover. It was an unusually good year for berries. Warm weather allowed fruit to mature early and the late arrival of frost granted a long growing season. Most alpine vegetation was about 2 weeks earlier than 1973. The spring and early summer of 1975 was similar to 1973.

A wide variety of wildlife species including the brown bear, fox, bald eagle, crow, and magpie depend heavily on salmon for food. Salmon runs were spotty this year. For example the poor past runs of 5-10,000 sockeye into Akalura Lake suddenly exploded into 34,500 with nearly as many pink salmon. Several other salmon streams were considered failures.

Browse plants were covered by deep snow and became ice-incrusted, causing high deer winter mortality.

## II. WILDLIFE

### Migratory Birds

On October 25, 90 whistling swans had congregated on the Karluk River adjacent to Barnaby Ridge. This stretch of water is frequently used as a resting area by these birds both in the fall and spring. Ninety to one hundred swans have been the maximum observed at one time, although other waterfowl such as common and Barrow's goldeneyes, mallards, pintails, widgeons, green-winged teal, common and red-breasted mergansers, and buffleheads may number between 500-700 in the aggregate along this 3 mile section of the river during migration.

Refuge Managers Atwell, Berns, and Boone, Master Engineer Putney, and Mrs. Boone spent February 5 through February 22 on the M/V ALEUTIAN TERN censusing waterfowl and seabirds in the peripheral areas of the refuge (Figs. 1 & 2). Time limitations and severe storms prevented counts in several bays on the east side of Kodiak. A total of 52 hours and 21 minutes was spent censusing during which 55,556 birds were tallied. (1,062 per hour). The results are presented in Table 1 in which the data are compared to material collected in a similar 1973 endeavor.

This year at Whale Pass 4,000 King eiders and 3,000 crested auklets had gathered to feed in the tide rips. A dead common murre, its feathers oil-soaked, was taken from the water at Kupreanof Strait (Fig. 3). Murres were scattered by the hundreds throughout Terror Bay and the Northeast Arm of Uganik Bay. Porpoises, murres, and old squaws were common in most all Uganik Bays.

At Spiridon Bay a dead tufted puffin was retrieved from the water. There was no indication of why the bird had died.

Murres were the most common bird seen during the trip; they comprised 15,173 individuals or 27 percent of the total observations. Old squaws were second with 17 percent (9,410).

While at the village of Larsen Bay, Mrs. Dora Aga said crested auklets used to be more numerous in Uyak Bay. At night the birds would be in dense flocks on the



Table 1. Waterfowl and Seabird Census  
Via M/V ALEUTIAN TERN  
KODIAK NWR

Date	1973	1975
Miles Traveled	862	596
Time Spent Censusing	58 hrs	52 hrs 21 min.
Total Birds Censused	53,515	55,556
Birds/Hour of Census	923	1,062

Avian Wildlife

Loon sp.	424	83
Grebe		
Red-necked	1	
Sp.	7	72
Cormorant sp.	1,982	1,728
Emperor Goose	621	52
Mallard	700	2,556
Pintail	200	4
Gadwall	30	75
Surface feeding ducks sp.		50
Greater Scaup	80	15
Goldeneye		
Common	146	
Barrow's	24	30
Sp.	1,142	1,205
Bufflehead	36	27
Harlequin	691	675
Eider		
Common	4,512	58
King		4,654
Steller's	340	1,176
Sp.	67	1,745
Oldsquaw	7,863	9,410
Scoter		
Common	2,154	1,402
White-winged	3,059	2,073
Surf	1,194	327
Sp.	3,192	984
Merganser		
Common	21	21
Red-breasted	13	34
Sp.	39	27
Hawk		
Marsh		1
Sp.		3

Table 1 (Continued)

Eagle		
Golden		
Subadult		1
Bald		
Adult	183	179
Subadult	37	50
Unk Age	4	8
Sandpiper sp.	-	50
Gull		
Glaucous-winged	32	923
Mew	356	731
Sp.	124	1,589
Murre		
Common	-	179
Thick-billed	66	-
Sp.	8,420	14,994
Pigeon guillemot	46	106
Puffin		
Horned	-	1
Tufted	-	1
Crested auklet	15,083	7,011
Murrelet		
Ancient	3	-
Sp.	63	280
Magpie	28	84
Raven	8	3
Crow	524	879

Non-avian Wildlife

Otter		
Land	3	-
Sea	2	-
Red Fox	2	-
Seal	385	42
Sea Lion	1,531	1,282
Deer	38	140
Reindeer	4	-
Porpoise Sp.	12	70



Fig. 1. M/V ALEUTIAN TERN during February trip around Kodiak Island.



Fig. 2. Assistant Refuge Manager Berns and Master/Engineer Putney in pilot house of M/V ALEUTIAN TERN during February waterfowl and seabird census.





Fig. 3. Oil-soaked common murre  
found dead in Kupreanof Strait.

water, piling up on one another. During moonlight nights the villagers would quietly move up on the birds and kill large numbers with oars. The dead auklets were then roasted and eaten, some also being used for fox bait. Years ago Mrs. Aga knew an old Native lady of the village who told her bald eagles were once consumed by the villagers, perhaps early into this century. The old woman said she enjoyed eating them.

