

U. S. Fish and Wildlife Service
Anchorage, Alaska



KODIAK NATIONAL WILDLIFE REFUGE
Kodiak, Alaska

ANNUAL NARRATIVE REPORT Calendar Year 1977

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

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US FISH & WILDLIFE SERVICE--ALASKA

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NATIONAL WILDLIFE REFUGE SYSTEM
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I. GENERAL

A. Introduction

The Kodiak National Wildlife Refuge was established in 1941 to preserve the natural habitat of the Kodiak brown bear, and other wildlife. The Refuge encompasses 1,815,000 acres comprising the southwestern two-thirds of Kodiak Island. Located in the Gulf of Alaska, Kodiak Island is the largest island in the Kodiak Archipelago. The Shelikof Straits separate Kodiak Island from the Alaska mainland with a 30-mile wide strip of ocean considered by many to be some of the most treacherous water in North America. There is approximately 800 miles of coastline on Kodiak Island, with many streams and rivers flowing into the ocean along its irregular shape.

B. Climate

The following table includes the important weather data for Kodiak during calendar year 1977:

Month	Snowfall (Inches)	Precipitation			Temperature				Wind	
		1977	Normal	Deviation from Normal	Max	Min	Avg	Dev.	Avg mph	Max Gusts (Knots)
Jan	Trace	15.77	5.01	+10.76	44	23	37.0	+6.6	13.9	44
Feb	12.2	12.43	4.89	+ 7.54	43	20	36.1	+4.7	13.5	42
March	8.7	1.36	3.85	- 2.49	46	6	31.5	-0.6	11.4	66
April	1.4	4.04	3.81	+ 0.23	51	7	34.8	-2.1	11.8	38
May	0.2	5.11	4.35	+0.76	62	28	41.9	-1.3	10.7	28
June	0.0	4.10	4.12	-0.02	70	36	49.1	-0.6	8.6	31
July	0.0	6.01	3.54	+2.47	77	38	54.4	+0.3	10.4	30
Aug	0.0	11.34	4.30	+7.04	72	41	53.1	-1.8	8.4	31
Sept	0.4	1.20	6.11	-4.91	66	31	49.9	-0.1	9.4	51
Oct	Trace	14.53	6.28	+8.24	54	23	39.4	-1.3	12.4	48
Nov	12.0	3.91	5.41	-1.50	41	9	30.6	-4.2	13.6	38
Dec	14.1	1.21	5.03	-3.82	39	7	27.2	-2.7	13.1	52
TOTALS	49.0	81.01	56.70				40.4		11.4	41.6

The beginning of the year was characterized by extremely wet weather, as more than three times the normal amount of precipitation fell in January and February. Green shoots and insects that became active were again dormant as spring temperatures and precipitation returned to near normal or below.

The summer was alternately wet and dry in approximately two week intervals. Early fall precipitation was below normal, but a very wet October made up for both the early fall drought-like conditions and the lower than normal November and December precipitation.

Temperatures closely followed the precipitation fluctuations, with warmer than normal readings during the wet winter weather and near normal readings during the dry summer periods. Slightly cooler than normal temperatures were experienced at years' end, with both cloudiness and precipitation less than normal. However 1977 annual average temperature of 40.4° F is only one-tenth degree Fahrenheit, lower than the normal annual temperature of 40.5° F.

For the first time in the 1970's Karluk Lake remained ice-free. The Lilly Lake float-plane base in Kodiak became ice-free on March 20 after only a few weeks of being frozen.

C. Land Acquisition

John Trapp and Gerry Atwell attended the Bicentennial Land Heritage funding meeting in Anchorage May 9-12.

Plat maps of all patented lands on or adjacent to the Refuge were obtained from the BLM office in Anchorage for Refuge records.

Pank Defendorff, Area Office Realty Officer, visited the Refuge office November 14 and 15 to discuss land acquisition problems with the Refuge staff.

