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JUNEAU, ALASKA

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ANNUAL REPORT OF SURVEY-INVENTORY ACTIVITIES

PART III. DEER, ELK, MARINE MAMMALS, MOUNTAIN GOATS AND SHEEP

Edited and Compiled by
Robert A. Hinman, Deputy Director

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Statewide Harvests and Population Status

Sitka Black-tailed Deer

Southeast Alaska experienced a more "normal" winter than those of recent years with heavy snows in January and February. Snow melted in March before extensive loss to the population occurred. The total harvest was difficult to estimate precisely because of difficulties with the harvest ticket system and public compliance with reporting requirements, and because reminder letters were not sent to nonrespondents due to budgetary problems. Populations were stable and high in Unit 4 and light to moderate in other portions of Southeastern. In Unit 8, hunters took an estimated 2,500 deer, the highest harvest on record. The deer population on Kodiak is high and still increasing.

Elk

During the 1978-79 season, 45 elk were taken, the highest number since 1970. Both Raspberry Island and Afognak Island herds are increasing. Both hunter numbers and success increased over last year and the kill rate was considered moderate.

Seals

The 1978-79 harvest of seals was 4,159, less than 1/3 the estimated take a decade ago. The reduction in harvest reflects the effects of the Marine Mammal Act of 1972 as well as the shift of many in western Alaska from a subsistence economy to more of a cash economy. The harvest was composed of 30 per cent ringed seals, 26 per cent bearded seals, 43 per cent spotted seals, and 1 per cent ribbon seals.

Walrus

The 1978-79 walrus harvest was 2,678 with 80 per cent of the harvest being taken in April and June. The walrus population was estimated at 200,000-240,000 animals. At the end of this fiscal year, walrus management was returned to the Federal Government due to the inability of the State to manage effectively under provisions of Federal oversight.

Belukha Whale

The recorded harvest in 1978-79 was 101 belukhas compared to 115 last year. Population data are meager but the population is probably stable.

Mountain Goat

The 1978-79 harvest was 333 goats, 49 animals less than the previous year. Goat populations are stable or increasing in all units reporting, probably as a reflection of recent favorable winters and more conservative hunting regulations.

Sheep

Statewide harvest of sheep in 1978-79 was 1,247 rams and 29 ewes. This compares with 1,090 sheep harvested in Alaska the previous year, and is very close to the long-term average statewide harvest. The largest harvests came from the Wrangell Mountains (388), the Brooks Range (266), the Chugach Mountain Range (141) and the Alaska Range west (140). Sheep populations in most units are in satisfactory condition and populations appear stable. The Delta Management Area continued to show signs of heavy harvest of legal rams. It should be noted that this is the last year 3/4 curl is the minimum legal size for ram horns.

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DEER

SURVEY-INVENTORY PROGRESS REPORT - 1978-79

Game Management Units 1A and 2 - Ketchikan and Prince of Wales Island

Seasons and Bag Limits

Aug. 1-Nov. 30 Three antlered deer

Harvest and Hunting Pressure

Harvest and hunting data for the 1978 season were obtained from a hand tabulation of the harvest ticket report cards. The reminder letters sent to non-responding harvest ticket holders in past years were not sent in 1978, so data for this year are not comparable with past years' harvest information.

For the past several years, approximately one-third of the deer harvest tickets issued were returned before reminder letters were sent, so that multiplying the following harvest figure by three should give an approximation of the total harvest for Units 1A and 2. Also, when comparing this year's data with previous years', the change in the season to bucks only would substantially lower this year's total kill.

In Unit 1A, 115 bucks were reported taken during the 1978 season by 210 deer hunters. In Unit 2, 85 deer were taken by 101 hunters. The 210 hunters in Unit 1A averaged 3.6 days of deer hunting and 0.55 deer per hunter while in Unit 2, the average hunter spent 4.0 days in the field for 0.84 deer per hunter.

Chronology of the harvest in Unit 1A again shows November as the most popular month to hunt deer. Fifty-three percent of the harvest occurred in November, 21 percent in October, 5 percent in September and 22 percent in August.

In Unit 2, the harvest was somewhat more evenly spread throughout the season. Twenty-four percent occurred in August, 12 percent in September, 24 percent in October and 41 percent in November.

Gravina Island was, again, the best deer producing area in Unit 1A, as 46 percent of the harvest occurred there.

Composition and Productivity

No data were collected.

Management Summary and Conclusions

The winter of 1978-79 was somewhat more like an average winter and

snow depths and length of time the ground was covered were much greater than the past 4 or 5 years. Winter mortality appeared light, however, probably due to the excellent range conditions and low deer populations.

Due to the problems with data obtained from harvest tickets, I would recommend we return to the personal hunter interviews and that deer harvest tickets be dropped.

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SUBMITTED BY:

Nathan P. Johnson
Region I Research/Management Coordinator

DEER

SURVEY-INVENTORY PROGRESS REPORT - 1978-79

Game Management Unit 1C - Northern Mainland Portion of Southeast Alaska

Seasons and Bag Limit

August 1-December 31	Four deer, provided that antlerless deer may be taken only from Sept. 15-Dec. 31.

Population Status and Trend

Deer on the mainland have never been abundant compared to the offshore islands in Southeast. Population levels also tend to fluctuate less from year to year; however, the severity of winter weather undoubtedly plays some part in deer mortality in Game Management Unit 1C. Following a series of relatively mild winters for the past 5-6 years, the winter of 1978-79 may be termed more "normal." Temperatures were relatively colder and snow accumulation greater. A period of cold, snowy weather in January and early February was followed by a quick thaw that allowed deer to find higher quality forage when it was needed most. Winter mortality was probably "normal" because of the break in the weather. Thus deer numbers are probably near the previous year's level.

Population Composition

No data were available.

Mortality

Hand compilation of harvest tickets produced a reported harvest of 62 deer by 135 hunters for Unit 1C during 1978. This reported harvest was far below the 154 deer reported by 449 hunters in 1977. While hunting pressure may have indeed dropped, this dramatic reduction is due more to the fact that deer harvest ticket reminder letters were not sent out in 1978 as they were in 1977. Thus, the 1978 data are not comparable to the 1977 data. Of the 135 total hunters, 36 (27%) were successful, killing one or more deer in Game Management Unit 1C, and 99 (73%) were unsuccessful. Of the successful hunters, 19 killed one deer, 20 killed two deer, 15 killed three deer and 8 killed four deer. Of the reported harvest, one was shot in August, four in September, five in October, 28 in November, 20 in December, and four kill dates were not reported. Reported kill distribution was seven (11%) for the mainland, 34 (55%) for Douglas Island, and 21 (34%) for the Lynn Canal islands. Reported hunting pressure was 72 man-days (25%) for the mainland, 174 man-days (59%) for Douglas Island, and 46 man-days (16%) for the Lynn Canal islands. The calculated kill rates for the three areas are 10.3 man-days/deer on the mainland, 5.1 man-days/deer for Douglas Island and 2.2 man-days/deer for the Lynn Canal islands.

Thirty-nine hunters reported hunting the mainland portion of GMU 1C. Only five of these hunters were successful with two of the hunters taking a second deer on the mainland. In addition, another two of the mainland deer harvested were taken by hunters who took deer elsewhere in Southeast Alaska.

Management Summary and Recommendations

Overall, deer population levels in GMU 1C are limited largely by habitat quality and winter weather conditions and seldom by hunting pressure. However, the road system portion of the mainland, where deer numbers are relatively low, has experienced steadily increasing hunter pressure over the years. Hunting in this portion of the Unit should be closely monitored. Should the trend of increasing numbers of hunters continue and a high proportion of the take continue to be "second" animals, serious thought should be given to reducing the bag limit to one deer only on this mainland road system portion of the Unit.

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DEER

SURVEY-INVENTORY PROGRESS REPORT - 1978-79

Game Management Unit 4 - Admiralty, Baranof, Chichagof, and Adjacent Islands

Seasons and Bag Limits

Aug. 1-Dec. 31	Four deer, provided that antlerless deer may be taken only from Sept. 15-Dec. 31, and provided further that the daily bag limit from Dec. 1-Dec. 31 is one deer.

Harvest and Hunting Pressure

Hand compilation of harvest tickets showed a reported harvest of 2,024 deer for Unit 4 in 1978. That compilation was made from the return of 1,768 harvest tickets for persons who reported hunting in Unit 4. These persons expended 5,082 days afield. Chronologically, 4 percent of the kill was taken in August, 7 percent in September, 17 percent in October, 42 percent in November, and 31 percent in December. Three areas, Peril Straits, the immediate Sitka area, and northern Admiralty Island, contributed about 50 percent of the Unit 4 harvest. These are, of course, the primary hunting areas of the Unit's major population centers of Sitka and Juneau. Males comprised 70 percent of the harvest. An additional 145 harvest ticket holders who were potential Unit 4 hunters did not hunt in 1978.

Combining all hunters reporting, each person took 1.1 deer, and each person expended 2.9 days afield.

For reasons unknown, the 1978 harvest, as indicated by the harvest tickets, represents a reduction over previous years' harvests of about 30 percent. One possible explanation is a continuing decline in compliance with the harvest ticket program. From informal hunter contacts as well as personal observations, the Unit 4 deer population and the hunting pressure in the area around Sitka did not indicate changes which would account for a reduced harvest, as indicated by the harvest tickets.

Composition and Productivity

No data were obtained.

Winter Mortality

Winter mortality transects were conducted over 22 of the 23 established transects in late spring 1979. Sixteen instances of winter mortality were found, for an average of 0.72 dead deer per mile of beach. In conjunction with the U.S. Forest Service, and as an attempt to monitor

the impact of the relatively severe winter of 1978-79 on deer survival, an additional 43 miles of beach were walked. Thirty-nine instances of winter mortality were observed. Combining all surveys, by island and miles of beach examined, mortalities observed were as follows: Admiralty, 19 miles with 14 mortalities; Baranof, 3 miles with 2 mortalities; Chichagof, 38 miles with 37 mortalities; Cathrine, 4 miles with 2 mortalities; and Kruzof, 1 mile and no mortalities, for a total of 55 dead deer on 65 miles of beach examined (0.85 dead deer per mile).

Age and sex determinations of 45 of the carcasses showed fawns to represent 52 percent of the mortalities; adult bucks, 24 percent; yearling bucks, 5 percent; adult does, 12 percent; and unknown sex and age, 7 percent.

A significant finding of the extensive winter mortality surveys was a disproportionately higher number of winter kills in the vicinity of clearcuts as in old-growth forests. Mortalities averaged 1.9 per mile adjacent to clearcuts and only 0.6 per mile adjacent to old-growth forests. Of course, we do not know the relative densities of deer using the cut or old-growth forest sites, nor do we know if there was a similar mortality rate. However, it was obvious that the absolute number of instances of winter mortality in the vicinity of clearcut areas was about three times as great as in uncut, old-growth areas.

The winter of 1979 was one of the most severe in recent years. Snow accumulation during late January and early February approached 5 feet on the westerly portion of the Unit. It was accompanied by colder than normal temperatures. Dead and dying deer became quite evident in mid-February at which time the temperature moderated and the snow melted. That allowed the deer to move upward, as forage became available following the receding snow line. The warming period came at a very critical time, for adult bucks, older adult does, and fawns were becoming extremely emaciated.

Disease and Parasitism

A number of deer carcasses were examined on an as available basis for parasitological infection. Sources of these specimens were winter and hunter kills.

Because of the high incidence of lungworm (Dictyocaulus) infestations observed early in the season, an attempt was made to determine the rate of infection through a flotation system of pellet examination. The results were:

Number pellet groups examined	40
Percent with no identifiable ova or larvae	30
Percent containing (Trichostrongylid) ova or larvae	60
Percent containing (Dictyocaulus) ova or larvae	8
Percent containing tapeworm ova	5
Percent containing unidentified ova or larvae	5

Appendix I contains the results of internal parasitological examinations of 20 deer made during late fall 1978 and early spring 1979.

The poor correlation between the two systems suggests that if quantitative parasitological data are desirable, it would be most reliable to examine specific animals and/or organs directly.

A hunter-killed adult doe was made available because it was "covered with bugs." Close examination showed it did indeed contain an extremely heavy infestation of lice, the first such record from Alaska. Positive identification has not yet been made, but the lice are most likely cattle lice of the genus Tricholipeurus.

Population Trend

The moderately severe winter of 1978-79 reduced the Unit 4 deer population somewhat. Mortality surveys indicate that the reduction was not of the magnitude anticipated. Since the population entering the winter period was near or perhaps exceeding the carrying capacity, it would appear that the overwinter loss would result in only a slight decrease in the population and that overall the population is probably static. Winter losses were more severe on the western portion of the Unit.

Management Summary and Recommendations

Unit 4 deer numbers are governed by wintering conditions except perhaps in localized situations. Hunting pressure, though growing, does not appear to be sufficient to warrant a more conservative approach in either management philosophy or in current regulations. The daily bag limit of one deer during December, as adopted by the Alaska Board of Game for this reporting period, is a popular regulation with local hunters.

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Appendix I. Parasitological determinations for Sitka black-tailed deer, late winter 1978, early spring 1979, Game Management Unit 4.

Age	Sex	Tapeworm Cysts	Adult Tapeworm	Abomasal Nematode (*Trichostrongylus*)	Lungworm (*Dictyocaulus*)	Cause of Death
1	M	0	NE	+	NE	Hunter Kill
1	F	0	NE	NE	0	Hunter Kill
1	M	0	NE	+	0	Hunter Kill
1	M	0	NE	NE	0	Hunter Kill
1	F	0	NE	+	NE	Hunter Kill
1	F	0	NE	+	+	Hunter Kill
Unk	F	NE	NE	+	0	Hunter Kill
2	M	NE	NE	+	0	Hunter Kill
1	M	0	NE	+	0	Hunter Kill
Old	F	0	NE	NE	+	Hunter Kill
1	F	+	NE	NE	0	Hunter Kill
1	F	NE	NE	NE	+	Hunter Kill
F	F	+	+	+	+	Winter Kill
5+	M	+	0	+	0	Winter Kill
F	Unk	NE	NE	NE	+	Winter Kill
1	F	0	0	NE	+	Winter Kill
F	M	0	0	+	+	Winter Kill
Old	M	0	0	+	0	Winter Kill
Old	M	0	0	NE	0	Winter Kill
Old	F	+	NE	NE	0	Winter Kill
Infection Rate		25%	17%	100%	39%	

NE = Not looked for.
\+ = Positive infection.
0 = Not observed.

DEER

SURVEY-INVENTORY PROGRESS REPORT - 1978-79

Game Management Unit 5 - Yakutat

Season and Bag Limit

Aug. 1 - Dec. 31	Four deer, provided that antlerless deer may be taken only from Sept. 15-Dec. 31.

Population Status and Trend

Deer densities in Unit 5A are low but appear to be increasing very slowly. Deer are present along the mainland on the east side of Yakutat Bay and on the adjacent islands. All of these areas are readily accessible by boat, making the deer populations highly susceptible to hunting.

Population Composition

Because the population is extremely low it is very difficult to census, therefore, no formal surveys have been conducted. Instead, observations were compiled in conjunction with other field work. Actual sightings and sign observations have increased in recent years, particularly on the mainland. Several sightings of deer near the community of Yakutat, an area over-exploited when deer were abundant, confirm that the population is slowly expanding, but deer are still uncommon.

Mortality

Voluntary hunter reports indicated that only three individuals hunted deer in Unit 5A during the 1978-79 season, and that only one deer (a female) was harvested. However, one additional deer, also a female, is known to have been killed and reliable sources indicate that "six or seven" more deer were probably taken but not reported. The reported sport harvest from 1974 to 1978 is shown in Table 1.

Table 1. Reported sport harvest of deer in Unit 5A from 1974 to 1978.

Year	Number of Hunters	Known Deer Harvest			Total Harvest
		Males	Females	Unknown	
1974-1975	8	-	-	3	3
1975-76	17	8	2	-	10
1976-77	4	-	-	-	0
1977-78	12	3	1	-	4
1978-79	4	-	2	-	2

Even though both the reported and unreported sport harvest is small, predators are known to be numerous and are thought to take a high toll, particularly on the islands. Predators include coyotes, wolves and feral dogs. Recent winters have been mild and mortality directly associated with severe weather is assumed to be correspondingly low. The habitat appears to be in fair condition over most of the range, yet the deer population is not responding, leading to the conjecture that hunting and predation are suppressing factors.

Management Summary and Recommendations

In light of the low deer densities and high predation numbers, the current allowable harvest of four deer annually is excessive. Although the reported hunter harvest is light this information probably does not accurately reflect the actual pressure that the population receives. Therefore, a complete season closure, or at minimum, a reduction of the bag limit from four deer to one antlered deer, is advisable until the populations have a chance to rebuild. This closure should be coupled with a strong effort to reduce predator numbers (particularly on the island system) by encouraging local residents to trap and hunt coyotes and to eliminate any feral dogs they may encounter on the islands.

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Region I Research/Management Coordinator

DEER

SURVEY-INVENTORY PROGRESS REPORT 1978-79

Game Management Unit 6 - Prince William Sound

Season and Bag Limit

Aug. 1-Dec. 31	Four deer, provided that antlerless deer may be taken only from Sept. 15-Dec. 31.

Harvest and Hunting Pressure

Harvest information was gathered from hand-compiled harvest report data (Appendix I). Data from 445 hunters revealed a harvest of 391 deer. Hunter success was 44 percent. Hunters going afield averaged 0.9 deer whereas successful hunters averaged 2.0 deer. Seventy percent of the harvest occurred during November and December with slightly over half (53%) of the harvest taken from Montague Island.

Composition and Productivity

Age data from jaws of 54 deer taken by Cordova hunters were as follows:

Age*	F	1	2	3	4	5+	Total
Number	12	10	4	16	5	7	54
Percent	22	19	7	30	9	13	100

*Age was determined by tooth eruption and wear.

Management Summary and Conclusions

The 1978 harvest of 391 deer is moderate. Snow depth during the hunting season never drove deer onto the beaches where they would be readily accessible to hunters. Snow depth increased during January, and by late February it was 3 to 4 feet deep on the major islands (Montague, Hinchinbrook and Hawkins Islands). Mild, wet weather during March allowed the deer to retreat from the beach fringe. Winter mortality probably was relatively light and restricted to fawns. The deer population in fall 1979 probably will be similar to the 1978 population.

Recommendations

Retain the current season and bag limit.

PREPARED BY:

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SUBMITTED BY:

James B. Faro
Regional Management Coordinator

APPENDIX I

Deer harvest data - 1978.