We talked with a husband and wife teacher team in Port Lions who had a contract at Akhiok the previous 2 years. They estimated the Akhiok villagers shot 200 emperor geese annually. These birds are particularly vulnerable late in the day when they fly routes that have been observed previously by hunters. The teachers said only about 50 ducks were shot each year, mostly goldeneyes. The Akhiok people were also reported to use Arctic tern and gull eggs (mew and glaucous-winged) heavily in season.

A local birdwatcher saw 3 emperor geese in Women's Bay, May 11. This is later than these geese are usually observed on northeastern Kodiak Island.

Both arctic terns and violet-green swallows returned to Karluk Lake by May 17.

### Upland Game Birds

Willow and rock ptarmigan are the only upland game birds on Kodiak Island (Fig. 4). In the alpine zone at 2,500' on July 13, a brood was observed comprised of 8 chicks much too young to fly. Three broods on July 16, also in the alpine, all contained young capable of flight. In mid-September 3 flocks of ptarmigan totaling 500-600 birds were sighted in the upper Uganik River drainage at an elevation of 2,500-3,000'.

### Big Game Animals

Mountain Goats. Alaska Department of Fish and Game biologists made one aerial count on mountain goats and tallied a total of 49, of which 12 were kids. During the September 1 - October 30 open season, 16 goats were taken by 28 permittees who actually hunted. Sex composition of the harvest was: 5 males, 10 females, and one unknown. Precipitous terrain and intense fall storms combine to make goat hunting precarious at best.





Fig. 4. Ptarmigan in alpine zone.

Reindeer. Two cows were seen on May 23 bedded down on tundra one mile east of Barnaby Ridge. No reports were received indicating any animals were harvested but it is likely fishermen took a few along the southwest coast. Although no counts have been made for 9 years, it is estimated the total population numbers less than 500.

Dall Sheep. In the last Narrative Report, Dall sheep transplants to Kodiak Island by the Alaska Department of Fish and Game were summarized. The records show a total of 15 sheep (of which at least 7 died within a few days) were released between 1964 and 1967. Since 1967 none of these animals had been observed; however, on October 4 of this year a Coast Guard helicopter pilot spotted 3 sheep in the upper Zachar Creek drainage. On November 6 Alaska Department of Fish and Game biologist, Roger Smith, verified the sheeps' presence and photographed 7: 1 adult ram, 2 lambs, the rest being ewes and subadults. No subsequent observations have been reported.

Sitka Black-tailed Deer. Through a telephone survey during which 10 percent of Kodiak's hunters holding deer tags were interviewed, the Alaska Department of Fish and Game estimated that 1,754 deer were harvested in the island group in 1974 with 62 percent being males and 38 percent females. Fifty-six percent, or 982 deer, was estimated to have come from the refuge. The open season is from August 1 through December 31, with a 4 deer limit. Antlerless deer may be taken only from September 15 on.

Natural mortality for the 1974-75 winter months was first estimated at 10 percent; however, field checks in the spring and interviews with the bear guides and hunters in May, indicated dead deer comprised closer to 20 percent of the population. As would be expected, young of the year and adult bucks suffered most.

Heavy snow forced deer to the beaches in early February and the more vulnerable segments of the population soon were affected. Wayne Hans (bear guide) found 10 dead deer on the beaches in the vicinity of Village Islands in mid-February. A week earlier at Uganik Island refuge personnel had been attracted to a fawn carcass being fed on by 3 subadult bald eagles (Fig. 5). Examination of the bone marrow indicated this deer had died of malnutrition. By April 25, assistant guides for Earl Payne had come across 6-8 deer carcasses along the Uganik River flats. One of bear guides Dennis Harms'





Fig. 5. Winter mortality of Sitka black-tailed deer fawn, Uganik Island.



helpers reported seeing the remains of 8-10 deer on the west shore of the South Arm of Uganik Bay and 3-4 on the east side. Parts of 4 additional deer were located by the staff on the beach at Hook Point; at least 2 of these were adult bucks.

### Kodiak Brown Bears

Population Surveys. Alpine composition counts were conducted twice in the Uganik area and twice in the Uyak drainage with the aid of the FWS Supercub. A third count in Uyak was aborted because of turbulence. During 5.5 hours of surveying, 102 animals were counted for an average of 18.5 per hour. This is slightly higher than last year when 17.6 bears per hour were observed over the same areas (Table 2). Bear use of the alpine zone was high during July and early August; however, by mid-August the animals had moved to lower elevations (Fig: 6).

Stream surveys were conducted on Sturgeon, Red, Connecticut, Pinnell, and Dog Salmon Creeks, again using the aircraft. During 4.8 hours of surveying, 56.4 bears per hour were tallied. This is a substantial increase over last year when 39.6 animals per hour were counted in 4.6 hours (Table 3).

The first bears seen digging dens were doing so November 6 when snow conditions were right to accentuate the fresh spoils. During the next 2-1/2 weeks 14 dens were observed incidental to radio-tracking; this was more than usual.

Problem Bears. A female bear accompanied by 3 yearlings was shot November 16 in "defense of life and property" at Karluk Lake outlet by 2 deer hunters. The hunters were returning to camp through patchy alders about dusk when the sow reputedly charged. (It always amazes us how charging bears are shot from broadside or the rear). The hide and skull were placed in custody of the Alaska Department of Fish and Game as required by law.