II. CONSTRUCTION AND MAINTENANCE

A. Construction

A float plane ramp at Lilly Lake was rebuilt to provide safer plane mooring and to facilitate safer footing when loading and unloading the plane. New ground anchors and chain tie-downs were also installed. A gravity feed, filtered fuel dispensing system for aviation fuel was built at the Camp Island Field Headquarters.

Site preparation and the foundation for the new Refuge quarters was completed in December. Also completed were the sewer and water installations. Other work will wait until the arrival of building supplies on a barge in mid-January.

B. Maintenance

Rearden and Atwell finished clearing up sites adjacent to the FWS Camp Island Field Headquarters where the old BCF cabins and Alf Madsen guiding cabin had been located.

Considerable clean-up at the Portage, on the Karluk River, was accomplished, including disposal of several years accumulation of trash, and the flying out of approximately a dozen 55-gallon drums, with the aid of a U.S. Coast Guard helicopter.

An outhouse was prefabricated, flown out to the Portage public-use cabin on the Karluk River, and erected. It replaced the structure that had been used for firewood by a group of steelhead fishermen stranded during a severe October cold snap that froze the Karluk River.

Quarters No. 1 had rehabilitation work done consisting of insulating, dry-walling, and interior painting.

Biological Aide, Roger Wassillie, spent several days at the Uganik Island and Portage public-use cabins painting, installing air vents, and picking up trash.

C. Wildfire

Careless spring bear hunters started a grass fire near Spiridon Bay, on the Refuge. No permanent damage was reported. The exact acreage of the burn was unknown.

III. HABITAT MANAGEMENT

The Kodiak National Wildlife Refuge does not have an intensive habitat management plan. Instead the Refuge is maintained in as near as possible to wilderness condition for the protection and benefit of the brown bear and other resident wildlife.

- A. Croplands - not applicable.
- B. Grasslands - not applicable.
- C. Wetlands - nothing significant to report
- D. Forestlands - not applicable.
- E. Other Habitat

John Trapp prepared an environmental assessment on the "Proposed Additions to Frazer Lake fishladder" which was forwarded to the Anchorage Area Office for review.

Originating in 1974, the Akalura Lake Project Environmental Impact Statement was received back from the Washington Office in November after it had been commented on. The EIS is currently being revised by the F.R.E.D. Division of the Alaska Department of Fish and Game.

- F. Wilderness and Special Areas - nothing significant to report.
- G. Easements for Waterfowl Management - not applicable.

IV. WILDLIFE

A. Endangered and Threatened Species

The tundra peregrine falcon has been found occasionally on the Kodiak Refuge in low numbers during migration periods. A few individuals may winter on the Refuge during mild winters as was experienced in 1977. No other endangered species are known to occur here.

B. Migratory Birds

1) Waterfowl

During the second week of March an OAS Cessna 185 on wheel-floats was chartered to conduct waterfowl and seabird surveys on the Kodiak coastal waters adjacent to the Refuge.

A total of 26,036 individuals of 29 nominal species was recorded during 7.93 hours of survey time, which covered more than 90 per cent of the Kodiak coastline. The estimated mean population density approached 100 birds/Km², which is almost certainly a conservative estimate. The wintering bird population is composed primarily of sea-ducks (51%), dabbling ducks (17%), diving ducks (12%), gulls (8%), and alcids (6%); the remaining 6% was composed of loons, cormorants, mergansers, and shore birds.

a) Swans and Geese

Mid-April brought the return of many migratory waterfowl to Kalsin, Middle, and Woman's Bays. Black brant arrived April 12th and peaked at over 300 birds in the three bays. John Trapp traveled to Sitkinak Island for 5 days during the first week in May to observe the spring shorebird and waterfowl migration. Although lower than expected, numbers of migrants were observed, up to 3,000 black brant were present during the time Trapp was there.

b) Dabbling Ducks

Pintail numbers peaked near the end of April on Chiniak Bay, with over 2,000 birds counted. Above or near average numbers of mallards and gadwalls were noted along the road system.