Unit 6

		Number	Percent
Hunters Afield		445	
Successful Hunters		198	44.5
Deer Harvested		391	
Males Harvested		257	65.7
Deer per Hunter Afield		.9	
Harvested:	1 Deer	95	48.0
	2 Deer	42	21.2
	3 Deer	32	16.2
	4 Deer	29	14.7
Chronology:	August	14	3.6
	September	17	4.4
	October	69	17.7
	November	146	37.3
	December	129	33.0
	Unknown	16	4.1
Location:	Montague	208	53.2
	Hinchinbrook	40	10.2
	Hawkins	40	10.2
	Knight	29	7.4
	Naked	25	6.4
	Other	38	9.7
	Unknown	11	2.8

Prepared by: Julius Reynolds, Game Biologist III

DEER

SURVEY-INVENTORY PROGRESS REPORT - 1978-79

Game Mangement Unit 8 - Kodiak and Adjacent Islands

Seasons and Bag Limits

Unit 8, that portion of Kodiak Island draining into Ugak Bay east of a line from the mouth of Saltery Creek to Crag Point and west of Pasagshak River.	Aug. 1-Nov. 30	One deer, provided that anterless deer may be taken only from Oct. 1-Oct. 31.
Unit 8, remainder of Kodiak Island east of the Saltery Creek-Crag Point line.	Aug. 1-Oct. 31	One deer, provided that anterless deer may be taken only from Oct. 1-Oct. 31.
Remainder of Unit 8	Aug. 1-Jan. 15	Four deer, provided that anterless deer may be taken only from Sept. 15-Jan. 15.

Harvest and Hunting Pressure

Harvest information was compiled from returns of 667 hunter report cards (Appendix I). Reminder letters were not sent to hunters, so the reported harvest and hunting pressure probably represents less than half of that which actually occurred.

Five hundred and eighty-two hunters reported going into the field. Four hundred and ten hunters reported taking one or more deer, yielding a hunter success rate of 70 percent. Hunters took an average of 1.7 deer per hunter.

Total reported harvest was 991 deer, including 734 males (74%) and 257 females (26%). Kodiak Island residents took 455 deer (46%) and other Alaska residents took 451 deer (46%). Nine deer (1%) were reported taken by seven nonresident hunters. Hunters with unknown residency took an additional 76 deer (7%).

Sixty-eight percent of the hunters took more than one deer and 28 percent took the full bag limit of four deer.

Only 37 deer, less than 4 percent of the harvest, were reported taken during the first 2 weeks of January. This was the first time a season was held in January.

Afognak and Shuyak Islands accounted for 30 percent of the reported harvest. The northwestern part of Kodiak Island, including Whale Island, accounted for 18 percent of the harvest. Fifty-eight deer were reported taken from Shuyak Island, the northernmost island in the Kodiak Archipelago. Significant deer populations have developed on Shuyak only within the last 10 years. The island is attracting increasing numbers of mainland Alaskan hunters.

According to the deer hunter report returns, Kodiak Island residents and mainland Alaskan residents were nearly equally represented with 183 (44%) successful hunters from Kodiak and 188 (46%) successful mainland hunters.

The number of hunters reporting in 1978 was just over half the number estimated from the telephone survey technique used in 1977 (Appendix II). A minimum of 957 hunters was estimated in 1977. Only 582 hunters reported in 1978. The 1978 reported harvest of 991 deer compares to a harvest of 1,857 deer in 1977 based on a 9 percent sample of Kodiak hunting license buyers. Less than 50 percent of the hunters usually return their reports without having first received reminder letters. Contacts with hunters and air taxi operators during the season suggested that the harvest was at least double that reported. The deer population was noticeably higher than in 1977. The 1978 harvest is estimated at a minimum of 2,500 deer.

Composition and Productivity

No sex or age composition data were collected in 1978.

Winter mortality surveys covered 11 miles of coastal winter range on Raspberry Island, Whale Island, Afognak Island, and northeastern Kodiak Island. The carcass of one fawn was found on Whale Island. Condition of the femur marrow indicated the deer died of malnutrition.

Snow accumulations were light during the 1978-79 winter and winter mortality was proportionally low.

Management Summary and Conclusions

A trend toward mild, rainy winters with light snow accumulations on deer winter range continues. For the third consecutive year winter mortality was low. Deer numbers continue to increase and are at the highest levels since 1968. The estimated 1978 harvest of at least 2,500 deer was the highest since 1968.

Recommendations

No changes in season or bag limits are recommended.

PREPARED BY:

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SUBMITTED BY:

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Regional Management Coordinator

APPENDIX I

1978 Deer Harvest Statistics From Hunter Harvest Reports, Unit 8

No. unsuccessful hunters	172
No. successful hunters	410
Total number hunters	582
No. reporting who did not hunt	85
Total number reports returned	667
No. males killed	734 (74%)
No. females killed	257 (26%)
Total number deer killed	991
Mean number deer/hunter	1.7

Hunter Residency	Number Successful Hunters	Number Males Harvested	Number Females Harvested	Total Number Deer Harvested
Non-resident	7	5	4	9 (1%)
Kodiak Island	183	356	99	455 (46%)
Mainland Alaska	188	315	136	451 (46%)
Unknown	32	58	18	76 (7%)
	410	734	257	991

	Number Hunters	Percent Hunters
Killed 1 deer	130	32%
Killed 2 deer	94	23%
Killed 3 deer	71	17%
Killed 4 deer	115	28%

Prepared By: Roger B. Smith
Area Management Biologist

APPENDIX II

Unit 8 - Deer Harvest Statistics, 1968-1978

	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978*
Number of hunters	2,300	1,441	658	925	689	1,127	1,141	1,068	1,088	957	582
Number of deer harvested	2,100	1,420	870	915	587	1,166	1,754	1,057	1,111	1,857	991
Percent hunter success	74%	43%	55%	45%	46%	47%	61%	47%	51%	81%	70%
Mean number of deer per hunter	0.9	1.0	1.3	1.0	0.9	1.0	1.5	1.0	1.5	1.9	1.7
Mean number of hunting days per deer	5.0	6.3	2.4	4.5	5.2	5.0	3.7	4.8	3.8	2.3	---

* Incomplete returns of harvest reports

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ELK

SURVEY-INVENTORY PROGRESS REPORT - 1978-79

Game Management Unit 8 - Kodiak and Adjacent Islands

Seasons and Bag Limits

Unit 8, Raspberry Island and that portion of Afognak Island west and south of a line from the head of Malina Bay to the head of Back Bay.	Oct. 1-Oct. 31	One elk by permit only. 125 permits will be issued. See 5AAC 8.1055 and separate permit hunt supplement.
Remainder of Unit 8	Aug. 1-Dec. 31	One elk by permit only.

Harvest and Hunting Pressure

Hunters took a total of 45 elk from Afognak and Raspberry Islands in 1978 (Appendix I). Composition of the harvest was 34 males (76%) and 11 females (24%). Two hundred and forty-two permittees reported hunting in 1978 and overall hunter success was 19 percent.

Twenty-nine elk, 20 males (69%) and nine females (31%), were killed in the Afognak Island registration hunt. One hundred and ninety-seven permitteess reported hunting and 15 percent were successful. Distribution of the harvest was: Tonki Bay/Peninsula--10; Duck Mountain-Kitoi Lakes--8; Waterfall Lake--6; and scattered locations--5. Thirteen of the 29 elk were killed during September.

Twenty-seven hunters participated in the Southwest Afognak permit drawing hunt; eight elk (six males and two females) were killed for a success rate of 30 percent. Eighty-five permits were available for this hunt.

Forty permits were available for the Raspberry Island drawing hunt. Eighteen permittees reported hunting and eight elk, all males, were killed. Hunter success was 44 percent.

Composition and Productivity

Sex and age composition surveys were flown during July and August, 1978 (Appendix II). Five hundred and forty-nine elk were classified in 8.5 hours of aerial surveys. The calf:cow ratio of 37 calves:100 cows was relatively high and was comparable to that recorded during the previous year. A total of 135 calves was counted, the highest calf count since 1970. Relatively little duplicate counting occurred, so the composition surveys represent minimum population size. Bull elk remained at a comparatively low level, comprising only 9 percent of the animals classified for a male:female ratio of 14:100.

Major elk herds were observed in six locations: Waterfall Lake--100 elk; Paramanof Peninsula--100 elk; Duck Mountain-Portage Lake--48 elk; Tonki Peninsula-Seal Bay--113 elk; Raspberry Island--67 elk; and Afognak Lake--121 elk.

Sixty-seven elk (13 bulls, 41 cows and 13 calves) were counted in the Raspberry Island herd on 31 July 1978. Observations by local pilots indicate that the actual herd size was closer to 100 animals.

The Afognak Lake herd continues to increase, with 121 animals tallied in 1978 compared to 99 observed during 1977. Twelve bulls, 82 cows and 27 calves were observed during the 31 July 1978 survey.

No winter mortality was recorded during 1977-78. No measurements of snow cover were recorded, but the winter was considered mild compared to previous years when mortality was recorded. The composition count indicated an increase in overall population size from the previous year, further suggesting good overwinter survival.

Management Summary and Conclusions

Although the 1978 harvest of 45 animals from a minimum population of 549 elk seems modest, it was the highest kill recorded since 1970 when 62 elk were killed (Appendix I). Hunter participation was also the highest recorded in the 9-year period, 1970 through 1978, with 242 hunters reporting.

The Raspberry Island and southwest Afognak permit drawing hunts accounted for eight elk each and 36 percent of the total 1978 harvest. Only four elk were taken in each of these hunts in 1977. Twice as many permits were issued as in 1977, and the harvest increased proportionally. Additional harvest could be sustained in these two herds.

Difficult access continues to limit harvest on the remainder of Afognak Island. Recently constructed logging roads which connected Kazakof Bay, Perenosa Bay and Izhut Bay, transect much of the range of the Duck Mountain herd and may contribute to an increased harvest in the future.

Overall good winter survival and consistently good calf production for 3 years have contributed to a steady population increase.

A group of about 30 elk was reported near Upper Malina Lake during the October hunting season, further documenting the apparent reestablishment of elk in the Malina Lakes drainage. Three bull elk were killed near Upper Malina Lake during October 1978.

Both the Raspberry Island and Afognak Lake herds continue to increase with no noticeable impact from the light harvests of the past 3 years. The overall population of elk on Afognak and Raspberry Islands probably exceeds 600 animals at present. The 1978 reported harvest of 45 elk represents only 8 percent of the estimated population. Only 11 females (3%) were killed from the known population of 362 females.

Recommendations

It is recommended that additional permits be issued for both the Raspberry and southwest Afognak Island permit drawing hunts in 1979.

PREPARED BY:

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SUBMITTED BY:

James B. Faro
Regional Management Coordinator

APPENDIX I

Unit 8 - Elk season harvest statistics obtained from hunter permit reports - 1970-1978

Year	No. hunters	Reported harvest	Male harvest	Female harvest	Hunter success	Season length (days)
1970	184	62	43 (69%)	19 (31%)	34%	153
1971	190	27	15 (56%)	12 (44%)	14%	153
1972	112	18	8 (50%)	9 (50%)	16%	153
1973	116	18	8 (44%)	10 (56%)	16%	153
1974	118	30	16 (53%)	14 (47%)	25%	153
1975	123	23	7 (30%)	16 (70%)	19%	153
1976	239	26	14 (54%)	12 (46%)	11%	153
1977*	200	24	15 (63%)	9 (37%)	12%	153
1978*	242	45	34 (76%)	11 (24%)	19%	153

* Includes Drawing Hunts No. 701 & 702

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APPENDIX II

Unit 8 - Elk composition counts 1967-1978

Date	Year	M	%	F	%	Calves	%	Calves 100/Cows	Total
8/0	1967	55	8%	522	73%	135	19%	25	712
8/0	1968	124	18%	432	62%	136	20%	31	692
---	1969	48	11%	288	65%	104	24%	36	408
8/0	1970	171	21%	467	57%	186	23%	40	824
8/0	1971	71	16%	277	64%	84	19%	30	432
8/19;9/13	1972	28	8%	239	67%	88	25%	37	355
8/0;9/0	1973	32	9%	250	69%	80	22%	32	362
8/9,8/16 8/20,9/12,9/18	1974	44	11%	243	63%	99	26%	41	386
7/21,7/30,8/23 8/29,9/4,9/12	1975	47	8%	383	69%	125	22%	33	555
8/11,8/12,8/22 9/6,9/10	1976	28	8%	228	68%	80	24%	35	336
7/14,8/14,8/28, 8/15,9/09	1977	55	11%	324	65%	122	24%	38	501
7/31,8/1,8/13, 8/23,8/28	1978	52	9%	362	66%	135	25%	37	549

PREPARED BY: Roger B. Smith, Game Biologist III

SEALS

SURVEY-INVENTORY PROGRESS REPORT - 1978-79

Game Management Units 18, 22, 23 and 26 - Marine Waters

Seasons and Bag Limits

Closed, except that Alaska Natives may harvest seals without limit under provisions of the Marine Mammal Protection Act.

Harvest and Hunting Pressure

As in the past, annual harvest figures for ringed, bearded, spotted and ribbon seals were derived from samples obtained at selected villages by a Department representative (Appendix I). Throughout fiscal year 1979, a local hunter was hired in the villages of Hooper Bay, Gambell, and Savoonga to report monthly harvest and obtain samples for species, sex, and age composition.

Based upon past data, the harvests depicted from sample villages and interviews represented approximately 30% of the animals taken in Alaska. Therefore, the total harvest for fiscal year 1979 was estimated to be approximately 4,100 seals.

Hunting pressure has decreased markedly in the past few years in comparison to the 1960's and early 70's when an estimated harvest of 15,000 seals was taken each year (during that period a bounty on seals was in existence and probably stimulated hunting effort). This decrease in annual harvest can probably be attributed to a change in lifestyle and to the Marine Mammal Protection Act of 1972. The economy in a majority of the villages has changed dramatically in recent years from one based on barter to one based on the utilization of cash. Since the inception of the MMPA, seals and seal products can no longer be sold to non-natives unless they are first transformed into authentic native handicrafts. It is estimated that a limited number of the seals harvested at present are to fulfill hunting desires and not actual sustenance needs.

Composition and Productivity

Composition of the harvest by Game Management Unit is presented below:

	Ringed		Bearded		Spotted		Ribbon			
GMU	Seal	(%*)	Seal	(%*)	Seal	(%*)	Seal	(%*)	Total	(%*)
18	433	(30.0)	377	(27.0)	580	(42.0)	3	(1.0)	1393	(34.0)
22	676	(30.0)	703	(31.0)	843	(38.0)	10	(1.0)	2232	(54.0)
23	-0-	(-0-)	-0-	(-0-)	267	(100.0)	-0-	(-0-)	267	(6.0)
26	127	(48.0)	37	(14.0)	103	(38.0)	-0-	(-0-)	267	(6.0)
	1236	(30.0)	1117	(26.0)	1793	(43.0)	13	(1.0)	4159	(100.0)

* = % Unit Total

The estimated harvest for this report period was comprised of 30 percent ringed seals, 26 percent bearded seals, 43 percent spotted seals, 1 percent ribbon seals. Seasonal distribution of each species and timing of hunting effort are thought to account for the difference in the species composition of the harvest. Sex ratios were found to be nearly equal in the ringed and bearded seal harvest, but among spotted seals the take was weighted towards males. Hunters do not seem to select with regard to the sex of seals taken; therefore, it is felt the spotted seal harvest was the result of seasonal distribution and behavioral differences and not hunter selection.

Recent surveys have not been conducted on seals and at present no data are available on the productivity of any of the seal species.

Management Summary and Recommendations

During the 1960's and early 1970's, yearly harvests in northwestern Alaska were maintained at levels in excess of 15,000 seals with no apparent adverse effects to any of the four resident seal species. Since the current, estimated harvest of approximately 4,100 animals is of a much lower magnitude, it appears that the ringed, bearded, spotted, and ribbon seal populations are in no immediate danger of over harvest. This decrease in the annual harvest from previous years is probably indicative of changes in lifestyle which in turn are related to a shift in the economy (that is, one that is based largely on barter to one based on a cash economy). If additional incentives arise, such as allowing the sale of raw skins, an increase in the seal harvest is likely.

Since the current estimated harvest was much lower than in the past and the annual kill appears to be slowly declining, it is illogical to maintain current Federal restrictions on seal hunting. Efforts should be made to return management to the State so a management program could be implemented which would allow all Alaskan residents and nonresidents alike to take seals on the same basis, and make it legal to barter or sell seal skins and other raw products.

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SUBMITTED BY:

Robert E. Pegau
Regional Supervisor

Appendix 1. Recorded harvest of seals by village from 1 July 1978 through 30 June 1979.

Village	Ringed			Bearded			Spotted			Ribbon			Totals		
	♀	♂	u*	♀	♂	u	♀	♂	u	♀	♂	u	♀	♂	u
Quinhagak	-	-	7	-	-	-	-	-	21	-	-	-	-	-	28
Kipnuk	-	-	10	-	-	4	-	-	31	-	-	-	-	-	45
Mekoryuk	-	-	3	-	-	12	-	-	9	-	-	1	-	-	25
Toksook Bay	-	-	26	-	-	62	-	-	32	-	-	-	-	-	120
Tununak	-	-	36	-	-	14	-	-	50	-	-	-	-	-	100
Hooper Bay	27	21	-	18	3	-	23	8	-	-	-	-	68	32	-
Savoonga	40	38	15	3	3	23	3	-	64	-	-	1	46	41	103
Gambell	-	-	20	3	1	39	1	-	140	-	-	1	4	1	200
Nome	6	7	1	4	7	7	-	-	-	-	-	-	10	14	8
Wales	-	-	25	-	-	22	-	-	34	-	-	-	-	-	81
Diomede	-	-	7	-	-	29	-	-	11	-	-	1	-	-	48
Shishmaref	27	17	-	3	7	60	-	-	-	-	-	-	30	24	60
Buckland	-	-	-	-	-	-	-	-	80	-	-	-	-	-	80
Point Lay	-	-	5	-	-	5	-	-	30	-	-	-	-	-	40
Wainwright	14	19	-	3	3	-	1	-	-	-	-	-	18	22	-
Totals	114	102	155	34	24	277	28	8	502	-	-	4	176	134	938

*u = unknown

WALRUS

SURVEY-INVENTORY PROGRESS REPORT - 1978-79

Game Management Unit 17 - Bristol Bay

Seasons and Bag Limits

Unit 17, including the Twins Island, but not that portion in the Walrus Islands State Game Sanctuary (including all waters within 1/2 mile of Round Island)	Resident: No closed season Nonresident: No open season	One walrus for food, by permit only. A total of 50 permits will be issued to applicants who appear in person at the villages of Togiak, Manokotak, Twin Hills, and Clarks Point on a first-come, first-served basis.

Harvest and Hunting Pressure

Thirty of the 50 walrus permits available were issued to residents of coastal villages. A representative of the Department of Fish and Game issued 4 permits in Clarks Point, 7 in Manokotak, 2 in Twin Hills, and 17 in Togiak. Each permit was accompanied by a hunter report. One of the thirty permittees returned his report stating he did not hunt. No reports were received from the other 29 permittees. No follow-up questionnaires were sent to permittees.