This bear, accompanied by 3 cubs of the year, had been captured near Cottonwood Creek in July of 1968 and marked as number 53-8. She was recaptured in the Cottonwood Creek drainage in May of 1972 and radio-instrumented. At that time her vulva was turgid, indicating she had bred or would be breeding. This is further borne out by the fact that she had yearlings with her when shot in the fall of 1974.

Table 2. Brown bear alpine composition counts

## Kodiak NWR

	<u>1970</u>		<u>1971</u>		<u>1972</u>		<u>1973</u>		<u>1974</u>	
	No.	%	No.	%	No.	%	No.	%	No.	%
Adults	59	43	16	33	112	52	80	55	44	43
Subadults	32	23	14	29	59	28	23	16	11	11
Yearlings	28	20	10	21	13	6	5	3	29	28
Cubs	<u>19</u>	14	<u>8</u>	17	<u>29</u>	14	<u>38</u>	26	<u>18</u>	18
Totals	138		48		213		146		102	

Table 3. Brown bear stream composition counts

## Kodiak NWR

	<u>1970</u>		<u>1971</u>		<u>1972</u>		<u>1973</u>		<u>1974</u>	
	No.	%	No.	%	No.	%	No.	%	No.	%
Adults	43	36	63	32	93	39	100	55	117	43
Subadults	37	31	71	37	88	36	47	26	70	26
Yearlings	25	21	16	8	22	9	18	10	37	14
Cubs	<u>14</u>	12	<u>44</u>	23	<u>39</u>	16	<u>17</u>	9	<u>47</u>	17
Totals	119		194		242		182		271	



Fig. 6. Brown bear in cottonwood,  
Karluk Lake.

Hunting Data. The fall brown bear season on the refuge opened 5 days later this year and closed, as in previous years, on December 31. The spring season began March 1 and closed May 15. Bear hunting seasons adjacent to the refuge are more liberal.

Fall weather was fairly typical with frequent low pressure fronts moving through; however, these conditions posed no serious problems for bear hunters. Winter and early spring were characterized by heavy snows and cold temperatures. Deep snow persisted well into May; this, combined with the late break up of many interior lakes, made access difficult.

A federal permit is required to hunt brown bears on the Kodiak National Wildlife Refuge. For the first time since the inception of the permit system in 1968, the number of permits was limited. One hundred and forty permits were issued in the fall 1974 season and 174 the following spring. These permits have always been issued on a first-come, first-served basis but inequities have developed and guides are consistently obtaining the best areas at the prime times for their clients. To alleviate this and other problems, the refuge staff spent several months drafting a new permit system which hopefully will be implemented in the near future.

For the past 8 years each hunter has been presented with a questionnaire card which he is requested to complete and return at the end of the hunt. A summary of such data is presented in Table 4. These data were extremely helpful during formulation of the new permit system.

The Alaska Department of Fish and Game requires that bear hides and skulls be presented for sealing; the hides and skulls are measured and seals affixed. A tooth is extracted from the skulls for aging. Table 5 summarizes these data.

To monitor the hunt and as a deterrent to potential violators, it has been the practice of refuge personnel to visit all hunting camps each season. A float equipped Supercub has provided transportation but during the 1975 spring season a helicopter was chartered. This innovation provided a new dimension in mobility and versatility (Fig. 7). Although no cases were made, several borderline incidents are being further investigated.

Table 4. Summary of brown bear hunts, FY 75

## Kodiak NWR

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	<u>Fall '74</u>	<u>Spring '75</u>
Number of permits issued	140	174
Number of permits used	96	133
Number of questionnaires returned	135	168
Hunter success	46%	42%
Resident	22%	26%
Nonresident	64%	52%
Total days hunted	562	1077
Average number days/successful hunter	5.0	6.7
Average number days/unsuccessful hunter	6.6	9.2
Average number bears seen/successful hunter	9.0	6.4
Average number bears seen/unsuccessful hunter	3.7	4.3
Number of bears taken	44	56

Table 5. Average brown bear age, skull and hide size data, FY 75.

Kodiak NWR

	Male						Female					
	<u>Age</u>	<u>Sample Size</u>	<u>Skull</u>	<u>Sample Size</u>	<u>Hide</u>	<u>Sample Size</u>	<u>Age</u>	<u>Sample Size</u>	<u>Skull</u>	<u>Sample Size</u>	<u>Hide</u>	<u>Sample Size</u>
Fall '74	8.7	23	24-7/16"	23	8'2-5/8"	24	8.7	19	22-2/16"	21	7'4-3/8"	21
Spring '75	7.8	35	24-9/16"	32	7'9-5/8"	35	6.7	21	21-6/16"	20	6'7-7/8"	21





Fig. 7. Checking bear guide camps.

The brown bear harvest for FY 75 was 100 animals, down 29 per cent from the previous year (Tables 6 and 7). This reduction was desirable and was probably the result of the shortened fall season and the limited number of permits. Future seasons will continue to be monitored closely, not only to insure against an excessive harvest, but also to maintain a high quality outdoor experience for all participants.

#### Fur Animals, Predators, Rodents and Other Animals

Beaver. Beaver were introduced to Kodiak Island in 1929 and in the 46 years since have dispersed throughout most of the suitable habitat both on and off the refuge. Trapping has been permitted since 1950 with the most significant pressure on the more accessible areas adjacent to the refuge. The population on the refuge is healthy, with trapping pressure remaining light because of difficult access. During the 1974-75 season trappers reported taking only 22 beaver.