A canvas-back duck was sighted at Narrow Cape, in Ugak Bay, during early January. This is only the third reported observation of canvas-back on Kodiak Island.

c) Diving Ducks

The most abundant of the migratory waterfowl in Kodiak waters, without a doubt, are the diving and sea ducks. Large numbers are seen each year wintering in the bays and estuaries of the island. Though

many of the divers are just passing through on their way to other breeding grounds numbers do stay and breed in the Kodiak area. These include: goldeneye, befflehead, scoters, eiders, and scaup.

Two ring-neck ducks were spotted during the spring migration on Woman's Bay, and three more at the same location during the fall migration.

A spot-billed duck was collected at Kalsin Bay by John Trapp and Rich MacIntosh (NMFS) on November 1. This is the first specimen of this southeast Asian duck from North America.

d) Mergansers

A male hooded merganser was observed near Red Lake by local resident Nelle Terpenning about the middle of January. A female hooded merganser was observed in Woman's Bay on November 5. There had been only one reported sighting of this species prior to this year - a male seen on Afognak Island in 1957.

2) Shorebirds, Gulls, Terns, and Allied Species

A variety of shorebirds migrate through the Kodiak area with a few species also breeding in the vicinity. The first greater yellowlegs appeared on the 22nd of April, with the peak spring migration of shorebirds occurring during May.

The fall shorebird migration peaked during the end of August, with a number of unusual species noted. Six of these were recorded for the first time ever on Kodiak and are as follows: bristle-thighed curlew, solitary sandpiper, semi-palmated sandpiper, red knot, stilt sandpiper, and buff-breasted sandpiper.

Spotted sandpipers were observed regularly at Olga Bay and Karluk Lake, suggesting that they are regular fall migrants at least in the southwestern portion of the Refuge. Previously they were thought to be only rare migrants.

3) Raptors

The annual bald eagle nest survey was flown on May 27 over the shorelines of Spiridon, Zachar, and Uyak Bays, and the Karluk Lake drainage. A total of 133 nests, 54 of which were active, were found on the spring flight. A total of thirty-one adult eagles and 4 sub-adults was also observed at this time.

On August 9 the second portion of the survey was flown, locating 43 of the 54 active nests found in May. Thirty-three (76.7 percent) of the 43 nests were successful containing at least one fledgling per nest. A total of 53 young were tallied in the 33 successful nests, for a productivity of 1.61 young per successful nests and 1.23 young per nesting attempt. The 76.7 percent nesting success is 18 percent above the 13-year average of 65.0 percent, while the average number of young

per nesting attempt is 22 percent above the 11-year average of 1.01.

A total of seven bald eagle mortalities was recorded in 1977. Two of this number had been shot, one was electrocuted, and the cause of death of the other 4 eagles is unknown. An injured immature bald eagle found on a ranch off-Refuge was nursed back to health by Kim Hallet-Jones and was released back into the wild. Kim has had previous experience rehabilitating injured raptors and should be congratulated on her success in this case.

4) Other Migratory Birds

An immature Harris sparrow appeared at the Kodiak feeder on November 24 and remained through the end of the month. There was a large number of varied thrushes throughout the Kodiak area this fall in contrast to the previous year when almost none were present.

C. Mammals, Non-Migratory Birds and Others

1) Game Mammals

a) Brown Bear

Population Surveys - Aerial brown bear surveys were conducted on the Uganik and Uyak alpine areas on July 11 and 15, using a chartered Bellanca Scout. A total of 132 bears was tallied during the 6.45 hours of survey time, for an average of 20.5 bears/hour. This compares favorably with the 4-year (1973-1976) average of 16.5 bears/hour. Thirty-seven percent of all bears observed were young (cubs or yearlings). Of the 83 mature (2+ years of age) bears observed 28 percent were reproductive females with cubs or yearlings. The average litter size was 2.13 (cubs and yearlings combined).

Aerial brown bear stream surveys were conducted on August 12-15. Inclement weather during the latter half of July, combined with other commitments, delayed completion of the survey until mid-August. A total of 87 bears was tallied for an average 34.8 bears per hour. This is 32 percent below the average of 52 bears per hour for the preceding 5 years. This undoubtedly reflects the lateness of the survey in relation to the salmon run rather than an actual population decrease.