Composition and Productivity

Although no productivity data were collected, the Bristol Bay walrus population mainly consists of males, many of which haulout on Round Island in numbers occasionally exceeding 10,000 during summer months.

Management Summary and Conclusions

Three hundred and five people visited Round Island during 1978. Of these, 216 were members of three parties that traveled to the island via the Lindblad Explorer.

The U.S. Fish and Wildlife Service is currently involved in a cooperative walrus research program on Round Island. Investigations of radio telemetry techniques, walrus behavior and social interaction and impacts of human disturbances continued through 1978. Final results of the studies will be discussed in future reports.

Recommendations

On 27 June 1979 emergency regulations were adopted by the Board of Game repealing state regulations relating to walrus (with the exception of 81.300(a) which provides for the Walrus Islands Sanctuary). Management authority was returned, by default, to the Federal government. It is recognized that the highest and best use of the Walrus Islands is a hauling grounds for Bristol Bay walrus. The state retained the right to manage the Walrus Islands Santuary and will continue to protect the hauling grounds by regulating trespass.

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SUBMITTED BY:

James B. Faro
Regional Management Coordinator

WALRUS

SURVEY-INVENTORY PROGRESS REPORT - 1978-79

Game Management Units 18, 22, 23, 26 - Coastal Marine Waters

One of the requirements of the Federal government upon return of walrus management to the State of Alaska in April 1976 was that a status report be submitted for each calendar year. In accordance with this requirement, the State of Alaska submitted status reports pertaining to management of Pacific walrus for the calendar years 1976, 1977 and 1978. Copies of these reports, which contain additional management information, may be obtained from the Department of Fish and Game office in Fairbanks or the U.S. Fish and Wildlife Service Office in Washington, D.C.

Seasons and Bag Limits

(A) The following areas, seasons, and bag limits apply to the taking of walrus by unit residents traditionally dependent upon walrus for sustenance.

Unit 18	No closed season	Residents of Unit 18 traditionally dependent upon and utilizing walrus for sustenance may take up to 5 adult cows or subadults (either sex) and adult bulls without limit; and provided further that orphaned calves may be taken for food without contributing to the bag limit.
Unit 22	No closed season	Residents of Unit 22, traditionally dependent upon and utilizing walrus for sustenance, may take up to 10 walruses, not more than 5 of which may be adult cows or subadults (either sex); that orphaned calves may be taken for food without contributing to the bag limit; and that certain specific area quotas apply, as listed below:

	Areas	Annual quota of walruses that may be taken for sustenance.
1.	The waters of Bering Sea near the Settlement of Gambell within the area bounded by lines connecting the following positions: 64°30'N, 171°22'W; 64°30'N, 171°00'W' 63°00'N, 171°00'W; 63°00'N, 174° 59'W; and the U.S.-Russian Convention Line of 1867 between 63°00'N, 174°59'W, and 64°00'N, 174°59'W and 64°30'N, 171°22'W.	450
2.	The waters of Bering Sea near the settlement of Savoonga within the area bounded by lines connecting the following positions: 64°30'N, 171°00'W; 64°30'N, 168°00'W; 63°00'N, 168°00'W; 63°00'N, 171°00'W; 64°30'N, 171°00'W.	450
3.	The waters of Norton Sound and Bering Sea near the settlement of Nome and King Island within the area bounded by lines connecting the following positions: 65°10'N, 168°50'W; 65°10'N, 166°55'W; 64°33'N, 163°30'W; 63°30' N, 163°30'W; 63°30'N, 168°50'W; 65°10'N, 168°50'W.	250
4.	The waters of the Bering and Chukchi Seas near the settlement of Wales within the area bounded by lines connecting the following positions: 66°00'N, 167°55'W; 66°00'N, 167° 20'W; 65°10'N, 167°20'W; 65°10'N, 167°50'W; 65°32'N, 168°40'W; 65°45'N, 168°40'W; 66° 00'N, 167°55'W.	150
5.	Waters of the Bering and Chukchi Seas near the settlement of Diomede within the area bounded by lines connecting the following positions: 66°20'N, 168°59'W; 66°20'N, 167°30'W; 66°00'N, 167°30'W; 66°00'N, 167°55'W; 65°52'N, 168°20'W; 65°10'N, 168°20'W; 65°10'N, 169°45'W; 65°30'N, 168°59'W; 66°20'N, 168°59'W.	450
6.	Waters of the Chukchi Sea near the settlement of Shishmaref within the area bounded by lines connecting the following positions: 67°00'N, 167°30'W; 67°00'N, 164°00'W; 66°36'N, 164°00'W, 66°00'N, 167°00'W; 66°00'N, 167°30'W; 67°00'N, 167° 30;W.	150

Units 23 and 26	No closed season	Residents of Units 23 and 26, traditionally dependent upon and utilizing walrus for sustenance, may take up to 5 walrus; orphaned calves may be taken for food without contributing to the bag limit. Certain specific area quotas apply as listed below:

Areas	Annual quota of walruses that may be taken for sustenance.
7. Waters of the Chukchi Sea near the settlement of Wainwright within the area bounded by lines connecting the following positions: 71°30'N, 161° 30'W; 71°30'N, 158°30'W; 70°48'N, 158° 30'W; 70°15'N, 161°30'W; 71°30'N, 161° 30'W.	160
8. Waters of the Chukchi and Beaufort Seas near the settlement of Barrow within the area bounded by lines connecting the following positions: 72°10'N, 158°30'W; 72°10'N, 154°00'W; 70°50'N, 154°00'W; 70°48'N, 158°30'W; 72°10'N, 158°30'W.	180

(B) The following areas, seasons, and bag limits apply to residents of Units 18, 22, 23 and 26 not traditionally dependent upon walrus for sustenance, other Alaska residents and nonresidents.

Units 18, 22, 23 and 26	No closed season	One adult bull, by permit only.* 100 permits will be available. Permits may be obtained by applying in person at Nome, Kotzebue, Barrow, and Bethel.

*Refer to Sec 81.050(16)

Harvest and Hunting Pressure

At their April 1979 meeting in Anchorage, the Board of Game considered several proposals dealing with walrus. They found that an emergency situation existed, and issued a statement listing the following facts as constituting that emergency: 1) A steady increase in the walrus population; 2) Numerous biological factors militate strongly in favor

of increasing the harvest, among these are: population stress, declines in food sources, decrease in rate of pregnancy, increasing proportions of aborted walruses, greater prevalence of debilities among mature walrus; 3) There were human reasons for increasing the take of walrus (ivory provides a source of cash for many coastal communities which need a larger cash economy for such necessities as heat, lights and gas). 4) Increases in area harvest quotas could be accommodated without exceeding the Federal limit of 3,000 walrus per year. 5) The amended regulations should be implemented immediately to effect maximum protection to the walrus resource and its habitat as continued overpopulation posed unacceptable risks to the health of the resource.

As a result of the emergency regulation, the following seasons and bag limits became effective on April 11, 1979.

(A) The following areas, seasons, and bag limits apply to the taking of walrus by unit residents traditionally dependent upon walrus for sustenance.

Unit 18	No closed season	No limit for residents of Unit 18 traditionally dependent upon and utilizing walrus for sustenance.
Unit 22	No closed season	Residents of Unit 22, traditionally dependent upon and utilizing walrus for sustenance, may take up to 10 walruses, provided that orphaned calves may be taken for food without contributing to the bag limit; and that certain specific area quotas apply, as listed below:

Areas	Annual quotas of walruses that may be taken for sustenance.
Areas	
1. The waters of ...same ...171°22'W.	550
2. The waters of ...same ...171°00'W.	550
3. The waters of ...same ...168°50'W.	300
4. The waters of ...same ...167°55'W.	250

5.	The waters of ...same ...168°59'W.	500
6.	The waters of ...same ...167°30'W.	200

Units 23 and 26 No closed season Same bag

(B) The following areas, seasons, and bag limits apply to residents of Units 18, 22, 23 and 26 not traditionally dependent upon walrus for sustenance, other Alaska residents and nonresidents.

Units 18, 22, 23, and 26	No closed season	One adult bull, by permit only. * 150 walruses may be taken.

*Refer to 5 AAC 81.050(16)

Based upon data gathered by field biologists at Gambell, Savoonga, Diomede, Wales, Shishmaref, Wainwright, and numerous interviews in other villages, the retrieved harvest for fiscal year 1979 was estimated at approximately 2700 walrus (Appendices I and II). The sex composition, geographical distribution, and combined seasonal distribution for fiscal year 1979 harvest can be further summarized as follows:

Sex composition of 2,678 walrus taken in Alaska during fiscal year 1979.

Sex and Relative age	Number	Percent of Harvest
Males older than 1 year	1,594	60
Females older than 1 year	564	21
Calves of either sex	79	3
Sex unknown (adults)	441	16

Geographical Distribution of Harvest

Area	Sex	Number	Percent of Harvest
Bering Sea		2,480	92
	Males	1,533	62
	Females	512	21
	Calves	79	3
	Sex unknown	356	14
Chukchi Sea		198	8
	Males	61	31
	Females	52	26
	Calves	0	0
	Sex unknown	85	43

Combined Seasonal Distribution of Harvest

Season	Number	Percent of Harvest
July - September	98	4
October - December	201	7
January - March	246	9
April - June	2,133	80

The historical harvest from 1960 through June 1979 is summarized in Appendix III. It should be noted that these harvest figures were compiled by calendar year and not fiscal year.

Fiscal year 1979 was the first year in which an ivory sealing program was in effect. Individual tusks were sealed by cutting a small notch in the hollow portion of the upper section (proximal end) and attaching a numbered metal locking tag. If the tusks were still attached to the skull, a hole was drilled in the rear of the skull and the tag attached; then, the tag number was engraved into each tusk. All pertinent data were recorded onto a walrus ivory sealing certificate. Appendix IV shows a comparison of the estimated harvest (adults only) based on data gathered by field biologists and the number of walrus taken as recorded on sealing certificates. Although the totals were fairly close in some instances, there were major discrepancies. The following could account for these variances: 1) Certain areas did not have village sealers and, therefore, there was no easy or readily available way to seal their ivory; 2) Many hunters felt that their ivory that would be used for carving need not be sealed; 3) Some villagers were not giving the field biologist accurate data; and 4) to prevent an emergency closure of their hunting area, some hunters refused to voluntarily submit all of their ivory for sealing.

Walrus hunting in two areas was closed by emergency order as the maximum harvest quotas were obtained. The Nome area was closed on 2 June 1979 and the Wales area was closed on 10 June 1979.

Most of the walrus harvested were shot on the ice with center-fire rifles of calibers up to 458 magnum. The most common calibers observed were 30-06, 7 mm, 300 magnum, and 308. At times walrus were shot in the water, but many hunters were reluctant to use this method because of the high loss rate due to sinking. The preferred method of taking a walrus in the water was to wound the animal and then harpoon it. Through conversations with numerous hunters, it was learned that a well-placed bullet to the head was required for immediate immobilization of a walrus on the ice as wounded animals which escaped to the water often sank. Hunters also indicated that it was better to shoot walrus which were not close to the ice edge because at times, other walrus entering the water would push the dead animals off the ice. Loss rates varied from village to village and appeared to be dependant on crew experience and hunting

conditions. Using loss rates determined by observers in villages during the past 4 years, the total walrus kill for fiscal year 1979, was estimated at approximately 5100 animals (Appendix II). During the past year, at least 950 animals died or were found dead on the beaches on St. Lawrence and surrounding islands. In most cases observed, death was attributed to trampling or wounds inflicted by natural predators (Bud Fay, pers. comm.).

The majority of the boats employed in taking walrus were constructed of aluminum or wood and were powered with outboards ranging from 25 to 70 hp. In most cases, speed appeared to be the dominant criteria in selecting a craft. The skin boat was considered more seaworthy and capable of hauling a larger load, but it could not match the speed of the small, lighter craft with their powerful outboards. Skin boats (which were the vessels used exclusively in the past) were only utilized to any degree at the village of Diomede.

Aerial surveys were conducted in July and August 1979 to determine the number of carcasses washed up on the beach. Approximately 500 carcasses were calculated to be on a 360-mile section of beach between Rocky Point (southeast of Nome) and Cape Espenberg (northern tip of the Seward Peninsula). Considering the magnitude of the harvest, the 45-50 percent loss rate, the head hunting which is known to occur, and natural mortality; 500 carcasses were not as high as expected for that section of beach.

A total of 234 permits was issued to recreational hunters during fiscal year 1979; of these, 89 hunters were successful (Appendix V). Recreational hunters considerably boosted the economy of numerous walrus hunting villages during fiscal year 1979. Costs of a guided hunt ranged from $1,500 to $3,000 (depending on location and type of equipment). In addition, an estimated $300 to $500 was spent by each of these hunters on carvings and raw ivory. A list of the villages in which recreational hunting occurred is summarized below:

Village	Number of Hunters
Mekoryuk	9
Gambell	7
Savoonga	46
Nome	27
Pt. Hope	4
Wainwright	14
Barrow	7
Other	27
Total	141

Abundance and Distribution

The present population of walrus is estimated to be between 200 and 240 thousand animals, with mature adults comprising two-thirds of the standing stock. At present, the population appears to have been restored to its former pre-exploitation level. Removal rates by harvest and associated losses from wounding and sinking have, in the past, amounted to approximately 7 percent per year and natural mortality rates (accidents, diseases, predation by killer whales and polar bears) appeared to be about 2 percent per year. Presently, the annual rate of production is estimated to be between 7 and 14 percent. (Fay 1979 unpublished).

Although walrus seem to prefer ice as a substrate on which to haul out for resting, molting and bearing their young, they will haul out on land when there is no ice available in the vicinity. Most of the population is migratory and moves northward with the retreating ice in the spring and south with the advancing ice in the fall. Several thousand animals, principally males, do not participate in the northward migration but remain in the Bering Sea throughout the summer utilizing small islands in Bristol Bay, the Gulf of Anadyr, St. Lawrence and surrounding islands and King Island as hauling out grounds. The walrus population appears to be extending its range; numerous sightings have occurred during the past year along the north side of the Alaska Peninsula, the Aleutians, the Shumigans (Pacific side of the Alaska Peninsula), Kodiak Island and Cook Inlet.

Management Summary and Recommendations

As in the past, the Department monitored the harvest by stationing field biologists in the major walrus hunting villages. Results from their surveys combined with surveys of other coastal villages from the Yukon-Kuskokwim Delta to Point Barrow indicated an estimated harvest of approximately 2,700.

Retrieval and utilization of walrus meat was estimated to be less than 10 percent throughout the fiscal year. During the early part of the hunting season, more meat and sections of hide were readily brought in. After a supply of fresh meat was secured, utilization of meat and hides dropped. The one exception to this is that all walrus calves killed appear to be brought in and fully utilized. In most cases the preferred parts brought in were flippers, hearts, livers, sternums and female breasts. Although most villagers did not think of themselves as head hunters, observers noted that boats came in at times with 10 or more heads and less than 200 pounds of meat and hide. Occasionally the whole hide from a walrus (primarily female) was brought in to be used for making rope or for recovering a skin boat.

Walrus ivory has always been an important item to the Eskimo. In the past, it was used for carvings, knives, ice chisels and many other functional items. Today ivory is still important, however, its functional

use has greatly changed. Now it is used as a source of income. The price of raw ivory ranged from $20 per pound in the villages to $50 per pound in Anchorage. Prices of head mounts in the villages ranged from $200 to $700 depending on their size. In Anchorage the price varied from $800 to $2,000, again depending on the size. Although carving was still used as a source of income for most of the villagers, many people elected to sell their ivory in a raw state to purchase commodities such as boats, motors, snow machines, gas, groceries, etc. Other walrus items utilized and worked for resale were teeth, which were carved or made into key chains, and oosiks which were polished or cleaned up and sold in their raw state.

An extensive collection program was conducted during the spring of 1979 with the expressed purpose of gathering information on food habits, age at sexual maturity and age composition of the harvest. Seven hundred and sixty-five sets of teeth, 56 stomachs and 94 reproductive tracts were collected from six coastal villages of northwestern Alaska during the spring harvest. This material is currently being analyzed and the results will be reported in a forthcoming publication. Biological samples were purchased with cash at the following rates: $5.00 per set of teeth, $25.00 per stomach and $5.00 per reproductive tract.

Because the State failed to reach an agreement on specific issues concerning walrus management with the U.S. Fish and Wildlife Service, on 30 June 1979 the Board of Game issued emergency regulations which repealed and amended all existing regulations regarding walrus. The Board listed the following reasons for issuing these emergency regulations: 1) Biological information indicated the population was now exceeding its optimum carrying capacity. 2) There were strong indications of population stress. 3) An annual maximum harvest quota of 3,000 animals (which was based on a 1972 population estimate) and, 4) A recent Federal district court judges' decision concerning the native exemption within the Marine Mammal Protection Act. By appealing and amending all existing regulations, the terms of the waiver which returned walrus management in 1976 to the State were no longer being abided with. The Federal government stated that in view of the State's action, the management waiver was void and all marine mammal hunting was to be according to the act.

The State of Alaska recognizes the importance of marine mammals as part of the marine ecosystem and does not intend to abandon attempts to establish management programs that are in the best interest of the species and the people who depend on these animals for part of their livelihood. Marine mammals need to be conserved and protected so that each species or stock is maintained in numbers that achieve the "optimum sustainable population level" (OSP is the number of animals which will

result in the maximum productivity of the population or the species, keeping in mind the optimum carrying capacity of the habitat and the health of the ecosystem of which they form a constituent element). All efforts should be made to promote a sound management program for walrus as well as the other species of marine mammals which coexist in Alaskan waters.

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Submitted by:

Robert E. Pegau
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Appendix I. Seasonal distribution of total Alaskan walrus harvest by village for fiscal year 1979.

	July - Sept.			Oct. - Dec.			Jan. - March			April - June			Total
	♂	♀	C	♂	♀	C	♂	♀	C	♂	♀	C	
Mekoryuk	0	0	0	-----20-----			0	0	0	-----19----- 9			48
Remainder of Yukon-Kuskokwim	0	0	0	-----68-----			0	0	0	-----55-----			123
Stebbins	0	0	0	0	0	0	0	0	0	-----25-----			25
Unalakleet	0	0	0	1	0	0	0	0	0	-----25-----			26
				-------1-----			-----87-----						
Gambell	5	1	0	94			42	2	0	126	79	42	479
							-----46-----						
Savoonga	7	12	0	14	3	0	66	3	0	268	37	11	467
										-----450-----			
Nome-King Island	0	0	0	0	0	0	0	0	0	7			457
Brevig Mission	0	0	0	0	0	0	0	0	0	-----150-----			150
										------96-----			
Wales	0	0	0	0	0	0	0	0	0	110	47	4	257
										------48-----			
Diomede	----10----			0	0	0	0	0	0	183	109	22	372
Shishmaref	0	0	0	0	0	0	0	0	0	40	42	0	82
Kivalina	1	0	0	0	0	0	0	0	0	-----20-----			21
Point Hope	0	1	0	0	0	0	0	0	0	------5-----			6
										-----30-----			
Wainwright	11	9	0	0	0	0	0	0	0	6			56
Barrow	-----30-----			0	0	0	0	0	0	0	0	0	30
										------64-----			
Other	0	0	0	0	0	0	0	0	0	15			79
	----40----			----89----			---133----			------987-----			
Totals	24	23	0	109	3	0	108	5	0	764	314	79	2678

PREPARED BY: Robert Nelson
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Appendix II. Breakdown of the Alaskan walrus harvest for fiscal year 1979.