Land Otter. Otter were a common sight again this year around the field headquarters at Karluk Lake; a female and her kits were seen on several occasions. Slides and other otter sign were encountered regularly along the lake shore and up the tributary streams. Late in the fall, 6 otter were seen playing on the ice and in an open lead in Thumb Lake, a small lake draining into Karluk Lake. Access to the interior of the refuge is again a problem during the winter months, consequently trapping pressure is light. Sixty-eight were harvested.

Fox. The Kodiak fox population has been the beneficiary of a population explosion among the tundra voles the past 2 years. As a consequence, the number of foxes has increased markedly. Most of the trapping effort is focused on this species with trappers reporting a take of 188.

Weasel. The abundance of tundra voles has also been a boon to the weasels whose numbers have increased correspondingly. Weasels were a frequent sight around the field headquarters during the fall. Several spent the winter in the cabin as evidenced by the disheveled storeroom.

Snowshoe Hare. Hare populations were spotty this year; no hare were seen on Camp Island and only a few were noted in the thickets around the lake. The



Table 6. Brown bear harvest on Kodiak National Wildlife Refuge related to residency status of hunters

Year		R*	Number Permits Issued		R	Number <sup>+</sup> Permits Used		R	Number Bears Taken	
			NR**	Total		NR	Total		NR	Total
1968	Spring	113	74	187	93	67	160	22	39	61
	Fall	<u>17</u>	<u>45</u>	<u>62</u>	<u>6</u>	<u>37</u>	<u>43</u>	<u>1</u>	<u>24</u>	<u>25</u>
	Total	130	119	249	99	104	203	23	63	86
1969	Spring	101	89	190	81	66	147	23	36	59
	Fall	<u>47</u>	<u>17</u>	<u>64</u>	<u>7</u>	<u>14</u>	<u>21</u>	<u>0</u>	<u>12</u>	<u>12</u>
	Total	148	106	254	88	80	168	23	48	71
1970	Spring	112	40	152	78	30	108	9	22	31
	Fall	<u>51</u>	<u>25</u>	<u>76</u>	<u>45</u>	<u>17</u>	<u>62</u>	<u>16</u>	<u>16</u>	<u>32</u>
	Total	163	65	228	123	47	170	25	38	63
1971	Spring	110	60	170	58	32	90	21	20	41
	Fall	<u>58</u>	<u>27</u>	<u>85</u>	<u>33</u>	<u>19</u>	<u>52</u>	<u>12</u>	<u>17</u>	<u>29</u>
	Total	168	87	255	91	51	142	33	37	70
1972	Spring	114	62	176	66	37	103	18	21	39
	Fall	<u>57</u>	<u>62</u>	<u>119</u>	<u>46</u>	<u>53</u>	<u>99</u>	<u>21</u>	<u>32</u>	<u>53</u>
	Total	171	124	295	112	90	202	39	53	92
1973	Spring	120	97	217	83	70	153	27	46	73
	Fall	<u>80</u>	<u>61</u>	<u>141</u>	<u>59</u>	<u>50</u>	<u>109</u>	<u>15</u>	<u>39</u>	<u>54</u>
	Total	200	158	358	142	120	262	42	85	127
1974	Spring	133	123	256	73	96	169	23	63	86
	Fall	<u>74</u>	<u>66</u>	<u>140</u> #	<u>48</u>	<u>55</u>	<u>103</u>	<u>9</u>	<u>35</u>	<u>44</u>
	Total	207	189	396	121	151	272	32	98	130
1975	Spring	79	95	174	50	83	133	13	43	56

R\* = Resident; NR\*\* = Nonresident; + = Hunters that actually went afield after bears; # = Commencing with the 1974 fall hunt permits were limited to the number which appears for each season.

Table 7. Summary of brown bear mortalities within the Kodiak Island Group during the Fall (F) of 1974 and Spring (S) of 1975

Mortality Mode	On the Refuge						Off the Refuge							
	Male		Female		Sex	Sub	Male		Female		Sex	Sub		
	F	S	F	S	Unknown	Total	F	S	F	S	Unknown	Total		
					F	S			F	S	F	S		
Sport Hunting														
Resident	5	8*	4	5	0	0	22	4	8	2	4	0	0	18
Nonresident	19	27	16	16	0	0	78	1	8	1	7	0	0	17
Scientific Purposes	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Regulation Violation**	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Defense of Life and Property	0	0	1	0	0	0	1	1	1	2	0	0	0	4
Food	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	1	0	0	0	1	0	0	0	0	0	0	0
Totals	24	35	22	21	0	0	102	6	17	5	11	0	0	39

\* Two resident hunters obtained the services of guides

\*\* This line is a non-add as the bears are included under sport hunting

residents of Larsen Bay, however, reported high numbers close to their village (Fig. 8). One local Kodiakan, who takes his snowshoe hare hunting seriously, shot approximately 200 with the aid of his beagles. This was not on refuge lands.

Tundra Vole. The tundra vole population explosion continued through the summer of 1974, but by the following spring had peaked and a sharp declining trend ensued. As mentioned earlier, predators made good use of this species as a food source. Even brown bears occasionally would be observed digging up these rodents. It is amusing to see a large bear jumping and hopping to pin down a scampering vole. Once caught, the vole is held by the bear in its forepaws and eaten piecemeal, one morsel at a time as if savoring an hors d'oeuvre.