Mortality - a total of 68 brown bear was harvested by hunters on Kodiak NWR during the spring bear hunt. The season lasted from March 1 through May 1. This compares with an average spring harvest of 56 bears during the 9-year period (1968-1976). A breakdown of the harvest by sex of bear and residency status of hunters is given below in Table 2.

Table II. RESIDENCE STATUS OF HUNTERS

<u>Sex of Bear</u>	<u>Resident</u>	<u>Non-Resident</u>	<u>Total</u>
Male	16	33	49
Female	8	11	19
	<hr/> 24	<hr/> 44	<hr/> 68

A total of 29 brown bear was killed by hunters on the Kodiak National Wildlife Refuge during the fall season which was open from October 25 to December 31.

Table No. 3 gives the sex ratio of the bears killed during the fall hunt, along with the residency status of the successful hunters.

Table III. Residence Status of Hunter

<u>Sex of Bear</u>	<u>Resident</u>	<u>Non-Resident</u>	<u>Total</u>
Male	5	12	17
Female	8	4	12
	<hr/> 13	<hr/> 16	<hr/> 29

The total fall harvest of 29 includes a sow and 2 cubs killed in defense of life and property by the caretaker of the New England Fish Company Cannery, in Uganik Bay.

Table 4 gives average ages and skull sizes for the entire (spring and fall) 1977 brown bear harvest.

Table IV. Average Ages and Skull Sizes of Brown Bear

Harvested on KNWR - Calendar Year 1977

Males

	<u>Age in Years</u> *	<u>Skull Size</u> **
Spring	6.8(48)	23.40(46)
Fall	4.1(16)	22.29(16)

FEMALES

	<u>Age in Years</u> *	<u>Skull Size</u> **
Spring	6.1(16)	20.82(18)
Fall	7.9(10)	21.89(9)
Total	<u>7.0(26)</u>	<u>21.36(27)</u>

* Determined by cementum annulations from premolars

** Length plus width in inches

(Numbers in parentheses indicate sample size)

Variation in sample size is due to either illegible tooth sections or broken or lost skulls.

During the spring hunt a resident hunter from Anchorage was charged by a bear at the Karluk Lake outlet. The men had previously wounded the bear and was attacked as he and his hunting companion followed the wounded bear into the dense undergrowth. In the ensuing confusion the man received bite wounds to his upper thigh from the bear, and a serious bullet wound to the foot from his hunting companion, who emptied his gun into the bear which then ran off to die. The wounds the hunter received from the bear were serious though not as critical as the gunshot wound from his friend. Several months of hospitalization were required by the man to recover from his ordeal.

One hundred plus brown bear skulls collected on Kodiak Island in the early 1960's were shipped to the University of Alaska Museum. They will become part of the Museum's reference collection.

- b) Reindeer - Two small herds of reindeer totaling about 75 animals were seen in the Red River Flats. They were reported by Dick Hensel (Assistant Refuge Supervisor) on a flight over the Refuge on October 31.

State (ADF&G) Game Technician, Ben Ballenger, spent 3.5 hours of flight time observing reindeer on the southwestern portion of the Refuge on March 18. He made two sightings of 30 and 12 reindeer, respectively, in Ayakulik River drainage below Red Lake. Spotty snow conditions prevailed during the survey, so undoubtedly some animals were missed.

Nelle Terpening, a local trapper, reported seeing two groups of 70 and 40 reindeer during February in the same area Ballenger had observed them.

The island's reindeer population is estimated to be no more than 250 animals, and declining.

At the request of KONIAC, Inc. Congress has begun an inquiry into FWS's management of reindeer introduced to Kodiak Island in 1924 for husbandry by Natives. The refuge staff provided copies of all pertinent information in our files to the Anchorage Area Office to assist them in preparing a statement.

- c) Mountain Goat - A biologist with Alaska Department of Fish and Game conducted goat surveys during September in the Crown and Mt. Glottof mountain areas and located approximately 25 goats on the Refuge. An additional 91 goats were located just off the Refuge boundary in the Mt. Glottof area.