	♂	♀	Calves	Unknown	Total Sustenance Harvest	Recreational Harvest	Total Harvest	% Estimated Hunter Loss	Estimated Total Kill	Boat Hours/ Walrus Retrieved	Average Hunters/Boat
Hekoryuk	-	-	-	39	39	9	48	50	96		
Remainder of Yukon-Kuskokwim	-	-	-	123	123	-	123	50	246		
Stebbins	-	-	-	25	25	-	25	60	63		
Unalakleet	1	-	-	25	26	-	26	60	65		
Gambell	264	82	42	88	476	3	479	40	798	7.7	2.6
Savoonga	313	55	11	46	425	42	467	40	778	5.2	3.7
Nome-King Island*	333	117	-	-	450	7	457	65	1305		
Brevig Mission*	105	45	-	-	150	-	150	60	375		
Wales*	169	84	4	-	257	-	257	55	571	2.30	4.9
Diomede*	217	123	22	10	372	-	372	25	496	1.72	9.3
Shishmaref	40	42	-	-	82	-	82	50	164		
Kivalina	1	-	-	20	21	-	21	-	21		
Point Hope	-	1	-	5	6	-	6	-	6		
Wainwright	4	9	-	30	43	13	56	-	55		
Barrow	-	-	-	30	30	-	30	-	30		
Other*	58	6	-	-	64	15	79	-	79		
Totals	1505	564	79	441	2589	89	2678		5148		

*Sex ratio of unknowns determined from sealing certificates

PREPARED BY: Robert Nelson
Game Biologist II

Appendix III. RETRIEVED KILL OF WALRUS BY AREA IN ALASKA FROM 1960 THROUGH JUNE, 1979.

	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
Mekoryuk																		74	52	28
Yukon-Kuskokwim[1]				25	25	55	45	30	37	68	45	45	22	46	73	9	21	63	118	55
Stebbins																		15	17	25
Unalakleet																		12	21	25
Gambell	386	275	380	314	118	447	488	84	466	226	243	175	250	255	261	641	742	1059	471	378
Savoonga	432	250	293	452	238	389	511	299	117	179	180	543	236	515	204	466	656	640	567	431
Northeast Cape (Nome)[2]					25	71	27	25	14	3		21	35	21	130	95	280			
King Island[2]	230	90	225	240	195	208	596	129	37	1	127	141	21	153	5	24		68	208	457
Brevig Mission																	23	13	96	150
Wales	65			8	7	9	140	4	66	6	77	146	15	35	16	116	109	39	174	257
Diomede	950	510	255	379	69	284	756	593	565	229	590	535	404	418	434	793	739	265	328	362
Shishmaref						5		23		16		145	25	33	105	85		19	120	82
Kivalina																	1	1	1	20
Point Hope	8			10	10	6	16	3	21	5	6	35	45	13	69	10	4	9	1	5
Point Lay																	19	9		
Wainwright	88	131		132	225	194	140	47	85	92	89	23	56	31	38	65	257	24	20	36
Barrow	95			165	10	57	12	55	16	7	39	51	150	20	35	15	138	62	30	
Other[3]	46	604	537		53	42	57	25	12	50	26	55	66	41	40	59		5		79
Total All Villages	2300	1860	1690	1725	975	1767	2788	1317	1436	882	1422	1915	1325	1581	1410	2378	2989	2377	2224	2390

[1] Included Mekoryuk until 1977
[2] Combined in 1977
[3] Included Brevig Mission, Kivalina, and Point Lay until 1977

PREPARED BY: Robert Nelson
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APPENDIX IV

Comparison of the estimated harvest (adults only) and the number of walruses taken according to sealing certificates

Village	Recorded Harvest	Harvest by Sealing Certificates
Mekoryuk	48	57
Remainder of Yukon-Kuskokwim	123	20
Stebbins	25	0
Unalakleet	26	1
Gambell	479	464
Savoonga	467	651
Nome-King Island	457	533
Brevig Mission	150	154
Wales	257	245
Diomede	372	325
Shishmaref	82	80
Kivalina	21	5
Point Hope	6	2
Wainwright	56	82
Barrow	30	3
Other	79	80
Totals	2678	2702

PREPARED BY: Robert Nelson
Game Biologist II

Appendix V. A breakdown of the harvest by recreational hunters during fiscal year 1979.

Hunters	# Permits Issued	Hunted	Did Not Hunt	Unknown	Guided	Successful	Unsuccessful
Residents	180	92	69	19	26	41	51
Non-residents	46	42	3	1	44	41	1
Foreign	8	7	-	1	7	7	-
Totals	234	141	72	21	77	89	52

PREPARED BY: Robert Nelson
Game Biologist II

WHALES

SURVEY-INVENTORY PROGRESS REPORT - 1978-79

Game Management Units 18, 22, 23 and 26 - Marine Waters

Seasons and Bag Limits

Closed, except Alaska Natives could harvest belukhas without limit under provisions of the Marine Mammal Protection Act.

Harvest and Hunting Pressure

Belukha whales have always been an important food source for many of the villagers from the Yukon-Kuskokwim area to Barrow. The recorded harvest of 101 animals was slightly lower than the 115 taken during the previous fiscal year. Harvest by area and sex for the past 2 fiscal years is illustrated in Appendix I. Based on an average hunting loss of 25 to 30 percent, the annual harvest was projected to be between 126 and 131 belukhas. Documented waste was almost nonexistent in the major hunting areas. This may have been attributable to an unusually low harvest in those areas.

In the past, hunters usually took belukhas in the immediate vicinity of their villages; although recently, several prime hunting areas along the coast have attracted hunters from other locations. According to field observers, this influx of hunters unfamiliar with the area coupled with a low degree of group cooperation produced some instances of animosity among hunters.

Hunting was primarily conducted in lagoons and shallow estuaries immediately following spring breakup, although a number of belukhas were taken from shore ice and along open leads. One method often used was to drive the whales into shallow water where they could be killed and retrieved more easily. The majority of the boats used were constructed of either wood, aluminum, or fiberglass and ranged from 16 to 23 feet in length. Boats observed were powered by outboards ranging from 40 to 235 hp. Belukhas were generally shot with a large caliber rifle, snagged with a sinking hook, pulled up onto the ice or beach and butchered.

Abundance and Distribution

A population study was not conducted on belukhas during the reporting period. Personal observations and discussions with local residents were the only techniques used to determine population densities. Increased observations of bowhead whales by the Federal government have also been helpful in providing information regarding belukha whales. Reports from villagers and observers from Bristol Bay to Barrow indicated belukhas were abundant in most areas.

Apparently a large portion of the belukha population followed the retreating pack ice in the spring and returned in the fall. Others appeared to remain in the southern Bering Sea year-round in close association with the Bristol Bay and Alaska Peninsula coastal environments.

Management Summary and Conclusions

At the current rate of harvest, it appears belukhas are in no immediate danger of over-exploitation; however, with the imposition of quotas on bowhead whales, it is quite possible that hunters in some areas will increase their efforts on belukhas.

The low harvest for fiscal year 1979 may have been attributable to one or more of the following: 1) Spring breakup in the Bering and Chukchi Seas was very unusual this year; reports from many villagers indicated breakup occurred earlier than at any known time before. 2) An increase in hunters and boats combined with a lack of organization among participating crews could have had an effect on hunter success. 3) Because of a lack of field biologists in every village which harvests belukhas, it is possible that many whales were taken and not accounted for.

Recommendations

Our present knowledge of the population is limited and a research and management program should be implemented by either the State or Federal government in order that effective and responsive management guidelines can be established.

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Appendix I. Known Belukha Whale Harvest in Game Management Units 18, 22, 23 and 26 by village for fiscal years 1978 and 1979

GMU	Village	Male		Females		Unknown		Total	
		1978	1979	1978	1979	1978	1979	1978	1979
18	Yukon-Kuskokwim Area	-	-	-	-	-	33	6	33
22	Norton Sound	2	1	1	-	-	15	3	16
22	Wales	-	1	-	1	-	-	-	2
23	Deering	-	-	-	-	-	9	-	9
23	Elephant Point *	33	2	37	1	18	-	88	3
23	Kotzebue-Sheshalik	-	-	-	-	1	5	1	5
23	Kivalina	-	-	-	-	-	5	-	5
23	Point Hope *	12	6	5	1	-	2	17	9
26	Point Lay *	-	8	-	4	-	4	-	16
26	Barrow	-	-	-	-	-	3	-	3
TOTALS		47	18	43	6	25	76	115	101

* Areas in which ADF&G field biologist observed part of the hunt during fiscal year 1979

MOUNTAIN GOAT

SURVEY-INVENTORY PROGRESS REPORT - 1978-79

Game Management Subunit 1A - Ketchikan

Seasons and Bag Limits

Aug. 1 - Dec. 31 One goat

Harvest and Hunting Pressure

Harvest ticket returns for the 1978 mountain goat season in Game Management Unit 1A show 55 hunters took 23 goats of which 57 percent were females. The harvest was down 38 percent from 1977, but remained about 44 percent higher than 1975 and 1976. Harvest ticket data for 1972-1978 are summarized below:

Season	Goat Harvest				Hunters Taking 2 Goats	Percent Harvest By Non-Res.	Number Successful Hunters	Total # Hunters	Percent Hunter Success
	MM	FF	Unk.	Total					
1972	23	23	2	48	6	-	42	117	36
1973	36	20	4	60	10	22	50	133	38
1974	26	19	2	47	10	13	37	109	34
1975	8	9	-	17	0*	24	17	93	18
1976	10	5	-	15	0*	0	15	55	27
1977	19	16	2	37	0*	14	37	80	46
1978	10	13	0	23	0*	0	23	55	42

*Bag limit reduced from 2 to 1 in 1975.

The Subunit 1A kill represented 25 percent of the total reported Unit 1 harvest for 1978, about the same as last year.

Chronology of the harvest indicated September with 10 goats and October with eight goats were the major months for goat hunting. Two goats were killed in August, one in November and none in December.

The harvest was centered around the Chickamin River to Rudyerd Bay area where 11 goats were reported taken. Six goats came from the Yes

Bay to Bailey Bay area, four from the Unuk River and one each from the Cleveland Peninsula and Portland Canal.

For all reporting successful hunters in Unit 1A, 91 percent used aircraft for transportation and the remaining 9 percent used boats. Unsuccessful hunters traveled more by boat than did successful hunters, 35 percent used boats and 65 percent traveled by air.

Successful hunters averaged 2.7 days in the field while unsuccessful hunters averaged 3.7 days of hunting. The maximum length hunt recorded was 10 days.

Composition and Productivity

Four survey areas were flown in 1978 and all four had been flown last year (Appendix I). Past survey results and maps of survey areas and routes have been included in past reports (Wood 1974, 1975).

All four surveys again showed an increase in goats observed per hour of survey time, but the kids per 100 adults dropped from the very high 46.6 of 1977 to a more normal 31.2 for this year. The abnormally high reproductive success of 1977 was apparently due to the extremely mild winter of 1976-77.

The survey area with the highest density of goats in 1978 was between the Chickamin River and Walker Cove. This area was also the highest in the 1976 and 1977 surveys.

All surveys were flown between September 5-9 in a Piper PA-12, generally in late evening (between 7:00 and 9:00 P.M.) and in the upper half of the alpine area. Contours were followed as closely as possible. Both the observer's and pilot's observations were recorded, and the same pilot and plane have been used for virtually all surveys conducted since 1968.

Management Summary and Conclusions

The harvest in 1978 dropped 38 percent despite what appears to be an increasing population. An extended strike of the Ketchikan Pulp Mill which involved a large number of people began September 5th and undoubtedly kept many hunters from going on a relatively expensive hunt. Hunter success for this year was 42 percent compared to 46 percent for 1977.

Harvest tickets represent only a portion of the harvest and this year the air charter services and the local taxidermist were contacted for names of people who had killed goats. These hunters were checked against the harvest tickets and eleven additional goats were accounted for. There was also one other goat killed but not retrieved. Undoubtedly there were other goats killed that are unaccounted for in the above tally, particularly from hunters who did not save the hide and/or traveled by boat.

Hopefully, the proportion of unreported goats remains fairly constant from year to year so that the harvest tickets still represent a trend in the annual harvest.

It appears the goat population is still increasing and even though the kid/adult ratio dropped from 1978, it is still at a fairly high level.

The hunting kill represents only a small part of the annual increment and no changes are recommended in the season. A sealing program for goats similar to the bear sealing requirement is recommended in place of harvest tickets, however, to provide better harvest data.

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APPENDIX I. MOUNTAIN GOAT - SUBUNIT 1A - KETCHIKAN AREA.

Goat Composition Surveys, Subunit 1A, 1968 through 1978.

Area K-4 (Wilson Arm to Boca de Quadra

Year	Survey Date	Adults	Kids	Unknown	Total	Kids Per 100 Adults	Survey Time	Goats/ Hour
1968	Sept. 17	193	72	...	265	37	80 Min.	199
1971	Sept. 15	155	56	9	220	36	70 Min.	189
1973	Aug. 16	90	13	...	103	14	65 Min.	95
1974	Aug. 27	26*	8*	...	34*	31	36 Min.*	57
1975	Aug. 12	15	3	...	18	20	47 Min.	23
1976	Sept. 1	18	7	...	25	39	57 Min.	26
1977	Sept. 6	39	19	...	58	49	56 Min.	62
1978	Sept. 9	65	19	...	84	29	51 Min.	99

*Incomplete Survey

Area K-5 (Marten Arm to Portland Canal)

Year	Survey Date	Adults	Kids	Unknown	Total	Kids Per 100 Adults	Survey Time	Goats/ Hour
1968	Sept. 18	298	73	...	371	24	115 Min.	194
1971	Sept. 16	133	34	1	168	26	83 Min.	121
1973	Aug. 20	59	22	...	81	37	85 Min.	57
1974	Sept. 21	24	6	...	30	25	74 Min.	24
1975	Aug. 13	21	7	1	29	33	87 Min.	20
	Sept. 11	40	17	...	57	43	78 Min.	44
1976	Sept. 7	40	7	...	47	18	99 Min.	29
1977	Aug. 31	83	41	...	124	49	101 Min.	74
1978	Sept. 8	97	34	...	131	35	90 Min.	87

APPENDIX I. (Continued). MOUNTAIN GOAT - SUBUNIT 1A - KETCHIKAN AREA

Goat Composition Surveys, Subunit 1A, 1968 through 1978.

Area K - 9 (Klahini River to Chickamin River)

Year	Survey Date	Adults	Kids	Unknown	Total	Kids Per 100 Adults	Survey Time	Goats/ Hour
1975	August 28	52	11	0	63	21	79 Min.	48
1976	Sept. 10	73	20	0	93	27	92 Min.	61
1977	Sept. 1	104	44	0	148	42	122 Min.	73
1978	Sept. 5	121	37	0	158	31	93 Min.	102

Area K-10 (Chickamin River to Walker Cove)

Year	Survey Date	Adults	Kids	Unknown	Total	Kids Per 100 Adults	Survey Time	Goats/ Hour
1975	Sept. 10	74	31	0	105	42	65 Min.	97
1976	Sept. 9	65	20	0	85	31	59 Min.	86
1977	Sept. 2	113	55	0	168	49	86 Min.	117
1978	Sept. 6	121	36	0	157	30	76 Min.	124

MOUNTAIN GOAT

SURVEY-INVENTORY PROGRESS REPORT - 1978-79

Game Management Unit 1B - Southeast Mainland, Cape Fanshaw to Lemesurier Point.

Season and Bag Limit

Aug. 1-Dec. 31 — One goat

Population Status and Trend

In general, goat populations in Subunit 1B appear to be in moderately good condition. Goat population levels are slowly improving in most areas in Subunit 1B but are below earlier recorded levels.

Composition and Productivity

Aerial surveys were conducted over selected portions of Subunit 1B in September, 1978. A total of 177 goats were counted. The kid to adult ratio, which indicates general herd condition, was 36:100 compared to 28:100 in 1977.

Mortality

Harvest ticket returns for the 1978 season indicated 34 people hunted goats in Subunit 1B. Fifteen hunters were successful and bagged nine male and six female goats, a 59 percent decrease from the 37 goats taken in 1977. The hunter success of 44 percent was somewhat less than the 51 percent reported in 1977. Of the 15 successful hunters, six were nonresidents.

Chronology of the harvest showed 6 goats (40%) taken in August, 4 (27%) in October, 2 (13%) in November. Three hunters did not record the dates of harvest. No goats were taken during September and December.

Transportation used by all hunters consisted of boats (47%), airplanes (44%), highway vehicle (3%), horse (3%), and unknown (3%). Of the successful hunters, 47 percent used airplanes and 47 percent used boats.

Successful hunters spent a average of 3.0 days hunting while unsuccessful hunters hunted an average of 2.7 days, nearly equal to 1977.

The harvest was nearly equally divided between the area north of the Stikine River and the remaining portion of the unit.

Management Summary and Recommendations

The 1978 harvest and hunting pressure in Subunit 1B declined sharply by 147 percent and 112 percent, respectively, compared to 1977. Despite these extreme differences, the hunter success rate of 44 percent in 1978 was only slightly less than the 51 percent success rate reported in 1977.

Goat populations should be closely monitored in areas where current harvest levels may adversely affect these populations. It is recommended that the total harvest not exceed 10 percent of the known population.

No change in season or bag limit is recommended.

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MOUNTAIN GOAT

SURVEY-INVENTORY PROGRESS REPORT - 1978-79

Game Management Unit 1C - Juneau

Seasons and Bag Limits

Unit 1C, that portion draining into Lynn Canal, Stevens Passage and Taku Inlet between Antler River and Taku Glacier	Oct. 1-Nov. 30	One goat
Remainder of Unit 1C	Aug. 1-Nov. 30	One goat

Population Status and Trend

Only three surveys were flown in Unit 1C in 1978, Tracy Arm, Mendenhall Glacier to Eagle Glacier and the William Henry Mountains in the Chilkat Range. The results, presented in Table 1, compare favorably with the past several years' survey results for the same, or adjacent, areas.