#### Hawks, Eagles, Crows, Ravens, and Magpies

Hawks. The only unusual observation during this period was the sighting of an immature marsh hawk in February at Zachar Bay.

Eagles. On July 31st a flight was made over Karluk Lake, Karluk River, and Uyak Bay to determine bald eagle productivity. Of the 42 nests relocated from the spring census, 13 (31%) were inactive; the 29 remaining active nests contained 44 young for an average of 1.5 per active nest (Table 8).

A November 10 count by skiff of eagles along the Karluk Lake shore resulted in a tally of 27 adults and 8 subadults. These birds had been attracted by late beach-spawning red salmon.

During the February trip around the island via the M/V ALEUTIAN TERN, a subadult glaucous-winged gull was noticed feeding on a dead bird in a calm sea about 25 yards from the boat. The dead bird was probably a common murre because there were many in the vicinity and a few minutes before we had netted one that was dead and partially oil-soaked. As we drew abreast of the feeding gull an adult bald eagle flew across our bow and plucked the startled gull's meal from the water. A day later we were breaking through fresh one-inch thick ice in the Northeast Arm of Uganik Bay when a murre was washed up on the ice by the boat's wake and could neither dive nor fly. Once more an adult bald eagle suddenly materialized, glided across our bow, and easily snatched up the struggling bird. The eagle then flew

Table 8. Eaglets fledged per successful nest\*.

<u>Year</u>	<u>Number of Nests With Fledglings In July or August</u>	<u>Total Number Fledglings</u>	<u>Number Young Per Successful Nest</u>
1965	19	26	1.4
1966	24	38	1.6
1967	37	63	1.7
1968	24	42	1.7
1970	22	24	1.1
1972	16	24	1.5
1973	20	29	1.4
1974	42	44	1.5

\* Same sample area used each year.



Fig. 8. Snowshoe hare adjacent to Larsen Bay Village.

not over 10' above the water to shore one-third mile away.

From May 17 to June 2, a bald eagle nesting census was conducted over the entire refuge with our FWS Piper Supercub on floats. Fourteen and a half hours were spent actually searching for and enumerating nests. A total of 195 active nests (133 in trees and 62 on the ground) was located. In addition, another 144 inactive nests (126 in trees and 18 on the ground) were tallied.

Crows, Ravens, and Magpies. No unusual observations were made of these 3 common species nor were any marked changes in the populations known to have occurred.

### Marine Mammals

Marine mammals in Alaska for which the Fish and Wildlife Service is responsible include: the polar bear, sea otter, and walrus. Of these 3 species only the sea otter occurs occasionally in the bays adjacent to the refuge (Fig. 9). Reports by local fishermen knowledgeable of the local waters indicate that the sea otter is more prevalent in the southern half of the island group than 2-3 years ago.

Although relatively few seals (42) were noted in the February boat trip, sea lions were more in evidence: 60 at Cape Ugat, 422 at Cape Ikolik, and 800 on the east side of Two Headed Island, for a total of 1,282.

A sea lion in Kupreanof Strait was seen rearing out of the water and shaking a 30 pound halibut vigorously. When the piece in which he had his teeth sunk tore off, the halibut would be flung several feet to one side and the sea lion would eat whatever he hung on to. Soon the halibut would be retrieved and the performance repeated. This occurred 3-4 times while the animal was being observed.

### Fish

Sport Fish. King salmon and steelhead fishing on Karluk River attracts people from France, Germany, and Sweden as well as from the lower 49 and Alaska. The Ayakulik River, 20 miles southwest of Karluk Lake outlet, probably offers almost as good fishing. An occasional party rafts downstream from Red Lake on the Ayakulik; however, logistics and lack of cabins deter





Fig. 9. Sea otter, Viekada Bay.

use by all but a few.

Three dyed-in-the-wool fly fishermen caught 265 steelhead during 7 days in November on the Karluk River. These sportsmen felt that steelhead were for catching and not eating; all fish but one were released.

Karluk River Dolly Varden fishing is outstanding. Salmon and steelhead enthusiasts often think of Dollies as a nuisance fish because they strike before the larger species. Sixteen to 20" Dolly Varden are not unusual.

Commercial Fish. Table 9 shows the commercial catch for the Kodiak District for the last 15 years. Pink salmon are an even year fish and because of their numbers, make the pay day for most fishermen. Red salmon bring a high price; cash buyers were paying as much as 92¢ per pound for them in the round this year.

Beside the multi-million dollar salmon fishery, the Kodiak District landed 23,031,373 pounds of King Crab worth \$10,260,342; 25,479,717 pounds of tanner crab worth \$5,095,927; 750,057 pounds of Dungeness crab worth \$354,718; and 48,771,375 pounds of shrimp worth \$4,339,424. Another important fishery at Kodiak is halibut. This year there were 468 landings, totalling 3,565,546 pounds. Prices varied according to size but large fish went for over \$1.00 per pound. Other shellfish that have a commercial value are scallops and razor clams.

From the foregoing it may be appreciated that the fishing industry plays an important role in Kodiak's economy. The refuge assists in supporting this industry by providing spawning, rearing, and nursery habitat for all the commercially important shellfish and finfish.