The state of Alaska issued 28 permits to hunt mountain goat on Kodiak Island during 1977. Of that number 24 permittees actually hunted and 15 were successful, taking 6 males and 9 female goats. Eight of the fifteen were taken on the Refuge.

- d) Sitka Blacktail Deer - The island's deer population is on the rise largely due to the previous year's mild winter. Winter starvation is the herd's largest mortality factor on Kodiak Island, so that mild winters will increase population levels dramatically. Many hunters reported filling their 4 deer quota, along with seeing many other deer, particularly on Uganik Island. Areas toward the southern end of Kodiak are now reporting frequent sightings of deer. Continued mild winters will strengthen the foothold these small herds have gained in these regions.

- e) Beaver - This year it was discovered that beaver had become established near Portage on the Karluk River. Several sightings of beaver on the river, along with an active beaver house south of Portage, gives evidence that beaver have been in the area for two or three years.

While trapping at Red and Frazer Lakes, Nelle Terpening took three two-year old beaver from one pond. Each animal had what appeared to be talon wounds on its back. Because of the mild winter weather the pond was open in January and February, and a golden eagle had frequently been seen perched nearby.

- 2) Resident Birds - Nothing significant to report.

- 3) Other Wildlife

- a) Andromous Fish

1977 salmon runs for the Kodiak National Wildlife Refuge were extracted from the ADF&G's Division of Commercial Fisheries' Annual Management report for the Kodiak Management area.

Table 5 shows peak salmon escapements by species for Kodiak NWR streams. The counting techniques used vary from stream to stream. Weir counts are used on Akalura, Upper Station, Dog Salmon (Frazer), Red (Ayakulik), and Karluk River systems. All

other stream systems are counted from aircraft.

Table V. Peak Salmon Escapement Counts - Kodiak NWR - 1977

	<u>Pink(Humpback)</u>	<u>Chum(Dog)</u>	<u>Red(Sockeye)</u>	<u>Coho(Silver)</u>	<u>King(Chinook)</u>
Total escapement	1,104,585	234,048	1,138,091	28,299	13,804

Total of all species - 2,518,827

Total escapement figures for the entire season are obtained from weir counts. Aerial counts, however, tend to be somewhat lower than the actual numbers present because they are conducted only during the time of peak runs.

The silver salmon counts are not considered peak numbers. The peak of the coho run (Oct.-Nov.) is not until after the weirs and aerial counts have been discontinued for the season.

V. INTERPRETATION AND RECREATION

A. Information and Interpretation

1. On-Refuge

The Refuge boundary is located approximately 20 miles from the municipality of Kodiak, with the only means of access being aircraft or water transportation. There is no information or interpretive programs conducted on the Refuge lands. When met informally on the Refuge recreationists are given casual information and interpretive programs on a one-to-one basis.

2. Off-Refuge

The greater part of the off-Refuge information and interpretative activities were directed at the local community and the U.S. Coast Guard Support Center. Talks and slide shows were given to the Coast Guard Officers' Club, Coast Guard Rod and Gun Club, and other community and civic groups throughout the Kodiak area.

The Refuge film "Kodiak: Island of Change" was presented to a Chapman College ecology class at the Coast Guard Base, plus about 60 other interested people at the Kodiak Community College. The Alaska Department of Public Safety Fish and Wildlife Protection Division was loaned the same film to show to a group of 100 gradeschool children.

Numerous news releases were prepared during the year. Subjects included: The annual Christmas bird count, an explanation of newly adapted helicopter usage regulations applying to the Refuge,"Our

"Precious Water", a description of the annual bald eagle surveys, the printing of Special Use regulations, and the procedure in applying for reservations of the public-use cabins on the Kodiak Refuge.

Former Refuge Manager, Gerry Atwell, prepared an article which was published in an Alaska Geographic entitled "Kodiak: Island of Change". Atwell also attended the Fourth International Bear Conference held in Kalispel, Montana on February 14-25, where he presented a paper on "Brown Bear Alpine Habitat Requirements on the Kodiak National Wildlife Refuge".