Table 1. Unit 1C 1978 Goat Surveys

Survey Area	No. Ad	No. Kids	Total	Kids/100 Adults	Goats/ Hour
William Henry Mts.	14	5	19	36	24
Tracy Arm	128	31	159	24	62
Mendenhall to Eagle Glacier	36	8	44	22	39

These limited data, plus hunter interviews and incidental observations, indicate a relatively stable goat population in Unit 1C. The William Henry Mountains survey confirms that the goat population is still down in that area and probably for much of the Chilkat Mountain Range. Throughout the rest of the Unit, goats are thought to be somewhere near the midpoint of the long-term range in population numbers. Survey results for the past 4 years have shown that the William Henry Mountain herd has had average to high kid to adult ratios (1975 - 44, 1976 - 44, 1977 - 33, and 1978 - 36), yet the population appears to remain stable and low. Indeed, in such an area of above average snow accumulation, winter weather may be limiting population size.

Population Composition

The results of 1978 surveys relevant to population composition are presented in Table 1. Insufficient data are available from year to year for any given locality for interpretation with respect to production, survival, etc.

Mortality

The reported harvest, based on returned harvest ticket data for 1978, was 35 goats for GMU 1C (Table 2). This is similar to total harvest for 1976 (41 animals) and 1977 (30 animals). The kill was comprised of 24 males and 11 females. Residents took 23 animals (65.7%), nonresidents 11 animals (31.4%) and one animal was taken by a hunter of unknown residency. A total of 80 hunters hunted, 62 residents, 14 nonresidents plus four of unspecified residency. Success rates were: residents 37 percent and nonresidents 79 percent.

The chronology of harvest was August-3, September-3, October-6, November-17 and unknown-6.

Table 2. Unit 1C Goat Harvest Statistics for 1972-1978 as Derived From Hunter Report Cards.

	Chronology of Harvest								Sex Composition				No. of	Hunter
Year	A	S	O	N	D	J	Unk	Tot	M	F	Unk	%Male	Hunters	Success
1972	18	10	7	6	4	16	5	70	36	34	0	51.4	149	40.3
1973	30	32	11	21	17	NA	1	112	56	56	0	50.0	177	52.2
1974	19	18	7	15	30	NA	5	94	40	51	3	42.6	159	44.0
1975	7	8	20	15	13	NA	5	68	42	25	1	61.8	138	49.3
1976	2	0	12	5	16	NA	6	41	13	28	0	31.7	107	38.3
1977	8	5	4	10	NA	NA	3	30	19	9	2	63.3	72	41.6
1978	3	3	6	17	NA	NA	6	35	24	11	0	68.6	80	43.8

Management Summary and Recommendations

From the harvest data, it appears that elimination of the January portion of the hunting season in 1973 and subsequent unitwide closure of the December season in 1977, plus dropping August and September for that portion of the Unit draining into Lynn Canal, Stevens Passage and Taku Inlet between Antler River and Taku Glacier in 1976 have reduced the harvest from the 70 to 120 animal range down to the 30 to 40 animal range. The current harvest level is acceptable considering an estimated 200 to 300 plus animals in the population. Only eight goats were reported taken adjacent to the "road system" from Thane to the Antler

River. This is a conservative harvest for the area which has an estimated 100 goats. However, harvest is expected to increase as the human population of Juneau grows and as hunting opportunity for other species declines on a statewide basis. No changes in seasons or bag limits are recommended.

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MOUNTAIN GOAT

SURVEY-INVENTORY PROGRESS REPORT - 1978-79

Game Management Unit 1D - Haines and Skagway

Seasons and Bag Limits

Unit 1D, that portion lying east of Taiya Inlet and River between Chilkoot Trail and White Pass and Yukon Railroad	No open season	
Unit 1D, that portion lying north of the Katzehin River and east of the Haines Highway	Sept. 15-Nov. 30	One goat
Remainder of Unit 1D	Aug. 1-Dec. 31	One goat

Population Status and Trend

No survey or inventory data were available. Hunter interviews and incidental observations indicate no major population changes from 1977-78 to 1978-79.

Population Composition

No survey or inventory data were available.

Mortality

The reported goat harvest for Unit 1D for 1978 was 17, a decrease of 32 percent from 1977 and the same as 1976 (Table 1). Fifty-two hunters went afield. Hunter success rate was 32.7 percent. Only one nonresident reported hunting in Unit 1D and that person took a goat. Thirty-four residents plus one person of unknown residence were unsuccessful. The chronology of harvest was August-2, September-1, October-6, November-4, and Unknown-4.

Management Summary and Recommendations

Hunting pressure has remained low the last 3 years compared to previous years. Shortening seasons and decreasing the bag limit from two to one goat have caused this decline. The populations, while apparently stable, are below carrying capacity. Aerial surveys should be conducted in Unit 1D at least every other year to provide population estimates and trends for management decisions. Also, hunting pressure can be expected to increase as Haines grows in population and as hunting opportunities for other species decline on a statewide basis. No changes in seasons or bag limits are recommended.

Table 1. Unit 1D Goat Harvest Statistics for 1972-1978 Seasons Derived From Hunter Report Cards.

Year	Chronology of Harvest								Sex Composition				No. of Hunters	Hunter Success
	A	S	O	N	D	J	Unk	Tot	M	F	Unk	%Male		
1972	8	13	3	4	4	4	7	43	24	16	3	60.0	102	33.3
1973	25	27	13	6	14	NA	3	88	45	40	3	52.9	109	62.4
1974	26	8	7	2	10	NA	0	53	26	27	0	49.6	90	52.2
1975	13	4	10	7	0	NA	1	35	22	12	1	64.7	77	45.5
1976	2	1	8	1	0	NA	5	17	8	9	0	47.0	65	26.1
1977	6	1	9	7	0	NA	2	25	15	9	1	62.5	69	36.2
1978	2	1	6	4	0	NA	4	17	7	10	0	41.2	52	32.7

PREPARED BY:

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SUBMITTED BY:

Jack W. Lentfer
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MOUNTAIN GOAT

SURVEY-INVENTORY PROGRESS REPORT - 1978-79

Game Management Unit 4 - Baranof Island Only

Seasons and Bag Limits

Aug. 1-Dec. 31	One goat by permit only.

Harvest and Hunting Pressure

The 1978 Unit 4 goat hunt was again regulated by a registration hunt with no harvest ticket required. This was the third year the permit system has been in effect for Unit 4.

One hundred and seventy-five permits were issued on a first come, first served basis. Of the permittees, 172 were Alaska residents, and 3 were nonresidents. Eighty-two permittees (47%) did not hunt. Only eight persons failed to voluntarily return their permits as required. Compliance with these was obtained through a good cooperative effort with Officer Richard Graham of the Division of Fish and Wildlife Protection. One person was cited for failure to report a successful hunt within the time required.

Analysis of the permits shows the Unit 4 kill in 1978 to have been 32 animals; 17 males, 14 females, and 1 sex unknown. Chronologically, 17 were taken in August, 6 in September, 7 in October, and 2 in December. Residents of Sitka and Mt. Edgecumbe took 29 animals, residents of other Alaskan communities took two animals, and one was taken by a nonresident.

Of those persons who gave their method of transportation, 16 of the successful and 29 of the unsuccessful hunters used aircraft. Fourteen of the successful and 22 of the unsuccessful hunters walked after boating or driving to the hunting area.

Thirty-one of the goats were taken from that portion of Baranof Island north of the drainage into the head of Silver Bay (Vodopad River).

Successful hunters averaged 2.3 days hunting effort while unsuccessful hunters averaged 4.0 days per person.

The 32 goats killed is only slightly less than the 1977 harvest but is still substantially over previously reported harvests. It is suspected that the permit system and the considerable publicity in the form of news releases naming delinquent or noncomplying permittees and considerable contact with goat hunters by both Department of Fish and Game and Fish and Wildlife Protection personnel may create a greater degree of

compliance in reporting harvests. If true, the reported kill of 40 animals in 1977 and 31 in 1978 may be quite close to the actual kill, and previous years reported kills were less than actual.

Composition and Productivity

No data were obtained.

Age Structure of the Harvest

Horns of 23 of the goats taken in 1978 were made available for aging. Fifteen males showed a mean age of 3.4 years while eight females showed a mean age of 3.9 years.

Management Summary and Recommendations

The mountain goat population on Baranof Island appears to be in a healthy condition. Known harvests have not exceeded 10 percent of the observed population on the northern portion of Baranof. Hunting pressure is nearly nonexistent on the southern half of the island, due to a lack of access. The permit system now in effect can adequately regulate the kill.

PREPARED BY:

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SUBMITTED BY:

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Appendix I. Mountain goat survey and harvest data, Game Management Unit 4.

	Survey Data						Harvest Data				
Date	Total Goats	Goats/ Hour	Number Kids	Number Adults	Kids/100 Adults	Data Source (Aircraft Type)	Total Kill	Males	Females	Total Number Hunters	Data Source
1954	263	--	41	222	18.5	USF&WS (------)	----------				
9/1/1960	116	38.4	26	90	28.9	Merriam-ADF&G (------)			ZERO DATA		
9/11/1961	118	--	20	98	20.4	Merriam-ADF&G (------)	----------				
9/3/1970*	154	--	15	139	10.8	Courtright-ADF&G (Helio Courier)	16			48	Hunter Interview
9/29/1970	121	--	13	108	12.0	Courtright-ADF&G (Helio Courier)				75	Hunter Interview
1971	--	--	--	--	--	--	20				
1972	--	--	--	--	--	--	10	5	5	50	Harvest Ticket
9/12-13/1973	253	36.1	50	203	24.6	Johnson-ADF&G (Piper PA-18)	24	11	13	45	Harvest Ticket
1974	--	--	--	--	--	--	10	7	3	39	Harvest Ticket
8/24-25/1976**	242	62.0	47	195	24.1	Johnson-ADF&G (Piper PA-18)	28	18	10	107	Harvest Ticket/ Register Permit
1977	541	73.1	148	393	37.7	Johnson-ADF&G (Hughes 500 Helicopter)	40	22	18	101	Register Permit
1978	--	--	--	--	--	--	31	17	14 (1 Unk)	93	Register Permit

*Incomplete coverage.
**North of Vodopad River only.

MOUNTAIN GOAT

SURVEY-INVENTORY PROGRESS REPORT - 1978-79

Game Management Unit 5 - Yakutat

Seasons and Bag Limits

Aug. 1-Dec. 31 — One goat

Population Status and Trend

Aerial surveys indicate that the goat populations in Unit 5 are stable and production appears to be about equal to what it has been in recent years (Appendix I).

Population Composition

Aerial surveys were conducted on three dates using a Cessna 180. The Icy Bay portion of Unit 5, composed of three sets of low lying mountains at the head of the bay, was surveyed on August 18, 1978. Survey conditions were good and the results corresponded closely to previous surveys (Appendix I) in the same location. Surveys were also conducted from Moser Creek, east of Russell Fiord to the Alsek River. The area from Gateway Knob to Akwe Lake on the south slope of the Brabazon Range was inventoried on October 23, 1978. That portion from Akwe Lake east to Moser Creek was surveyed on November 9, 1978. One hundred and nineteen goats were observed between Harlequin Lake and the Alsek River (87 adults and 32 kids for a ratio of 37 kids:100 adults). Survey conditions were fair on both days and the results were in line with those conducted in previous surveys. The populations appear to be stable with herd production possibly increasing slightly (Appendix I).

Mortality

Harvest ticket returns for the 1978 season (66% statewide response) show that 22 hunters harvested 10 goats for a success ratio of 45.5 percent. Although this is a slight increase in the number of hunters, the number of goats harvested, and the hunter success ratio over the 1977 statistics, the results were about equal to the average for the preceding six seasons. Since 1974, the last year of the two goat limit in Unit 5, the hunting pressure has remained about the same, averaging about 20 hunters reporting each season (Appendix II).

No significant mortality other than hunting has been evidenced, but predation by wolves, at least in the Chaix Hills area, is suspected. In September 1978 a reliable observer reported seeing a lone wolf standing less than 100 meters from a group of seven goats. The pilot did not see

any evidence of predation but stated that both the group of mixed age class goats and the wolf were obviously aware of each other. If, indeed, wolf predation is occurring in the Icy Bay area, it appears to be having little significant effect on the overall population since survey results have been consistent over the years but it deserves close monitoring.

Management Summary and Recommendations

Overall, goat populations in Unit 5 appear to be stable and hunting pressure and harvest are fairly consistent. The number of goats and production observed during recent aerial surveys correlate well with previous survey results (Appendix I). Future aerial surveys should include the utilization of a helicopter to periodically examine specific trend areas to obtain accurate population information. This information may be necessary for proper management due to concentration of hunters as a result of a change in land status following the d-2 land settlement. No changes in season or bag limit are recommended at this time.

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SUBMITTED BY:

Nathan P. Johnson
Region I Research/Management Coordinator

Appendix I. Summary of mountain goat age composition and population surveys from 1971 through 1978. Unit 5.

Area	Date	# Adults	# Kids	Total Goats	Kid/100 Adults	Survey Vehicle
Brabazon Range	10-5-71	213	70	283	32.8	Cessna 180
	9-16-73	54	9	63	16.7	Supercub
	10-17-74	112	30	142	26.8	Cessna 180
	10-75	78	15(10 Unk)	103	19.2	Cessna 180
	9-24-76 / 10-23-76	91	17	108	18.7	Cessna 180
	7-77 / 8-77	99	33	132	33.3	Cessna 180
	10-23-78 / 11-9-78	87	32	119	36.8	Cessna 180
Chaix Hills	10-20-72	32	15	47	46.9	Cessna 180
	10-18-74	17	7	24	41.2	Cessna 180
	8-4-76	60	11	71	15.5	Cessna 180
	8-18-78	67	17	84	25.4	Cessna 180
Karr Hills	10-20-72	31	15	46	48.4	Cessna 180
	10-18-74	22	13	35	59.1	Cessna 180
	8-4-76	64	15	79	18.9	Cessna 180
	8-18-78	56	20	76	26.3	Cessna 180
Goyot	9-29-76	-	-	48	-	Cessna 180
	8-18-78	34	13	47	38.2	Cessna 180

Appendix II. Mountain goat harvest for 1972-1978, Unit 5.

	Harvest				No. Hunters Taking Two	Total No. Hunters	Percent Hunter	Percent Ticket
Year	Males	Females	Unk	Total	Goats	Reporting	Success	Response
72-73	19	13	1	33	3	55	54.4	73.4
73-74	10	3	-	13	3	32	31.3	71.7
74-75	14	5	-	19	4	19	78.9	69.9
75-76	5	3	-	8	-	22	36.4	72.5
76-77	4	3	-	7	-	22	32.0	70.8
77-78	4	2	-	6	-	17	35.0	71.8
78-79	2	8	-	10	-	22	45.5	66.0

PREPARED BY: Ronald E. Ball, Game Biologist II

MOUNTAIN GOAT

SURVEY-INVENTORY PROGRESS REPORT - 1978-79

Game Management Unit 6 - Prince William Sound

Seasons and Bag Limits

Aug. 1.-Dec. 31	One goat

Harvest and Hunting Pressure

In Unit 6, 135 mountain goats were reported taken during the 1978 season. Composition of the harvest was 87 males, 45 females and 3 of unknown sex. The 1978 goat harvest was slightly greater than the 7-year average of 124 goats (Appendix I).

The eastern portion of Prince William Sound from Columbia Glacier to the Copper River received 51 percent of the hunting pressure (Appendix II) and produced 47 percent of the harvest (Appendix III). The southern tip of Prince William Sound from Cape Fairfield to Bainbridge Glacier was heavily hunted (33 hunters) and yielded a relatively large harvest (23 goats) for the size of the area. Overall hunter success was 55 percent and resident hunters took 73 percent of the harvest (Appendix IV).

Chronology of the harvest was nearly uniform except for the month of December when only four goats were taken (Appendix V).

Composition and Productivity

Five areas were surveyed for goat abundance, distribution, and composition during 1978 (Appendix VI). Berg Lake was the only area surveyed that did not show a significant decrease in the total number of goats counted.

Management Summary and Conclusions

The 1978 harvest of 135 goats is slightly above average for Unit 6. Analysis of the harvest data (Appendix IV) indicates that the current level of hunting pressure is not adversely affecting Unit 6 goat populations. The only possible exception would be the Cape Fairfield to Bainbridge Glacier area where a relatively large harvest was taken from a small area. No current survey data are available for this area.

The five areas surveyed in 1978 (Appendix VI) were flown to determine the goat status east of the Copper River in an area where wolf predation was suspected to be reducing local goat populations. The harvest of goats by hunters in these areas is minimal and goat populations in adjacent wolf-free or low wolf density areas are excellent. Thus, judging by the drastic reduction of goats observed in four of the five areas surveyed, wolf predation may be impacting the population.

Recommendations

No change in season or bag limit is recommended.

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APPENDIX I

Unit 6

Mt. Goat Harvest by Year and Sex

	MALE		FEMALE		UNKNOWN		TOTAL	
	No.	Percent	No.	Percent	No.	Percent	No.	Percent
1972	49	63.6	27	35.1	1	1.3	77	100.0
1973	93	67.4	43	31.2	2	1.4	138	100.0
1974	88	70.4	35	28.0	2	1.6	125	100.0
1975	99	60.4	62	37.8	3	1.8	164	100.0
1976	74	60.2	49	39.8	0	0.0	123	100.0
1977	66	60.6	41	37.6	2	1.8	109	100.0
1978	87	64.4	45	33.3	3	2.2	135	99.9
7 year Average	79	63.7	43	34.7	2	1.6	124	100.0

Prepared by: Julius Reynolds, Game Biologist III

APPENDIX II

Unit 6

1978 - Mt. Goat hunting pressure by Subunit and class of hunter

Unit/ Subunit	Area	Successful Hunters	Unsuccess-ful Hunter	Total Hunters	Percent Success
6-01	East of Suckling Hills to Icy Bay	17	4	21	81.0
6-02	Bering Lake - Burg Lake Area	5	2	7	71.4
6-03	Suckling Hills	4	0	4	100.0
6-04	Ragged Mountain	6	8	14	42.9
6-05*	Goat Mountain	-	-	-	--
6-06	Rude River to Copper River	10	15	25	40.0
6-07	Valdez Arm to Rude River	34	19	53	64.2
6-08	Valdez Area	20	27	47	42.6
6-09	Port Wells to Columbia Glacier	8	4	12	66.7
6-10	Unit 6 - Unknown	5	9	14	35.7
6-11	Whittier - Port Wells	0	6	6	0.0
6-12	Kings Bay to Cape Fairfield	23	10	33	69.7
6-13	Prince William Sound - Unknown	3	6	9	33.3
Unit 6 Totals		135	110	245	55.1

* Not open to hunting.