Table 9. Commercial salmon catch in the Kodiak District from 1960 through 1974 as compiled by the Alaska Department of Fish and Game

<u>Year</u>	<u>King</u>	<u>Red</u>	<u>Silver</u>	<u>Pink</u>	<u>Chum</u>	<u>Total</u>
1960	1,191	362,194	54,213	6,684,798	1,133,412	8,235,808
1961	864	407,979	28,579	3,926,023	518,935	4,882,380
1962	1,095	784,664	53,831	14,115,832	794,717	15,750,139
1963	286	407,040	57,011	5,480,158	305,061	6,249,556
1964	1,302	477,938	35,567	11,861,785	932,219	13,308,811
1965	705	283,403	11,433	2,832,723	412,319	3,540,583
1966	566	608,137	64,127	10,591,649	753,815	12,018,294
1967	1,735	308,404	10,354	187,343	226,217	734,071
1968	1,936	760,348	56,013	8,760,533	749,854	10,328,684
1969	2,241	603,798	35,126	12,492,576	536,808	13,670,549
1970	1,086	915,115	65,326	12,017,740	916,141	13,916,408
1971	926	484,965	20,753	4,369,635	1,546,985	6,423,264
1972	1,286	221,439	13,932	2,476,982	1,154,668	3,868,307
1973	1,543	524,711	15,226	500,392	175,478	1,217,350
1974	545	416,512	13,631	2,644,227	248,158	3,323,073

### III. REFUGE DEVELOPMENT AND MAINTENANCE

#### Physical Development

None

#### Maintenance

Minor maintenance and roof repairs were made on the field headquarters at Karluk Lake. The new Pan-Abode warehouse was stained the traditional FWS brown and trimmed in green by refuge personnel. Contract bids were let for a complete renovation of the residence but unfortunately, all received were in excess of the funds allotted so the project was cancelled. In lieu of remodeling, new tile was placed in front of the entry way, the back door was replaced, and a new bathroom sink was installed. The FWS residence is now slated for replacement in FY 76 or FY 77.

The Office of Aircraft Services' (OAS) Supercub assigned to this refuge was ferried to Anchorage at the end of the field season. OAS stored the aircraft over winter and performed inspections and minor maintenance as needed before returning the plane to Kodiak in early May. In June, the aircraft was again flown to Anchorage, this time, for the installation of a single side band radio.

#### Collections and Receipts

Six bald eagles (2 adults and 4 subadults) which had been found dead at various times in the general area of municipal Kodiak, were forwarded to the Patuxent Wildlife Research Center. The research center performs necropsies and pesticide analyses on these specimens.

Fifteen sea and shore birds which had succumbed to a variety of natural and man related causes were donated to the ornithology museum at California State University - Long Beach.

In December 1970, a female brown bear and her yearling cub were destroyed in defense of life and property. This year the hides and skulls were donated to the Natural History Museum of Los Angeles County, California.

#### Fires

No fires were reported on the refuge during this period.

#### IV. RESOURCE MANAGEMENT

##### Grazing Leases

The Bureau of Land Management administered the only grazing lease on refuge lands until its expiration in January 1975. The raising of livestock in brown bear habitat has not proved to be a profitable venture; therefore, by mutual agreement, the lease was not renewed.

##### Special Use Permits

Cabin Permits. In the past, Special Use Permits have been issued for cabins at gill net sites along much of the nearly 800 miles of coast encompassing the Kodiak NWR. Numerous small, inadequately marked patented tracts house additional gill net cabins, canneries, a few hunting cabins, and several residences. Some of the cabins, once thought to be on patented land, are in fact trespassing on the refuge. To further complicate matters, much of the coast is now passing into private ownership pursuant to the 1971 Alaska Native Claims Settlement Act; however, these lands still remain subject to the rules and regulations of the refuge.

Presently there are 52 cabins under Special Use Permits generating \$1,470 annually in revenue. Forty-eight of these cabins are gill net sites along the coast; the remaining 4 are hunting cabins in the interior and will be phased out in 1977. The refuge staff is facing the formidable task of developing a new enforceable policy governing Special Use Permits. The perplexing situation will be investigated in depth during the 1976 field season and an updated approach will be formulated soon after.

Other Permits. In FY 75, Special Use Permits were issued to BP Alaska Exploration, Inc., Mobil Oil Corporation, Shell, and Sun Oil companies for surface geological field studies and surface mapping. Navigation Services, Inc., a company providing precision navigational facilities to the oil companies involved in off-shore exploration, received a permit to maintain a fuel cache at Kaguyak Bay. Bonds in the amount of \$10,000. were posted by each company, but no SUP fees were charged.

Trapping. Seventeen trapping permits were issued for the 1974-75 trapping season; as usual only about half of the trappers expended any effort. The total catch was: 188 fox, 68 land otter, 22 beaver, and 3 raccoon.

## V. FIELD INVESTIGATIONS

### Brown Bear

In the summer of 1974, brown bear research was confined to the alpine habitat requirements investigation. This was the second field season of the study which is programmed for 3 consecutive years. Because of extremely inhospitable weather, the tent used in 1973 to house the field team was deemed inadequate and a 10' by 14' cabin was prefabricated by Berns and Boone, airlifted to the 2,500' camp site between Uganik Lake and the head of the South Arm of Uganik Bay by a U. S. Coast Guard helicopter (H-3), and assembled in 2 days (Fig. 10). The station was manned continuously from June 26 to August 13, the period that bears were on the study area.