Many brochures, posters, and teaching aides, etc. were sent out to the village and area schools to promote National Wildlife Week.

B. Recreation

1) Wildlife Oriented

The early part of 1977 brought the usual deluge of bear hunter requests for information and cabin reservations. Many were interested in obtaining bear permits which are now issued by Alaska Department of Fish and Game. Apparently many people are still confused about the change-over in the permit system.

The high deer populations also generated many cabin and general information requests. Hunters were allowed a total of 4 deer, with the season running from August 1 to December 31. The Uganik Island cabin was the most frequent spot requested for this purpose.

The most popular public-use cabin remains the Portage cabin approximately halfway down the Karluk River. The excellent king salmon fishing in June and July has made this cabin so popular a drawing is held for reservations. There is also an excellent steelhead trout run in October and November, though not as many requests are made for this period. A drawing is still needed to give an equal chance to all for the use of the cabin.

A creel census and public-use survey was conducted during both of these peak activity periods by Refuge personnel. More information on the catch and amount of public-use is included in the Field Investigation portion of this report.

Several parties floated the Ayakulik River in June. This river also has a sizable run of king salmon, but has received little public-use in the past. There is limited access to the river's mouth (end of float trip) so that anglers that do make the trip down the river have very little chance of being picked up at the end and usually have to hike back to where they started.

Several people also made requests for recreation cabins specifically for the purpose of photographing wildlife, particularly the Kodiak brown bear.

2) Non-Wildlife Oriented

The summer season brings the tourists to Kodiak with their many inquiries for information on hiking, camping, and fishing opportunities available to them on the Refuge. Many are discouraged because of the remoteness and lack of any type of hiking trails. However those that persist are well rewarded for their efforts by the spectacular scenery and wilderness conditions the Refuge provides. Even the notorious Kodiak weather fails to dampen their enthusiasm, but with the increasing influx of people who desire easy access to recreational lands this could be an experience of the past.

C. Enforcement

1) Special Use Permits (Cabins in commercial use)

Approximately seventy cabins are under permit on the Kodiak Refuge, with the majority of these being salmon gill-netters who live in them only during the fishing season (May 15 - September 15). The remaining cabins are used by commercial guides in the course of their bear-guiding operations.

Whenever the SUP regulations are violated, such as improper trash disposal, unauthorized construction, or failure to update their permit, a citation is issued in the course of routine patrols. A total of 15 citations was issued during 1977 SUP cabin checks. Ten of these cases were successfully prosecuted in U.S. magistrate's court. The outcome of the other five cases is not known at this time.

2) Trapping Permits

A permit is also required to trap on the Refuge during legal trapping season. A total of 12 permits was issued for the 1977-78 trapping season, with the reported catch as follows:

red fox	121
river otter	46
beaver.	15

Two trappers were cited for SUP cabin trespass charges, and these were dropped after further investigations. Three river otter and two fox red pelts that were confiscated were also returned.

3) Other Permits

Three oil companies were issued Special Use Permits to conduct surface geological surveys on the Refuge. A permit was also issued to a group of Evergreen commercial photographers.

VI. OTHER ITEMS

A. Field Investigations

A creel census and public use survey was conducted by Refuge personnel on the Kariuk River at Portage during the king salmon run (June - July) and the steelhead trout run (September - October). The king salmon survey covered the time span of June 6 to July 17, and the steelhead trout portion from September 12 to October 10. The latter was terminated two weeks earlier than planned due to a shortage of personnel and the press of other business.

The 135 king anglers interviewed at Portage spent 383 man-days and 1576.5 man-hours fishing for king salmon. Fishing effort remained relatively constant throughout the season, with the average angler spending 4.12 hours per day fishing. A total of 341 king salmon were caught during the season; fifty-six percent (190) of these fish were released. King salmon comprised 75 percent of all fish caught (458), although generally any other fish taken are incidental to the pursuit of kings.

The king salmon run at Portage attracted visitors from eight Alaska communities, eight states, and two foreign countries. Seventy-nine percent (107) of the visitors were from Alaska, with three communities (Kodiak, Anchorage, Fairbanks) accounting for 70 percent of the total for Alaska. The average length of stay was 3.9 days for the thirty-nine percent (51) of the visitors that made use of the public recreation cabin.