PREPARED BY: Julius Reynolds, Game Biologist III

APPENDIX III

Unit 6

1978 Mt. Goat Harvest by Subunit & Sex

Unit/ Subunit	Area	Male	Female	Unk.	Total	Percent
6-01	East of Suckling Hills to Icy Bay	10	7		17	12.6
6-02	Bering Lake - Burg Lake Area	3	2		5	3.7
6-03	Suckling Hills	2	1	1	4	3.0
6-04	Ragged Mountain	4	2		6	4.4
6-05*	Goat Mountain	-	-		-	--
6-06	Rude River to Copper River	6	3	1	10	7.4
6-07	Valdez Arm to Rude River	23	10	1	34	25.2
6-08	Valdez Area	14	6		20	14.8
6-09	Port Wells to Columbia Glacier	5	3		8	5.9
6-10	Unit 6 - Unknown	3	2		5	3.7
6-11	Whittier-Port Wells	0	0		0	0.0
6-12	Kings Bay to Cape Fairfield	15	8		23	17.0
6-13	Prince William Sound - Unknown	2	1		3	2.2
Unit 6 Total		87	45	3	135	99.9

* Not open to hunting.

Prepared By: Julius Reynolds, Game Biologist III

APPENDIX IV

Unit 6

Mt. Goat harvest ticket data

ITEM	1973-74	1974-75	1975-76	1976	1977	1978
1. Total harvest	138	125	164	123	109	135
2. Percent males in harvest	67.4	70.4	60.4	60.2	60.6	64.4
3. Total hunters	280	238	251	270	250	245
4. Percent hunter success	41.1	46.2	55.0	45.6	43.6	55.1
5. Percent hunters taking two goats	8.2	6.3	10.4	---*		
6. Percent harvest by residents	73.9	64.0	76.2	60.0	72.0	73.3
7. Percent harvest: August, September, October	68.2	72.8	71.4	93.5**	83.5	74.8
8. Valdez Arm to Copper River						
Percent harvest	42.8	39.2	48.8	30.9	45.9	47.4
Percent hunters	38.6	34.8	43.3	33.3	45.6	41.0

* Bag limit reduced to one goat.
** Season reduced by one month (January).

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APPENDIX V

Unit 6

Chronology of 1978 Mt. Goat Harvest*

Month	Number	Percent
August	39	28.9
September	35	25.9
October	27	20.0
November	27	20.0
December	5	3.7
Unknown	2	1.5
Total	135	100.0

* Hand compiled.

APPENDIX VI

Unit 6

Mt. Goat Composition & Productivity Surveys

Location	Date	Adults	Kids	Total	Kids/ 100 Ad.	% Kids in Pop.
Suckling Hills	8/26/70	58	25	83	43.1	30.1
	8/14/73	40	24	64	60.0	37.5
	8/23/78	30	12	42	40.0	28.6
Don Miller Hills	8/14/73	56	14	70	25.0	20.0
	8/27/75	44	6	50	13.6	12.0
	9/22/78	32	5	37	15.6	13.5
Ragged Mt.	9/17/69	131	28	159	21.4	17.6
	8/15/73	117	32	149	27.4	21.5
	8/18/78	43	12	55	27.9	21.8
Mt. Hamilton, Kushtaka & Martin-Tokun-Bering Ridges	8&9/73	34	4	38	11.8	10.5
	8/18/78	3	1	4	33.3	25.0
Berg Lake	8/29/74	75	19	94	25.3	20.2
	8/19/78	71	22	93	31.0	23.7

Prepared By: Julius Reynolds, Game Biologist III

MOUNTAIN GOAT

SURVEY-INVENTORY PROGRESS REPORT - 1978-79

Game Management Units 7 and 15 - Kenai Peninsula

Seasons and Bag Limits

Unit 7, that portion south and east of Ellsworth Glacier and the stream flowing from Ellsworth Glacier into Day Harbor and that portion south and west of Bear Glacier.	Aug. 10-Dec. 31	One goat by permit only. See 5 AAC 81.055 and separate permit hunt supplement.
Unit 7, that portion west of a line along Sixmile Creek from its mouth near Hope to the Seward Highway, along the Seward Highway to Ptarmigan Creek; north of a straight line from Ptarmigan Creek bridge to Porcupine Island in Kenai Lake, then a straight line from Porcupine Island to the head of Upper Russian Lake; east of the Russian River from Upper Russian Lake to the Kenai River and north of the Kenai River from the confluence of Russian River to the Unit 15 boundary.	No open season	
Remainder of Unit 7 and Unit 15	Sept. 10-Oct. 31	One goat by permit only. See 5 AAC 81.055 and separate permit hunt supplement.

Harvest and Hunting Pressure

Goat harvest data for 1976 through 1978 are summarized in Appendix I. Hunting pressure for the coastal portions of Unit 7 approximates that of 1977, however, hunter success (30 goats) increased by 67 percent over the 1977 level (18 goats). Hunting pressure and success rates increased from 1977 levels for the interior portions of Unit 7.

Hunting pressure, harvests, and the average age of female goats taken from Unit 15 have all declined during the past 3 years. The average age of male goats taken from Unit 15 increased from 1976 to 1977, then declined again in 1978.

During the period 1976 through 1978 the majority of goats were taken prior to 1 November in all portions of the Kenai.

Hunt areas 7-15, 15-7 and 15-8 were heavily harvested during 1978. The numbers of goats taken from these areas exceeded the desired quota of 10 percent of the number of goats seen during the most recent survey. Permit areas 7-15 and 7-18 were closed by emergency order on 15 November 1978.

Composition and Productivity

Surveys were flown in selected goat permit areas during 1978. The results of these surveys are presented in Table 1.

Table 1. Results of goat surveys in portions of the Kenai Peninsula-1978.

	Goat observed			
Hunt area	Adults	Kids	Total	Kids/100 adults
7-12	33	11	44	33
15-4	6	2	8	33
15-5	12	4	16	33
15-6	6	2	8	33
15-7	22	6	28	27
15-11	42	14	56	33
15-12	34	14	48	41

Surveys were also flown in hunt areas 15-2 and 15-3, however, the survey conditions were poor and the number of goats seen was well below known populations. The number of goats observed in areas 15-5 and 15-6 was also considered low as a result of turbulent flying conditions. In areas 15-4, 15-11 and 7-12 the number of goats observed was above 1977 levels, but below levels of previous years.

Management Summary and Conclusions

Harvests and hunting pressure on the Kenai Peninsula have declined in response to the permit system initiated in 1976. These decreases were desired due to declining goat populations throughout the area. However, in 1978 both harvests and hunting pressure in Unit 7 increased above the 1977 levels.

Numbers of goats on the Kenai are below the level of previous years but appear to be stable or slightly above the level observed in 1977.

The registration permit system for goats on the Kenai was initiated to enable the Department to limit harvests in each permit area. However, under this system unlimited numbers of hunters have been free to choose the area they wish to hunt so that hunting pressure has been undirected. As a result, popular areas have received excessive hunting pressure and harvests while other areas have been virtually untouched.

Recommendations

Permits should be issued by a drawing on an individual area basis and restricted in number.

Surveys should be flown in areas which have not been surveyed in recent years to assess population trends and determine desirable harvest levels.

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Appendix I. Harvest data for Mountain Goats taken from Units 7 and 15 on the Kenai Peninsula, 1976-1978.

Area	Year	MM	FF	?	Total	Hunters*	Percent success	Average age MM(N)	Average age FF(N)
Unit 7, that portion... (coastal areas except vicinity of Seward)	1976	15	13	0	28	73	38%	2.7(11)	6.4(11)
	1977	12	6	0	18	50	36%	4.4(11)	4.5(6)
	1978	21	9	0	30	54	56%	4.5(20)	6.3(7)
Unit 7, remainder (interior & road system)	1976	26	16	0	42	199	21%	3.2(25)	4.7(11)
	1977	9	6	0	15	89	17%	4.2(9)	4.3(6)
	1978	16	17	0	33	114	29%	3.6(16)	4.0(13)
Unit 15	1976	43	23	1	67	262	26%	3.6(42)	5.0(22)
	1977	24	17	0	41	122	34%	4.2(22)	4.5(17)
	1978	15	13	1	29	86	34%	2.7(13)	3.5(12)
Total Kenai	1976	84	52	1	137	534	26%	3.4(78)	5.3(44)
	1977	46**	29	0	75	261	29%	4.2(42)	4.5(29)
	1978	52	39	1	92	254	36%	3.7(49)	4.3(32)

* Does not include hunters for which area hunted is unknown.
** Includes one additional male goat taken in an unknown area of Unit 7 in 1977.

PREPARED BY: Don Cornelius, Game Biologist II

MOUNTAIN GOAT

SURVEY-INVENTORY PROGRESS REPORT - 1978-79

Game Management Unit 8 - Kodiak and Adjacent Islands

Seasons and Bag Limits

Sept. 1-Oct. 30	One goat, up to 15 goats by permit only. See 5 AAC 81.055 and separate permit hunt supplement.

Harvest and Hunting Pressure

Twenty-nine permits for goat hunting were awarded by lottery in 1978. Four hunting areas, corresponding to the fall ranges of the major groups of goats, were each assigned a percentage of the 29 available permits. Fifty-five people applied for permits.

Twenty permittees reported hunting. Nine goats, six males (67%) and three females (33%), were killed for 45 percent overall hunter success. Six goats were killed during September and three were killed during October.

The six males ranged from 2 to 10 years of age. Two females were age 4 and 10 years. The age of the third female was not determined.

Six of the goats were killed in hunt area No. 871, the Center Mountain-Wild Creek area. One goat was killed in each of the other three areas.

Composition and Productivity

Sex and age composition surveys were conducted 15, 16, and 17 August 1978, using a helicopter (Bell Jet Ranger). Ground counts were also conducted on 15, 16, and 17 August. Composition data from helicopter and ground counts were combined. Some duplicate counting may have occurred on successive days, but probably amounted to less than 5 percent of the total count.

Ninety-nine adults and 33 kids were tallied in the combined counts. This was the highest count of kids since 1972 when 27 kids were observed. The kid:adult ratio in 1978 was 33 kids:100 adults, much improved from the 21 kids:100 adults recorded the previous year. The higher kid:adult ratio recorded in 1978 may be a result of not having surveyed some of the low density goat habitat where only scattered adults are usually observed.

Two groups of goats were classified by two observers on the ground using spotting scopes at distances of 150-700 yards. A group of 32

goats located about 3 miles east of Terror Lake in hunt area No. 873 was classified on 15 August 1978. Classification of adults and subadults was based on horn characteristics, urination posture, genitalia and accompaniment of kids. Yearlings were classified by relative size and horn length.

The classification of this group of goats is as follows:

	No.	Percent
Male adult	1	3
Male 2 yr.	2	6
Yearling	3	9
Female w/1 kid	6	19
Female w/2 kids	2	6
Kid	10	31
Female 2 yr.	1	3
Female adult	1	3
Unclassified adults or subadults	6	19
	32	99

Only three yearlings were observed in this group. A total of eight kids were counted during the 1977 survey near this location. The reported harvest from this area during 1977 was eight goats, including one kid and five females aged 3 years or older. Assuming that all five females killed in 1977 were accompanied by one kid and that all five kids did not survive the following winter, there would have been six kids lost to direct or indirect hunting mortality. This would leave two surviving yearlings, which compares closely to the three yearlings actually observed. Unfortunately, it cannot be positively established that the goats observed in 1977 were the same observed in 1978, so no firm conclusions can be made about mortality of kids after loss of their mothers.

The eight females with kids comprised 25 percent of this group of 32 animals. A single, old and presumably barren female, was observed. Only two males, one adult and one 2-year-old were classified. Young animals in the 2-3-year-old age class were difficult to classify to sex at the distances from which they were observed.

A second group of 46 goats on Crown Mountain was classified on 16 August 1978. This group was classified as follows:

	No.	Percent
Male adult	1	2
Male 2 yr.	4	9
Yearling	6	13
Female w/1 kid	8	17
Female w/2 kids	1	2
Kids	10	22
Female adult	1	2
Unknown sex adult	5	11
Unknown sex 2 yr.	6	13
Unclassified	4	9
	46	100

Six yearlings were identified comprising 13 percent of the group. Ten kids comprised 22 percent of the group. Ten adult females, including one without a kid, were classified for a 1:1 kid:adult female ratio.

The 1977 survey recorded 37 goats at this location (including eight kids). Hunting mortality in this area in 1977 totaled three goats including one male age 4 years and two females over age 4. If both females had non-surviving kids, the predicted yearling survival would equal the six yearlings actually counted in 1978. Assuming no additional mortality occurred during the winter and that at least eight kids would be produced in 1978, the predicted herd size would be 40 animals compared to the 46 actually observed.

Management Summary and Conclusions

The 1978 season marked the first attempt to manage goats in Unit 8 on an individual group basis. Group identities and their ranges have not been documented with tagging studies, but several years of observing groups of goats in the same locations provided the basis for the boundaries of the four hunting areas.

For the second time in 11 years of hunting the harvest of males exceeded that of females. Excessive female kill in the past apparently depressed kid production. The mandatory check-in system provides opportunity to discuss trophy selection and goat management with local hunters. This educational effort and assignment of hunters to specific areas provide for much closer management of the sex and age composition of the harvest.

Sex and age composition surveys on the ground, if done annually, should provide good data on survival of kids to yearlings. Application of these data will remain limited until tagging studies can be used to confirm herd identities and document movements.

Recommendations

1. Ground composition surveys should be done annually in the Terror Lake and Crown Mountain areas. Aerial surveys should also be continued to document distribution of goats and to assess annual production of kids.

2. No changes in seasons or bag limits are recommended.

PREPARED BY:

Roger B. Smith
Game Biologist III

SUBMITTED BY:

James B. Faro
Regional Management Coordinator

MOUNTAIN GOAT

SURVEY-INVENTORY PROGRESS REPORT - 1978-79

Game Management Unit 11 - South side of Wrangell Mountains and eastern portion of Chugach Mountains

Seasons and Bag Limits

Sept. 1-Dec. 31 — One goat

Harvest and Hunting Pressure

Forty-six hunters reported harvesting 21 mountain goats, 9 males and 12 females during the 1978 season (Appendix I).

The number of goat hunters decreased (27%) from 63 in 1977 to 46 in 1978 (Appendix I). The average number of days hunted by successful goat hunters decreased from 5.0 in 1977 to 3.6 in 1978. The average number of days hunted by unsuccessful hunters was 5.0 in 1978. Chronology of harvest data since 1976 is difficult to analyze because most hunters fail to report the date of their kills (Appendix II).

Composition and Productivity

Mountain goat composition data obtained from the MacColl Ridge trend count area are shown in Appendix III. During the 1978 survey, 35 goats including nine kids (25.7%) were tallied.

Management Summary and Conclusions

Goat hunter success (46%) was similar to the previous year (51%) however, there was a decrease in the total kill and number of hunters who participated.

Recommendations

No change in season or bag limit is recommended.

Aerial surveys should be continued for the MacColl Ridge trend area.

Aerial surveys of Donoho Peak and other high use areas should be conducted.

PREPARED BY:

Robert Tobey
Game Biologist II

SUBMITTED BY:

James B. Faro
Regional Management Coordinator

APPENDIX I. A comparison of mountain goat harvest data for Unit 11 from 1972 through 1978.

	1972	1973	1974	1975
Total Hunters:	64	94	105	49
Number Successful Hunters(%):	32(50%)	55(60%)	44(42%)	17(35%)
Mean Number Days Hunted,				
Successful (sample size):	3.2(32)	4.5(49)	3.7(41)	6.5(15)
Unsuccessful (sample size):	5.2(32)	5.8(38)	6.7(47)	7.3(6)
Number Goats Killed:	37	59	52	17
Male Goats Harvested (%):*	13(35%)	36(61%)	27(53%)	11(65%)
No. Hunters Killing 2 Goats				
(%of successful):	5(16%)	4(7%)	8(18%)	0***
Unknown Sex (%):	0	0	1(2%)	0

	1976	1977	1978
Total Hunters:	65	63	46
Number Successful Hunters(%):	27(42%)	32(51%)	21(46%)
Mean Number Days Hunted,			
Successful (sample size):	3.8(26)	5.0(29)	3.6(21)
Unsuccessful (sample size):	4.3(34)	3.8(30)	5.0(25)
Number Goats Killed:	27	32	21
Male Goats Harvested (%):	16(62%)	19(63%)	9(43%)
No. Hunters Killing 2 Goats			
(% of successful):	0***	0***	0***
Unknown Sex (%):	1(4%)	2(6%)	0

* Percentage male goats = (MM/MM+FF) x 100.
** 24 goats taken in 1972 were listed as unknown sex in the computer printout.
*** Bag limit reduced from two to one goat beginning with 1975 season.

PREPARED BY: Robert Tobey, Game Biologist II.

APPENDIX II. A comparison of the chronologies of the Unit 11 mountain goat harvests from 1972 through 1978 when specified on harvest report.

Period	1972 Harvest No.	1972 Harvest Percent	1973 Harvest No.	1973 Harvest Percent
Aug. 10-20	13	35%	7	12%
Aug. 21-31	10	27%	9	15%
Sept. 1-10	8	22%	16	27%
Sept. 11-20	4	11%	11	19%
Sept. 21-30	0	0%	9	15%
After Sept. 30	2	5%	3	5%
Date Unknown	0	0%	4	7%
Total	37		59	

Period*	1974 Harvest No.	1974 Harvest Percent	1975 Harvest** No.	1975 Harvest** Percent
Aug. 8-21	12	23%	0	0%
Aug. 22-Sept. 4	3	6%	1	6%
Sept. 5-18	13	25%	5	29%
Sept. 19-Oct. 2	9	17%	5	29%
After Oct. 2	14	27%	4	24%
Date Unknown	1	2%	2	12%
Total	52		17	

Period	1976 Harvest No.	1976 Harvest Percent	1977 Harvest No.	1977 Harvest Percent	1978 Harvest No.	1978 Harvest Percent
Aug. 8-21	0	0%	2	6%	0	0%
Aug. 22-Sept. 4	1	4%	0	0%	0	0%
Sept. 5-18	0	0%	0	0%	0	0%
Sept. 19-Oct. 2	0	0%	0	0%	0	0%
After Oct. 2	4	15%	9	28%	9	43%
Date Unknown	22	81%	21	66%	12	57%
Total	27		32		21	

* Recording periods were changed to follow the recording system of IBM printout in 1974.

** Season opening date was changed to September 1.

PREPARED BY: Robert Tobey, Game Biologist II

Appendix III. Mountain goat survey data for MacColl Ridge in Game Management Unit 11, 1970 through 1978.