Refuge Manager Trainee, Dan Boone, was responsible for the field operation. Biological Aide, Jack Gustafson, was back for the second year; his experience in identifying alpine flora has been much appreciated. Atwell and Berns assisted with the field work as other duties allowed.

A total of 366 hours was spent observing 120 family groups and individual bears in the 22 square mile study area (Table 10). Almost 60 per cent of the observations were in the Carex-forb meadow community which is typified by lush stands of Carex macrochaeta. This species occurs as a minor component in 2 other communities, being sought there by bears as well. Of the plant species fed on by bears this year, C. macrochaeta was utilized 99 per cent of the time.

The data continued to show that most alpine food requirements for the brown bear are satisfied in the Carex-forb meadow community where lush stands of C. macrochaeta exist. This plant is eaten practically to the exclusion of all others. Food was present in sufficient quantities to localize movements because alpine activity areas determined for 20 individually-identified bears were each less than one square mile (Fig. 11).

Table 10. Brown bear alpine habitat study

	<u>1973</u>	<u>1974</u>
Observations*	84	120
Activity Sequences	448	884
Individually Identified Bears**	46	47
Unidentified Bears	38	73
Total Time Observing Bears	164 hours	366 hours

\* One observation of a single bear or family group will usually consist of several activity sequences, i.e.- feeding, drinking, resting.

\*\* Does not include cubs or yearlings.



Fig. 10. Coast Guard helicopter ferrying supplies to alpine research camp.

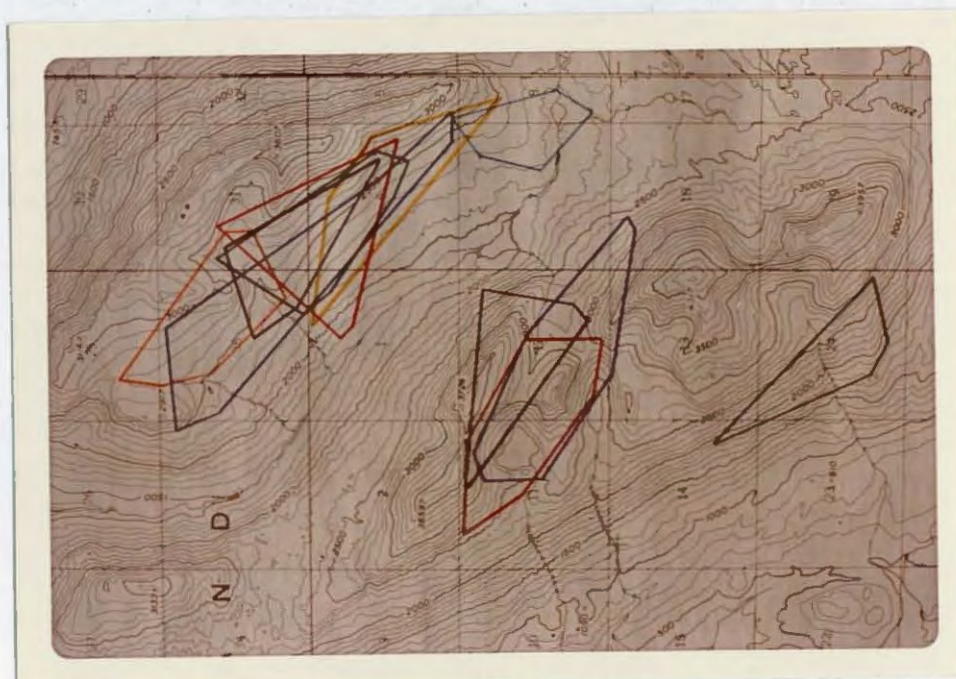


Fig. 11. Alpine activity areas of individually identified brown bears. Intersecting lines denote sections.



## VI. PUBLIC RELATIONS

### Recreational Use

Bear hunting and sport fishing are the primary recreational pursuits on the refuge. These are followed by photography, rafting, wildlife observation, and beach combing.

During July and August, freelance photographer David deVries, assisted by Miguel Lazaro, both under contract to Time/Life, filmed a documentary on the refuge for nationwide television (Fig. 12). The film stressed relationships between brown bears, bald eagles, and red salmon. A copy of the 25 minute film was donated to the refuge and is proving to be very popular locally.

Berns and Boone assisted a group of 9 foreign journalists who photographed brown bears and bald eagles July 26 and 27. The tour was sponsored by the U. S. Department of Commerce with participants from Canada, Great Britain, Japan, France, and Germany.

Sport fishermen had the public use cabins at Karluk Lake and Portage booked solid several months in advance this year. The interest is generated by the Karluk River king and red salmon runs in July and August; the silver salmon run in September; and the steelhead run in October (Fig. 13). Not only Alaskans, but as noted previously, people from France, Sweden, and Germany are commencing to make this fishing trip an annual pilgrimage.

### Refuge Visitors

The refuge was host to numerous visitors from Washington, D. C., who were involved with the Alaska Native Claims Settlement Act.





Fig. 12. David deVries, on contract to Time-Life, Inc., in blind photographing bald eagles.