Table 6 gives a comparison of the 1977 data with a similar census-survey conducted in 1972.

TABLE VI. COMPARISON OF PUBLIC USE AND CREEL CENSUS DATA DURING CHINOOK SEASON

	<u>1972 and 1977</u>	
	<u>1972</u>	<u>1977</u>
Total Number of Fishermen	145	135
Percent Alaska Residents.	73	79
Percent Kodiak Residents.	54	41
Percent Military Personnel.	25	12
Percent Visitors Using Cabin.	38	39
Average Length of Stay.	3.9days	3.9days
Average Party Size.	4.2	4.2
Total Hours Spent Fishing	1,256	1,576.5
Total Fish Caught	235	458
Number per hour	0.19	0.29
King Salmon Caught.	170	341
Number per hour	0.14	0.22
Percent Retained.	72	44

The steelhead anglers interviewed at Portage spent 140 man-days and 545.25 man-hours fishing for steelhead trout. The total catch of 62 steelhead gives a success rate of 0.11 steelhead per hour of unit effort.

Residents (27) outnumbered non-residents (11) by more than two to one, with Kodiak people accounting for more than fifty percent of the total visitors. The average party size was 3.8 people, and the average length of stay was again 3.9 days.

A shortage of personnel and the press of other business forced us to terminate the steelhead angler creel census and public use survey two weeks earlier than anticipated.

The main portion of the run was in all likelihood missed, giving the data a downward bias in regard to actual numbers of steelhead present in the river.

Table 7 gives a comparison of the steelhead creel census data collected in 1977 with similar data collected in 1971 and 1972.

TABLE VII. COMPARISON OF CREEL CENSUS DATA FOR (Portage)

STEELHEAD ANGLERS 1971, 1972, and 1977

	<u>1971</u>	<u>1972</u>	<u>1977</u>
Total hours spent fishing	275	213.5	545.25
Total number of fish caught	395	506	959
Number of fish per hour	1.4	2.4	1.8
Total steelhead catch	173	320	62
Number of steelhead per hour.	0.63	1.5	0.11
Percent retained	32	26	32

B. Cooperative Programs

A four-member archeological survey team, headed by Mike Nowak from the Resource Planning branch of the Area Office, arrived in Kodiak on the 17th of June to initiate an archeological reconnaissance of Kodiak National Wildlife Refuge. Areas examined during the 1977 field season included: Uganik Passage, Terror Bay, and Spiridon Bay. Twenty-one different sites were examined and mapped. Test pits were dug on the majority of the sites. Some 80 miles of coastline was surveyed by boat, as the likelihood of large sites away from water is small. The aerial and marine reconnaissance concentrated on coastlines and large drainages (including lakes) for this reason. Nowak and his field crew completed their summer work on the 29th of August.

The Refuge staff supplied as much logistic support as the limited manpower supply would allow.

C. Items of Interest

Gene Sipe, who had tentatively accepted the Assistant Refuge Manager position, had to decline the position as he could not find suitable housing within his income bracket. This is a situation which plagues nearly everyone moving to Kodiak, because of the extremely high real estate prices.

Michael Rearden completed OAS instrument training in Anchorage February 14-18 and received his float rating on May 20. An OAS supercub on floats, H-720, is now stationed at Kodiak.

On June 20 Ed Wickersham, Special Agent with National Marine Fisheries Service, was selected to fill the position left open by the transfer of Vern Berns to the Kenai Moose Range. Ed transferred to Fish and Wildlife Service Law Enforcement Division on the 26th of September and was sent to Washington, D.C. for training before being re-assigned to a new duty station.

Robert Delaney was selected to replace Gerry Atwell as Refuge Manager when Gerry accepted a position at the Concord, New Hampshire Area Office. Bob assumed his duties as Refuge Manager on the 14th of July.

Administrative Clerk, Susan Wickersham, resigned her position on October 8 to be with her husband, Ed. She will join him in Washington, D.C.