Survey Date	Adults	Kids	Goats	Kids/ 100 Adults	% Kids	Survey Time	Goats/Hour
1970	--	--	28	--	--	--	--
1973	33	10	43	30.3	23.2%	--	--
4/19/74	41	3	44	7.3	6.8%	--	--
1975	NO DATA						
6/29/76*	12	1	13	8.3	7.7%	3.1 hrs	4.2
8/3/77	39	14	53	35.9	26.4%	1.7 hrs	31.2
8/9/78	26	9	35	34.6	25.7%	1.6 hrs	21.9

* Incidental to Sheep Survey

PREPARED BY: Robert Tobey, Game Biologist II

MOUNTAIN GOAT

SURVEY-INVENTORY PROGRESS REPORT - 1978-79

Game Management Units 13 and 14 - Nelchina Area and Upper Cook Inlet

Seasons and Bag Limits

13 Nelchina Area	No open season	
14A north of the Matanuska River	No open season	
Remainder of 14A	Sept. 21-Nov. 15	One goat by permit only.
14B	Aug. 10-Nov. 15	One goat
14C within Chugach State Park	No open season	
Remainder of 14C	Sept. 5-Nov.15	One goat by permit only.

Harvest and Hunting Pressure

During 1978 six goats were harvested in Unit 14, all within Subunit 14C. The harvest was composed of five males and one female and was distributed throughout the Subunit. Appendix I presents information on goat harvest and hunting pressure collected since 1972.

Composition and Productivity

No data were collected on the Unit 13 goat population. Budgetary constraints preclude frequent surveys of Unit 14 goat populations.

Recommendations

Recent reductions in hunter opportunity in the Kenai and Wrangell Mountains, as well as closure of Unit 13 to hunting could cause a major shift in hunting effort to Unit 14. In view of this possibility we recommend a more precise method of regulating the Unit 14 goat harvest. This could be accomplished by establishing harvest quotas for each area and controlling hunter numbers by registration permit. This system would insure that a significant increase in hunting pressure and harvest does not occur. We also recommend that frequent aerial counts be conducted in the more accessible portions of Subunits 14A and 14C adjacent to the Knik River.

No change in seasons or bag limits is recommended for Units 13 or 14.

PREPARED BY:

David B. Harkness
Game Biologist III

SUBMITTED BY:

James B. Faro
Regional Management Coordinator

APPENDIX I. Unit 14 goat harvest and hunting pressure - 1972-1978.

Subunit 14A

	1972	1973	1974	1975	1976	1977	1978
Total hunters	13	12	13	11	17	5	10
Total harvest	4	5	2	1	1	0	0
Male harvest	2	2	1	1	1	0	0

Subunit 14B

	1972	1973	1974	1975	1976	1977	1978
Total hunters	5	0	2	2	3	0	0
Total harvest	1	0	0	0	1	0	0
Male harvest	1	0	0	0	1	0	0

Subunit 14C

	1972	1973	1974	1975	1976	1977	1978
Total hunters	24	27	10	6	17	20	35
Total harvests	3	6	1	1	3	3	6
Male harvests	3	2	1	1	3	1	5

PREPARED BY:

David B. Harkness, Game Biologist III

SHEEP

SURVEY-INVENTORY PROGRESS REPORT - 1978-79

Game Management Units 7 and 15 - Kenai Mountains

Seasons and Bag Limits

Unit 7, that portion bounded on the northwest by the Sterling Highway, on the northeast and east by the Anchorage-Seward Highway, on the south and southwest by Kenai Lake.	No open season	
Remainder of Units 7 and 15	Aug. 10-Sept. 20	One ram with 3/4-curl horn or larger.

Harvest and Hunting Pressure

Appendix I presents Kenai Mountain sheep harvest data from 1967 through 1978. During 1978 the Unit 7 portion of the Kenai harvest was 12 sheep while the Unit 15 portion was 39 sheep. Since 1970, harvests, hunting pressures, and success rates have fluctuated while average horn sizes have remained relatively stable. The consistently small horn sizes of Kenai Peninsula sheep suggests most sheep are harvested close to the 3/4 curl minimum. The success rate of sheep hunters appears to be a function of availability of legal sheep rather than hunting pressure. Permit hunts on Crescent Mountain in 1970, 1973 and 1974 are largely responsible for the increased hunting pressure recorded elsewhere on the Kenai during those years; Crescent Mountain was closed to hunting in 1978.

Composition and Productivity

Table I presents composition and productivity data obtained for selected sheep trend count areas in Unit 7 during 1978.

Table 1. Sheep composition data for trend count areas in the Unit 7 portion of the northern Kenai Peninsula.

Area	MM	FF	Yearlings	Lambs	Lambs/100 FF	Total sheep
Crescent Mt.	33	32	3	15	47	83
Surprise Mt.	12	47	0	19	40	78
Cooper Landing Closed area	54	106	13	25	24	198

Sheep populations on the northern Kenai remained low for the second consecutive year, after declining rapidly from 1973 through 1977. The most severe declines were observed on Crescent and Surprise Mountains. A high level of lamb mortality was again observed in all surveyed areas during the winter of 1977-78.

The ratio of lambs:100 ewes on Crescent and Surprise Mountains is nearly double that of Cooper Landing closed area.

Management Summary and Conclusions

Sheep populations on much of the Kenai Peninsula are low due to high winter mortality from 1973 through 1978. The increase in harvest, most of which came from Unit 15, suggests that portion of the Peninsula may not have experienced as severe a decline as occurred in Unit 7.

The continued low average horn size suggests that most Kenai sheep are taken within a short time after they reach the minimum 3/4 curl size. The recent enactment of a 7/8 curl minimum horn size regulation is expected to significantly reduce the sheep harvest on the Kenai until the present crop of 3/4 curl rams reach the new minimum horn size.

Recommendations

No change in season or bag limit is recommended.

PREPARED BY:

Donald A. Cornelius
Game Biologist II

SUBMITTED BY:

James B. Faro
Regional Management Coordinator

Appendix I. Sheep harvest, hunter success and average horn length, Kenai Mountains, Units 7 and 15.

Year	Legal rams[2]	Ewes and Subadult rams[2]	Total hunters[3]	Percent success	Mean horn length of legal rams in inches (N)
1967	68	-	358	19	-
1968	104	-	469	22	32.1 (97)
1969	73	-	383	19	32.0 (63)
1970	69 (6)	(9)	342 (60)	23	30.8 (57)
1971	34	-	272	13	30.0 (28)
1972	36	-	221	16	30.8 (33)
1973	63 (5)	(14)	359 (75)	21	30.7 (51)
1974	70 (3)	(35)	364 (92)	29	30.6 (66)
1975	59	-	261	23	30.7 (51)
1976	43 (6)	-	267 (21)	16	30.0 (39)
1977[1]	38 (3)	-	279 (21)	14	30.3 (27)
1978	51	-	194	26	30.4 (47)

1/ No reminder letters sent in 1977. Harvest and hunting pressure extrapolated using methodology described in the Unit 15 Sheep S&I Report, 1977-78.
2/ Take from Crescent Mountain permit hunt in parentheses.
3/ Hunting pressure from Crescent Mountain permit hunt in parentheses.

PREPARED BY: Don Cornelius, Game Biologist II

SHEEP

SURVEY-INVENTORY PROGRESS REPORT - 1978-79

Game Management Units 11 and 12 - The Wrangell-Mentasta-Nutzotin Mountains

Seasons and Bag Limits

Aug. 10-Sept. 20	One ram with 3/4-curl horn or larger

The area described in this report was previously covered in separate S & I reports for Units 11 and 12.

Harvest and Hunting Pressure

Statewide and Wrangell-Mentasta-Nutzotin Mountain (WMN) ram harvest data since 1974 are presented in Appendix I. The WMN mountains harvest comprised 31.5 percent of the total statewide Dall sheep kill. Harvest reports for 1978 indicate that 388 sheep were killed by 787 hunters in the WMN Mountains. The success rate of 49 percent in 1978 was 7 percent above the 1977 figure.

The mean horn length reported was 32.8 inches, down from the 1977 mean of 33.2 inches.

A game management unit breakdown of the WMN Mountains shows that the 1978 harvest for Unit 11 was 155 sheep; 12.5 percent of the statewide harvest. The Unit 12 harvest was 233 sheep; 19 percent of the statewide ram harvest comes from the portion of Unit 12 included in the WMN Mountains.

Composition and Productivity

Appendix II lists composition data obtained by aerial counts of three survey areas in the WMN Mountains. Data for each area indicate increases in the total number of sheep.

In all three areas, the legal ram class was decreasing in numbers and percent of flock (Appendix II). The percentage of legal rams varied only slightly from 3.3 to 3.6 percent in all three trend areas. It was felt, however, that the total count of legal rams in the MacColl Ridge count area was low due to survey bias.

Management Summary and Conclusions

The harvest of legal rams increased slightly in the WMN Mountains during the 1978 season. The overall number of hunters decreased by 19 percent, while the success ratio increased. The WMN Mountains continued to contribute substantially to the statewide harvest of Dall sheep and have accommodated over 25 percent of the sheep hunters.

The overall numbers of sheep are apparently increasing, with the exception of legal rams which are apparently declining. The decrease in mean horn length may indicate that a high percentage of rams are being cropped as they mature.

Recommendations

1. Monitor trend count areas to determine future changes in ram composition resulting from the new 7/8 curl minimum horn size regulation.

2. Analyze the expected decrease in sheep harvest with respect to the National Monument regulations which restrict sheep hunting, limit hunter access and hunting opportunity.

PREPARED BY:

Robert Tobey
Game Biologist II

SUBMITTED BY:

James B. Faro
Regional Management Coordinator

APPENDIX I. Hunter success statewide and in the Wrangell-Mentasta-Nutzotin Mountains, 1974 through 1978.

	Statewide					Wrangell-Mentasta-Nutzotin Mountains				
	1974	1975	1976	1977	1978	1974	1975	1976	1977	1978
Percent Hunter Success:*	42%	37%	34%	35%**	41%	55%	44%	43%	42%**	49%
Total Successful Hunters:	1243	1071	1112	1272	1231	352	310	322	379	388
Total Hunters:	2949	2881	3236	3683	2972	644	697	754	907	787
Percent Success Among Residents:	32%	29%	28%	36%***	33%	40%	33%	32%	43%***	39%
Successful Residents:	713	660	736	764	779	160	157	176	209	234
Total Resident Hunters:	2215	2288	2667	2115	2346	401	482	551	482	596
Percent Success Among Nonresidents:	77%	75%	70%	82%***	77%	83%	74%	75%	85%***	83%
Successful Nonresidents:	484	379	348	321	415	182	146	136	117	142
Total Nonresident Hunters:	626	507	497	390	541	220	197	182	138	171
Ratio Nonresident/Resident Success:	2.4/1	2.6/1	2.5/1	2.3/1	1.9/1	2.1/1	2.2/1	2.3/1	2.0/1	2.1/1
Percent of Nonresidents Among Known Residency Hunters:	22%	18%	16%	16%***	19%	35%	29%	25%	22%***	22%
Total Nonresidents:	626	507	497	390	541	220	197	182	138	171
Total Residents & Nonresidents:	2841	2795	3164	2505	2887	621	679	733	620	767
Percent of Sheep Killed by Nonresidents:	40%	36%	32%	30%***	35%	53%	48%	44%	36%***	38%
Nonresident Kill:	484	379	348	321	415	182	146	136	117	142
Resident & Nonresident Kill:	1197	1039	1084	1085	1194	342	303	312	326	376

* Includes hunters not noting residency.
** Extrapolated harvest determined by adding 13% to kill numbers and 42% to hunters.
*** Not extrapolated--based on actual harvest ticket returns.

PREPARED BY: Robert Tobey, Game Biologist II

APPENDIX II. Sheep composition data from selected areas in the Wrangell-Mentasta-Nutzotin Mountains.

Count Area

MacColl Ridge - Unit 11

Year	Legal Rams	Lambs	Unid.	Total	Percent Legal Rams	Percent Lambs
1970	26	60	134	220	11.8	27.3
1973	28	45	171	244	11.5	18.4
1974	25	31	124	180	13.9	17.2
1975	27	33	145	205	13.2	16.1
1976	12	38	161	211	5.7	18.0
1977	15	41	174	230	6.5	17.8
1978	9	75	186	270	3.3	27.7

Noyes Mtn. - Unit 12

	Rams							
Year	Unclassified	Sublegal	Legal	Ewes	Lambs	Unid.	Total	Percent Legal rams
1973	2	22	36	148	5	43	256	14.0%
1978	--	44	17	206	80	134	481	3.5%

Wiki Peak - Unit 12

	Rams							
Year	Unclassified	Sublegal	Legal	Ewes	Lambs	Unid.	Total	Percent Legal rams
1977	19	21	35	282	122	31	510	6.8%
1978	11	54	24	435	136	6	666	3.6%

PREPARED BY: Robert Tobey, Game Biologist II

SHEEP

SURVEY-INVENTORY PROGRESS REPORT - 1978-79

Portions of Game Management Units 11, 13, and 14 - Chugach Mountains

Seasons and Bag Limits

Units 11, 13 and 14A	Aug. 10-Sept. 20	One ram with 3/4-curl horn or larger
Unit 14C	Sept. 5-Sept. 20	One ram with 3/4-curl horn or larger

Harvest and Hunting Pressure

The Chugach Mountain Range sheep harvest during 1978 was 141 rams taken by 450 hunters (Appendix I). Of these, 11 were taken in the Unit 11 portion of the range, 72 in the Unit 13 portion, and 58 in the Unit 14 portion (Appendix II). The total harvest was the highest on record and exceeded by 21 the 1973-1977 mean harvest of 120.

Hunting pressure declined by 10 percent from 1977 and was nearly identical to the 1973-1977 mean of 443 hunters per season. Hunter success increased to 31.3 percent. Mean horn size increased 0.3 inch to 33.8 inches.

Composition and Productivity

Composition data were obtained from three Chugach Mountain locations during 1978. A survey of the Tonsina Management area revealed an apparent increase from 1976 in both the total population and in the percentage of legal rams. However, biologists felt both increases were attributable to a more thorough 1978 survey rather than to actual increases. Surveys in the Tazlina-Klutina area revealed a slight decline in the percentage of legal rams, although other data were comparable to past years. A Subunit 14C survey yielded results nearly identical to results of the 1976 survey. Lamb production improved significantly over 1977 levels in 14C, however the 1977 count may have been inaccurate due to poor survey conditions. No surveys were flown in the Unit 11 portion of the range during 1978.

Management Summary and Conclusions

Both numbers of sheep and hunting pressure within the Chugach Mountain range have remained relatively stable over the past 10 years. Harvest levels have, for the most part, been a function of the number of legal rams available during a particular season. However, over the past 5 years there has been a slight trend toward increased success among both resident and nonresident hunters. This same trend exists statewide and may be a result of increased hunter experience and efficiency.

Recommendations

The elimination of more than one-third of all sheep hunting under existing Antiquities Act withdrawals will redistribute hunters to remaining open areas, including the Chugach Mountains west of the Copper River. Greatly increased hunting pressure by increasingly efficient hunters may result in the harvest of most rams the year they reach legal size. Continued harvests of minimum legal size sheep probably would not be acceptable to most sheep hunters. Also competition among hunters may become so intense that a quality sheep hunting experience would not be possible.

An evaluation of hunting pressure and harvest levels within the Chugach Mountain range will be made following the 1979 season. This evaluation may dictate that a proposal to place all Chugach Mountain sheep hunting under special permit be presented to the Board of Game in 1980.

PREPARED BY:

David Harkness
Game Biologist III

SUBMITTED BY:

James B. Faro
Regional Management Coordinator

APPENDIX I. Reported harvest of dall sheep rams in the Chugach Mountain Range.

	All Hunters			Residents			Nonresidents		
Year	Kill No.	Hunters	Success	Kill No.	Hunters	Success	Kill No.	Hunters	Success
1970	108	503	21	67	404	17	22	37	59
1971	109	586	19	70	618	17	35	53	66
1972	112	470	24	79	378	21	25	43	58
1973	81	426	19	49	362	14	26	50	52
1974	137	403	34	89	333	27	45	61	74
1975	122	415	29	84	352	24	30	46	65
1976	132	473	28	102	417	24	27	46	59
1977	129	500	26	87	313	28	27	33	82
1978	141	450	31	97	381	25	37	51	73

PREPARED BY: David Harkness, Game Biologist III

APPENDIX II. Annual dall sheep harvests from portions of Game Management Units within the Chugach Mountain Range.

	1970	1971	1972	1973	1974	1975	1976	1977	1978
Unit 11 Ram Harvest	10	4	1	9	19	10	14	16	11
Unit 13 Ram Harvest	41	60	54	45	79	56	63	66	72
Unit 14A Ram Harvest	9	8	14	10	13	24	27	13	23
Unit 14C Ram Harvest	44	34	35	11	22	29	22	27	35
Unit 14 Total Ram Harvest	53	42	49	21	35	53	49	40	58

PREPARED BY: David Harkness, Game Biologist III

APPENDIX III. A comparison of sheep composition data for selected areas in the Chugach Mountain Range.

	Month	Year	Legal Rams(%)	Lambs(%)	Total No.
Tonsina Management Area	-	1976	6	20	148
	-	1978	8	24	200
Tazlina - Klutina					
	August	1969	-	-	247
	July	1976	8	20	268
	July	1977	10	13	408
	July	1978	8	16	338
Game Management Subunit 14C	June	1976	9	13	977
	June	1977	11	3	655
	July	1978	9	14	960

PREPARED BY: David Harkness, Game Biologist III

SHEEP

SURVEY-INVENTORY PROGRESS REPORT - 1978-79

Portions of Game Management Units 12, 13, and 20 - Tok Management Area
(The area described as the Tok Management Area includes that portion of the Alaska Range bounded on the east by the Glenn Highway, on the north by the Alaska Highway and on the west by the Johnson Glacier-Johnson River.)

Seasons and Bag Limits

Aug. 10-Sept. 20	One ram with full-curl horn or larger by permit only (see permit hunt supplement)
Sept. 1-Oct. 30	One ewe by registration permit only (see permit hunt supplement)

Population Status and Trend

Sheep in the Tok Management Area (TMA) exist at a relatively low density. However, the population is highly productive, and has remained stable at approximately 1,500 sheep in recent years.

Population Composition

No aerial surveys were conducted in the TMA during this reporting period. Sheep observations were recorded by research personnel working at the Sheep Creek mineral lick and by me during an 8-day trek covering approximately 30 miles in the Sheep Creek, Cathedral Rapids Creeks (Nos. 1 and 2), and a section of the Robertson River drainage from July 3-10, 1978. Additional observations were recorded by sheep research personnel during July in Elting Creek, a tributary of the Johnson River. Lamb production and survival to yearling age (Table 1) were both slightly higher in 1978 than the respective means for the preceding years.

Table 1. Calculated productivity, survival, and sex ratios based upon ground observations, TMA, 1978.

Area	Lambs:100 Ewes	Yrlgs:100 Ewes	Total
Sheep Creek (Mineral Lick)	57	35	757
Elting Creek	43	24	92
Sheep Creek, Cathedral Creeks, Robertson River	56	38	374

Mortality

A total of 179 ewe hunt permits was issued during 1978. Not all permit holders hunted, but 29 ewes were reported taken. One sheep taken was reported as a ewe although it was suspected to have been a yearling ram. The horns of three other sheep were not retrieved, and there was some doubt as to the sex of these animals.