Fig. 13. Twenty mile long Karluk River. Brush is largely willow.

## VII. OTHER ITEMS

Alaska Native Claims Settlement Act Hearings

The Alaska Native Claims Settlement Act manifested itself locally this spring and summer. Three sets of hearings, each conducted by a different Administrative Law Judge, were held at Kodiak. The FWS had protested certification of the 6 proposed unlisted "villages" because it was felt that criteria, as set forth in the Act, were not met. The Service was very ably represented by Mr. John McMunn, an Interior Department lawyer from San Francisco. McMunn faced 3 or 4 opposing lawyers at each hearing with aplomb and skill as is obvious from the decisions (Table 11). For some undetermined reason, Aiaktalik was dropped as a proposed village to be certified; thus, of the 6 sites remaining that were protested, Kaguyak, which had been destroyed by the 1964 tidal wave, was the only one for which the FWS did not receive a favorable decision. KONIAG, Inc., the local Native Regional Corporation, now has the option to appeal the decisions of the remaining 5 villages. The FWS cannot appeal the Kaguyak decision.

Current certified villages will withdraw 15 townships (345,600 acres) from the refuge. If KONIAG, Inc., should be successful in overturning the original decisions on the 5 unlisted villages, approximately another 10 townships (230,400 acres) could be lost from the refuge. It is obvious, that with a reduction of 25 townships comprising most of the refuge's coast and prime wildlife habitat, the Service's mission on Kodiak would be seriously impaired, if not crippled.

Miscellaneous

The U. S. Coast Guard Air Station has been very cooperative in furnishing helicopter transportation to shuttle personnel and materials to the Uganik Alpine Study Area. Several of the pilots are wildlife oriented and they take special interest in flying such missions. Without their logistical assistance the project would be greatly handicapped because the nearest lake large enough on which to land a small aircraft is 5 miles from camp.

Berns presented a talk on the Kodiak NWR and brown bear research to the Coast Guard Officers' Wives' Club. Eighty people were in attendance.

Table 11. ANCSA hearing on unlisted villages alleged to exist on Kodiak Island

<u>Village</u>	<u>Kodiak Hearing Date</u>	<u>1971 Native Occupancy</u>	<u>Decision</u>
Uyak	May 16, 1974	None full time, 1-2 families use area during summer salmon season	Not Qualified
Kaguyak	May 17, 1974	Not occupied since 1964 tidal wave	Qualified
Uganik	July 25 & 26, 1974	2-3 individuals full time plus 2 families during summer salmon season	Not Qualified
Ayakulik	July 27, 1974	2-3 individuals in early 1940's, none since	Not Qualified
Bells Flats	July 31 & August 1, 1974	Possibly one family	Not Qualified
Anton Larsen Bay	August 2, 1974	2-3 families use area during summer salmon season	Not Qualified

Atwell gave a 2-hour talk entitled, "Safety and Survival Techniques Associated with Outdoor Recreation on Kodiak", to 50 Coast Guard personnel.

Phyllis Fredericksen and Vern Berns were honored at an office ceremony on December 10. Phyllis received a Special Achievement Award consisting of a plaque and a \$75.00 check. Berns was presented with a 20-year pin.

The refuge staff assisted in the search for the Office of Aircraft Services' amphibious Mallard that disappeared September 30, somewhere in the Kodiak area with the pilot and 3 FWS biologists. No trace of the aircraft was found.

On January 16 Refuge Manager Atwell presented a talk entitled "How Native Villages Benefit from the Kodiak NWR", to a class of 25 Native students enrolled in the Village Leadership Course at the Kodiak High School.

Phyllis Fredericksen was notified on February 12 by Director Greenwalt that she had been selected as Interior's Woman of the Month. She traveled to Washington, D. C., in June and received formal recognition of the award.

The refuge staff, aboard the M/V ALEUTIAN TERN, circumnavigated Kodiak Island in 17 days during February, conducting waterfowl counts and presenting programs at 5 of the village schools. Nineteen adults and 190 school children attended the presentations. Evening showings of 2 films attracted 123 villagers. The films were followed by informal discussions regarding the refuge and its wildlife.

During March, Atwell gave a wildlife lecture to 30 children at East Elementary School and presented a 12-hour photography course to a Girl Scout troop. Berns and Boone each presented a wildlife slide lecture to 2 biology classes at the high school.

In April, Berns and Boone presented an evening slide lecture on bear hunting and trophy care at the Coast Guard Base with over 100 people attending. Also in April, Atwell presented a paper titled "Brown Bear Summer Alpine Habitat Requirements on the Kodiak NWR", at the Wildlife Society's Northwest Section Meeting in Anchorage.

Boone participated in the Elk's Career Day by acquainting a high school student with various refuge activities. This was followed by a field trip in which identification of marine bird life was stressed.

Matt Dick, attached with the FWS OBS section at Anchorage, arrived June 11 to census seabird colonies around Kodiak Island.

Peter Smith, Alaska Native, was hired as the refuge's summer biological technician and began work the first week of June. His major duty will be participation in the Brown Bear Alpine Habitat Requirement Study.

Credits

This year's Narrative Report represents a cooperative effort of the entire staff, both in writing and assembling.

Submitted by:

Date

4/8/76

Gerry Atwell

Gerry Atwell  
Refuge Manager

Approved by:

David L. Spencer

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