Roger Wassillie, a Kuskokwim Community College student, was hired as a Biological Aide (temporary) from June 1 to August 29. He assisted in the Portage creel census and public use survey. Roger also worked with the archeological field crew beside various clean-up and maintenance jobs through the summer.

Washington Office personnel, Dr. Eugene Hester, Ecological Services, Ray Standel, ECE, Dick Robinson, L&W, and Herb Quinn, OBS, accompanied by Area Office (Anchorage) personnel Ray Trembly, Gary Hickman, and Gordy Watson visited the Refuge October 4.

John Trapp attended the law enforcement academy at Glynco, Georgia in March and the International Caribou symposium in Fairbanks November 17 and 18. He also received a promotion to GS-9.

D. Safety

The upgrading of a truly unreliable radio communications system by the addition of a new transceiver and antenna at the Quarters-1 residence, plus a new base station transceiver for the office headquarters, has reduced field crew communication problems. There is still substantial room for improvement, but one must start somewhere.

E. ANCSA

Refuge Manager Atwell and Native Liaison Specialist Rearden met with Village Corporation officers from the native villages of Old Harbor, Akhiok, Karluk, and Larsen Bay during March and May. The main topic of discussion was a cooperative management agreement between the Village Corporations and the Kodiak National Wildlife Refuge in regard to the land being conveyed to the villages by the BLM under terms of 1971 Alaska Native Claims Settlement Act (ANCSA). The proposal was seemingly met with enthusiasm by the village leaders. An agreement is being drawn up for this purpose.

During the week of March 14 Nandy Dauenhauer, Native Liaison Coordinator, and Curt Wilson, Area Office Archeologist, were at Kodiak to attend a Cultural Resource Management workshop held at the Kodiak Community College. Trapp, Rearden, and Atwell also participated in the workshop.

Dauenhauer, Rearden, and Atwell were also in attendance at a presentation by various State and Federal agencies on March 18 relating to the effects of ANCSA in the Kodiak area. Other participants included: Curt McVee (BLM), Mike Smith (State Division of Lands), and Chuck Naughton (Federal State Land Use Planning Commission).

Jan Riffe (Assistant Area Director), Bob Stevens (Public Information Officer), and Dick Hensel (Assistant Refuge Supervisor) spent April 26 at Kodiak attending two meetings arranged by the Kodiak Area Native Association (KANA). Atwell, Trapp, and Rearden also participated. The lightly attended meetings dealt with land selection problems, and fisheries. KONIAG's representatives said the Regional Corporation would not assist the FWS in working out cooperative management agreements with the villages because of FWS's protests of unlisted villages.

Interim conveyance of selected lands was granted to the village of Akhiok during November. This action spurred a group of commercial salmon gill-netters (Kodiak Island Setnetters' Association) to register an appeal with the BLM. The Appellants state that each of them have constructed and used buildings, cabins, and sheds on the land conveyed under the condition of a Special Use Permit. They further allege that these SUP's, together with their use and occupancy of the land, constitute a "valid existing right" which should be recognized under § 14 (g) of ANCSA. Appellants also allege that pursuant to § 14(c)(1) of ANCSA, the Village Corporation of Akhiok is required to convey the lands covered by such permits to the Appellants.

BLM argues that the Special Use Permits of the Appellants are seasonal (May 15 - September 15) and have expired, that appellants do not have any property interest in such land covered by the permits, and that Appellants thus do not have a valid existing right pursuant to 14(g) of ANCSA. Regarding appellants' claims that they have a right to conveyance of the land underlying their permit pursuant to § 14(c)(1) of ANCSA, the Bureau of Land Management argues that this is not the right time for a judicial decision since the patent to the land has not been issued to the Village Corporation. Complete SUP data was supplied to the Department of Interior Solicitor, the Setnetters' Association, and KONIAG Corporation so that Special Use Permit issuance on the conveyed lands could be studied further.

Mike Rearden accompanied the Native tour group from the Yukon-Kuskokwim Delta on a tour of westcoast wildlife refuges during the week of November 13-21.