A total of 120 ram permits, including 13 alternates, was issued for the TMA during 1978. For the second consecutive year the proportion of hunters actually participating (98%) was very high. Hunter success (43%) also remained high, and 51 full-curl rams were taken. Thus, for the second consecutive year, the ram harvest substantially exceeded the calculated annual sustainable harvest of 30-35 rams which can be removed from the full-curl and older segment of the ram population without significantly altering the age structure. In 1977, 44 full-curl rams were taken. Although 18 percent of the rams harvested during 1978 had horns exceeding 40 inches in length, the mean horn size of the rams harvested was 35.5 inches. Mean horn size of sheep taken during the 1977 and 1976 seasons was 35.5 and 36.3 inches, respectively.

In addition to the legal hunter harvest of 80 sheep of both sexes, an additional 13 sheep were collected or inadvertently killed in trapping operations. Hence, the controllable mortality between July 1978 and June 1979 totaled 93 sheep, approximately one-half of which were ewes. This represented approximately 6 percent of the population.

Natural causes, including old age, weather, and predation, probably accounted for most of the sheep mortality in the TMA. Wolves, grizzly bears, wolverines, and golden eagles probably all prey on sheep in this area.

Management Summary and Recommendations

Based upon continuing research and survey activities, the TMA sheep population continues to show good lamb production and yearling recruitment. The annual ram harvest should be stablilized at approximately 35 rams until the population changes. The primary objective of sheep management for the TMA is to provide an opportunity to take large rams. Although the taking of ewes is controversial, the annual harvests of 30 ewes do not significantly affect the population or jeopardize the objective for the TMA. Ewe hunting does constitute an important recreation and hunting use of the area.

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SHEEP

SURVEY-INVENTORY PROGRESS REPORT - 1978-79

Game Management Units 13 and 14 - Talkeetna Mountains

Seasons and Bag Limits

Aug. 10-Sept. 20	One ram with 3/4-curl horn or larger

Harvest and Hunting Pressure

Seventy-seven sheep were harvested in the Talkeetna Mountain Range during 1978 (Appendix I). Of the rams harvested, 49 were taken in Unit 13 and 6 in Subunits 14A and 14B north of the Matanuska River (Appendix II). The remainder reported taking sheep in the Talkeetna Mountains only and did not specify Unit or Subunit. The total sheep harvest was very close to the 9-year average. The lowest reported harvest was 55 in 1977 and the highest was 114 in 1974. The annual average since 1970 is 84. Most sheep are taken in Unit 13, sheep harvests are relatively low in Subunits 14A and 14B due to restricted sheep habitat and access difficulties.

Hunting pressure has remained relatively stable since 1970, averaging 277 hunters annually. In 1978, 304 hunters participated.

Composition and Productivity

The results of trend counts conducted in the Boulder and Watana Creek areas of the Talkeetna Mountains are shown in Appendix III. The percentage of lambs in the Boulder Creek drainage (26%) was the highest ever recorded. The total number of sheep seen (377) was the highest recorded since 1968. The percentage of legal rams, 3/4 curl or larger, (1%) in the Boulder Creek area was the lowest recorded since data have been collected.

In the Watana Hills area, the 1978 census revealed the lowest lamb percentage in the flock (19%) since 1968 when 18 percent lambs was observed. The total number of sheep seen (178) was the highest recorded since 1973. The ram percentage in the Watana Hills area has been reduced from 6 percent in 1973 to 3 percent in 1978.

Management Summary and Conclusions

Hunter harvests fluctuate depending on the availability of rams. In 1979, the Alaska Game Board initiated a statewide ruling on sheep allowing the harvest of only 7/8 curl rams and above. It is expected that sheep harvests will decline due to the limited availability of sheep in that category. Another influence on the sheep harvest in the Talkeetna Mountains that may be imminent is an influx of hunters who will not be allowed access to former sheep habitat in the newly created

National Monuments. Under the 7/8 curl regulations, however, it is doubtful that harvest will increase in the Talkeetna Mountains. Success ratios are expected to decrease drastically.

Recommendations

We should continue to survey (trend count areas in the Talkeetna Mountains).

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Appendix I. Reported harvest of dall sheep rams, numbers of hunters and success of hunters for the Talkeetna Mountain Range, 1970-1978 as derived from harvest reports.

Year	All Hunters			Residents			Nonresidents		
	Harv.*	Hunt.*	Succ.*	Harv.	Hunt.	Succ.	Harv.	Hunt.	Succ.
1970	99	268	37%	45	175	26%	43	62	69%
1971	85	240	35%	39	178	22%	44	59	75%
1972	81	304	27%	41	227	18%	34	61	56%
1973	61	277	22%	39	232	17%	21	31	68%
1974	114	132	37%	83	259	32%	26	40	65%
1975	109	281	39%	75	231	32%	30	40	75%
1976	77	300	26%	55	267	21%	20	29	69%
1977**	62	288	22%	40	182	22%	14	17	82%
1978	77	304	25%	56	256	22%	19	38	50%

* Harv. = Harvest; Hunt. = Hunters; Succ. = Successful.

** No reminder letters were sent to sheep hunters. Total harvest data extrapolated by adding 13 percent to reported harvest and 42 percent to number of hunters. Resident and nonresident data not extrapolated.

Appendix II. Reported harvest of dall sheep rams from game management Units within the Talkeetna Mountain Range 1970-1978.

	1970	1971	1972	1973	1974	1975	1976	1977	1978
Unit 13	91	71	64	52	93	95	58	49	71
Subunits 14B and 14A north of the Matanuska River	8	14	20	8	21	14	19	12	6

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Appendix III. A comparison of sheep composition data for two Talkeetna Mountain areas.

Trend count area	Legal rams	Lambs	Total
Bounder Creek drainages:			
1949	--	--	45
1951	--	--	115
Sept. 1967	--	--	430
July 1968	--	--	460
June 1974	8%	16%	287
June 1976	5%	20%	361
July 1977	9%	17%	326
July 1978	1%	26%	377
Watana Hills vicinity:			
1950	--	--	0
Sept. 1967	--	--	220
Aug. 1968	--	18%	183
Aug. 1973	6%	23%	176
June 1976	--	24%	--
Aug. 1976	4%	23%	130
July 1977	3%	22%	152
July 1978	3%	19%	178

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SHEEP

SURVEY-INVENTORY PROGRESS REPORT - 1978-79

Game Management Units 13 and 20 - Delta Management Area
(The area described as the Delta Management Area includes the drainages of the Delta River from McGinnis Creek south to Castner Glacier and the drainages of the Tanana River flowing into its south bank from the Delta River upstream to the west bank of the Johnson River.)

Seasons and Bag Limits

Aug. 10-Sept. 20	One ram with 3/4-curl horn or larger by permit only (see permit hunt supplement).

Population Status and Trend

The Delta Management Area (DMA) sheep population is comprised of approximately 1,500 animals. Although the population was generally healthy and productive, numbers did not increase.

Population Composition

Composition counts of sheep utilizing the Granite Creek, Little Gold Creek, and Pegmatite Creek mineral licks were made during July 1978. This is the first year counts have been done at Pegmatite Creek, but data have been gathered at Granite Creek and Little Gold Creek since 1972 and 1974, respectively.

Lamb production observed at the three licks in the DMA varied from 33 lambs per 100 ewes at both Granite and Pegmatite Creeks to 12 lambs per 100 ewes at the Little Gold Creek lick. Average production for the three licks was 32 lambs per 100 ewes. Mean yearling recruitment resulting from the 1977 lamb cohort (48 lambs per 100 ewes) was 31 yearlings per 100 ewes. The total number of sheep classified was 451.

The appearance of four grizzly bears at the Little Gold Creek lick the first day of observation significantly reduced sheep use at the lick and the surrounding area for the 5 days observations were conducted.

Mortality

During 1978, the season was extended by 27 days. Sixty permits were issued for the August 10-August 25 walk-in season and 60 permits for the open-access season, August 26-September 20. This system effectively reduced harvest and hunting pressure.

In 1977, 240 hunters took 78 sheep with a mean horn size of 31.3 inches. In 1978, 120 permits were issued and 85 permittees actually hunted (40 walk-in and 45 unrestricted access). The harvest totaled only 31 rams and average horn size reached an all-time low of 31.2 inches. Of the total harvest, 15 rams (average horn size 30.6 inches) were taken by walk-in hunters and 16 rams (average horn size 31.8 inches) were taken during the unrestricted access season. It has been calculated that annual harvests from the DMA must not exceed 40 rams if males with horns greater than 3/4 curl are to be maintained within the population. During the period 1968-1977, annual harvests averaged 56 rams. This resulted in declines in the number of legal rams within the population, a progressive decline in horn size among sheep harvested, and a great deal of competition among hunters for existing legal rams. If, as in 1978, harvests remain below 40 rams per year, horn size and age of sheep taken should eventually increase to levels recorded in the late 1960's.

Analysis of the permit returns for the 1978 season showed that only 24 percent of the hunter effort and 32 percent of the kill occurred in the more inaccessible portions of the DMA, such as the headwaters of the Johnson and Gerstle Rivers. The easily accessible areas of the Granite Mountains and the mountains near the Richardson Highway and Isabel Pass supported the bulk of the effort (76%) and harvest (68%).

Management Summary and Recommendations

The split-season permit system initiated during 1978 effectively reduced harvest and hunting pressure. The harvest nearly equalled the calculated number of sheep entering the 3/4 curl cohort. Since no unusually large cohorts of yearlings have been noted, a substantial increase in number of rams with horns exceeding 3/4 curl is not expected in the near future regardless of harvest levels. The mortality factors that are presently stabilizing the population must be identified and controlled before human utilization can be increased.

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SHEEP

SURVEY-INVENTORY PROGRESS REPORT - 1978-79

Game Management Units 17 and 19 - Alaska Range West of McKinley Park

Seasons and Bag Limits

Aug. 10-Sept. 20	One ram with 3/4-curl horn or larger

Population Status and Trend

The sheep population in the Alaska Range West (Unit 19 and part of Unit 17) has increased slightly during the last 5 years. This growth can be attributed to good lamb production and survival and to generally excellent overwintering conditions. All ram segments of the population have increased substantially since the early 1970's.

Population Composition

Aerial surveys in July 1978 revealed the following population structure of groups from the Tonsona River to the South Fork and from the Windy Fork-Sheep Creek vicinity: 100 rams 3/4 curl or greater (11.2%), 41 rams less than 3/4 curl, 13 unclassified rams, 510 ewes, 230 lambs (45 lambs:100 ewes), and 126 unidentified sheep. This sample represents about 20 to 25 percent of the sheep in the Alaska Range West.

Mortality

Harvest reports for the August 10-September 20 season in Unit 19 revealed that hunters took 140 sheep in 1978. This was a slight increase from the reported harvests during 1976 and 1977. Hunter success and numbers remained roughly the same as in the previous 2 years. The total number of hunters afield in 1978 was 271.

Management Summary and Recommendations

The sheep population in the Alaska Range West portion of Units 17 and 19 appeared to be growing slowly. Production and survival have been good and hunting pressure is low to moderate. Increases in hunting pressure as a result of the newly created National Monuments may affect the sheep population in this area. Unfortunately, a lack of access may crowd hunters into some of the more popular drainages, and to prevent crowding it may be necessary to limit the number of hunters in this area.

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SHEEP

SURVEY-INVENTORY PROGRESS REPORT - 1978-79

Game Management Unit 20 - Alaska Range East of McKinley Park, except the Tok and Delta Management Areas

Seasons and Bag Limits

Aug. 10-Sept. 20	One ram with 3/4-curl horn or larger

Population Status and Trend

Overall sheep density within this area remains relatively high and is probably slowly increasing. Initial production and yearling recruitment were slightly above normal levels with harvest and mortality from all other sources showing no striking changes. Average horn size of sheep harvested has remained generally unchanged in recent years. If alternate year reproduction typical of the Dry Creek vicinity exists throughout this area, reproduction may be range limited, suggesting a larger than desirable sheep population.

Population Composition

Composition and productivity data obtained at various mineral licks throughout the eastern Alaska Range during June and July 1978 indicated an initial production of 44 lambs per 100 ewes and an annual recruitment of 28 yearlings per 100 ewes. This production was slightly above recent year averages. While survival of the 1977 cohort (54 lambs:100 ewes) was lower than expected (52%), the yearling recruitment was very close to the mean of the last several years.

Mortality

Harvest ticket data indicate that 98 sheep were harvested during the 1978 hunting season. This represented a slight decline from 1977 and 1976 harvests of 116 and 112, respectively. Mean horn length of sheep taken was 33.4 inches, up slightly from 1977 (31.8 inches) and about the same as 1975 and 1976 averages (32.3 inches). Other sheep harvest statistics are presented below:

Reported No. Hunters	Percent Success	Percent Hunters		Percent Harvest		Percent Success	
		Res.	Nonres.	Res.	Nonres.	Res.	Nonres.
248	44	85	12	71	24	33	83

Hunters utilizing aircraft for transportation harvested the most sheep, but those using horses posted the highest rate of success. Statistics dealing with transportation modes are presented below:

Transportation Mode	No. Successful Hunters	No. Unsuccessful Hunters
Aircraft	54	51
Horse	21	9
Off-road vehicle	6	19
Highway vehicle	15	55

The largest harvest occurred in the Wood River drainage as shown below:

Drainage	No. Successful Hunters	No. Unsuccessful Hunters	Total Hunters	Percent Success
Yanert	9	15	24	38
Healy	17	44	21	28
Totatlanika	3	32	35	9
Tatlanika	1	3	4	25
Wood	44	31	75	59
Dry Creek	3	2	5	60
West Fork Little Delta	14	9	23	61
East Fork Little Delta	2	9	11	18
Delta Creek	5	5	10	50

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SHEEP

SURVEY-INVENTORY PROGRESS REPORTS - 1978-79

Game Management Unit 20- Tanana Hills and White Mountains

Seasons and Bag Limits

Aug. 10-Sept. 20	One ram with 3/4-curl horn or larger

Population Status and Trend

Sheep populations in the Tanana Hills and White Mountains are disjunct and exist at low densities. Surveys conducted in the White Mountains and Charley River areas during 1977 indicated a possible population decline from 1970 levels (refer to the 1977-78 Sheep Survey-Inventory Report). However, the one survey conducted during this reporting period, on Glacier Mountain near Eagle, revealed a greater number of sheep than observed at any time in the past.

Population Composition

One aerial survey was conducted on Glacier Mountain in late July 1978. A total of 103 sheep were observed (Table 1).

Table 1. Results of aerial survey of Dall sheep composition on Glacier Mountain, July 1978.

Rams						
Legal	Sublegal	Unclass.	Ewes	Lambs	Unid.	Total
3	12	0	64*	24	0	103

* Includes unidentified yearlings and young rams.

Mortality

According to harvest ticket returns, four sheep were harvested from the Tanana Hills-White Mountains during the 1978 season. This was approximately one-half of the average annual harvest reported for the past several years. However, harvest levels and hunting success have varied considerably during the past 10 years and no trends are evident. No apparent trends are evident in horn sizes of sheep taken.

Harvest statistics for the 1978 sheep season in the Tanana Hills-White Mountains are summarized in Table 2.

Table 2. Harvest statistics for the Tanana Hills-White Mountains, 1978.

Harvest	Hunters	Percent Success	Mean Horn Size	Percent Hunters		Percent Harvest		Percent Success	
				Res.	Nonres.	Res.	Nonres.	Res.	Nonres.
4	16	25	29.5	100	0	100	0	25	-

Management Summary and Recommendations

With few exceptions, sheep habitat in the eastern Tanana Hills is now included within the Yukon-Charley National Monument. This Monument is now administered by the National Park Service, and Federal regulations prohibit sport hunting. All sheep habitat west of the Yukon-Charley National Monument lies within the new Yukon Flats National Monument administered by the U.S. Fish and Wildlife Service. Sport hunting will be allowed in that area, although access is difficult and hunter success low. Because of difficult access to areas remaining open to sheep hunting, hunting pressure and success are not expected to increase markedly in the near future.

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SHEEP

SURVEY-INVENTORY PROGRESS REPORT - 1978-79

Game Management Units 23 through 26- Brooks Range

Seasons and Bag Limits

Aug. 10-Sept. 20	One ram with 3/4-curl horn or larger

Population Status and Trend

Most indications from the Brooks Range suggested a generally stable sheep population. Occasional reports of localized population changes are thought to be associated with weather patterns. The total number of sheep occupying the Brooks Range was estimated at approximately 20,000 animals.

Population Composition

Population composition data were limited to an aerial survey funded by the U.S. Fish and Wildlife Service, and flown by Department of Fish and Game Biologist Tony Smith, an experienced aerial sheep surveyor. The survey involved a total of 45 flying hours during the period July 27-August 4, 1978. This survey was limited to the northern and western drainages of the Kongakut River. The age and sex composition of the 1,304 sheep observed during the survey was as follows: 129 rams, 554 ewes (including yearlings and young rams), 211 lambs, and 410 unclassified sheep. The estimated population size within the survey area was approximately 1,700 sheep. The distribution of sheep within the northern and western drainages of the Kongakut is highly unusual because of a unique geological formation known colloquially as "Bathtub Ridge." This formation comprised 16 percent of the area surveyed. The reason for this high density was a series of 13 mineral licks that received intense use during the survey. Initial production of the sheep in the survey area was high during 1978, as evidenced by lamb to ewe ratios approaching 50 lambs per 100 ewes.

Mortality

Harvest reports from the August 10-September 20 season indicated that 426 hunters took 266 rams. These statistics are very similar to those from the 1977 season. Residents harvested 60 percent of the rams reported and comprised 70 percent of the hunters. This represents a slight decrease in nonresident hunters from earlier years. Horn size averaged 34.4 inches for sheep taken within the Brooks Range compared to the statewide average of 32.9 inches.

In addition to the reported harvest, there was an unreported harvest by the residents of Kaktovik. Herb Melchior (Barrow Area Game Biologist)

estimated this harvest was 30 to 50 sheep of both sexes. These sheep were taken mostly from the Hulahula River.

Management Summary and Recommendations

The annual harvest and the average horn size of sheep taken have been stable for the past 2 years. Overall, the sheep populations appeared to be stable, and there was no indication of excessive harvest on a large scale. Local crowding of hunters and the potential of Kaktovik residents to deplete sheep populations in the Hulahula drainage are specific situations that should be closely monitored. No general changes in management strategy or regulations are recommended at this time. It should be noted, however, that systematic ground classification count data are not gathered from the Brooks Range. The creation of National Monuments by the Secretary of the Interior on much of the Dall sheep range may serve to concentrate hunters in areas that remain open to legal sheep hunting. Area biologists should make special efforts to gather productivity information and to monitor hunter use.

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