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ANNUAL REPORT OF SURVEY-INVENTORY ACTIVITIES PART II. BLACK BEAR, BROWN BEAR, POLAR BEAR, CARIBOU

Edited and compiled by
Robert A. Hinman, Acting Director

Volume VIII
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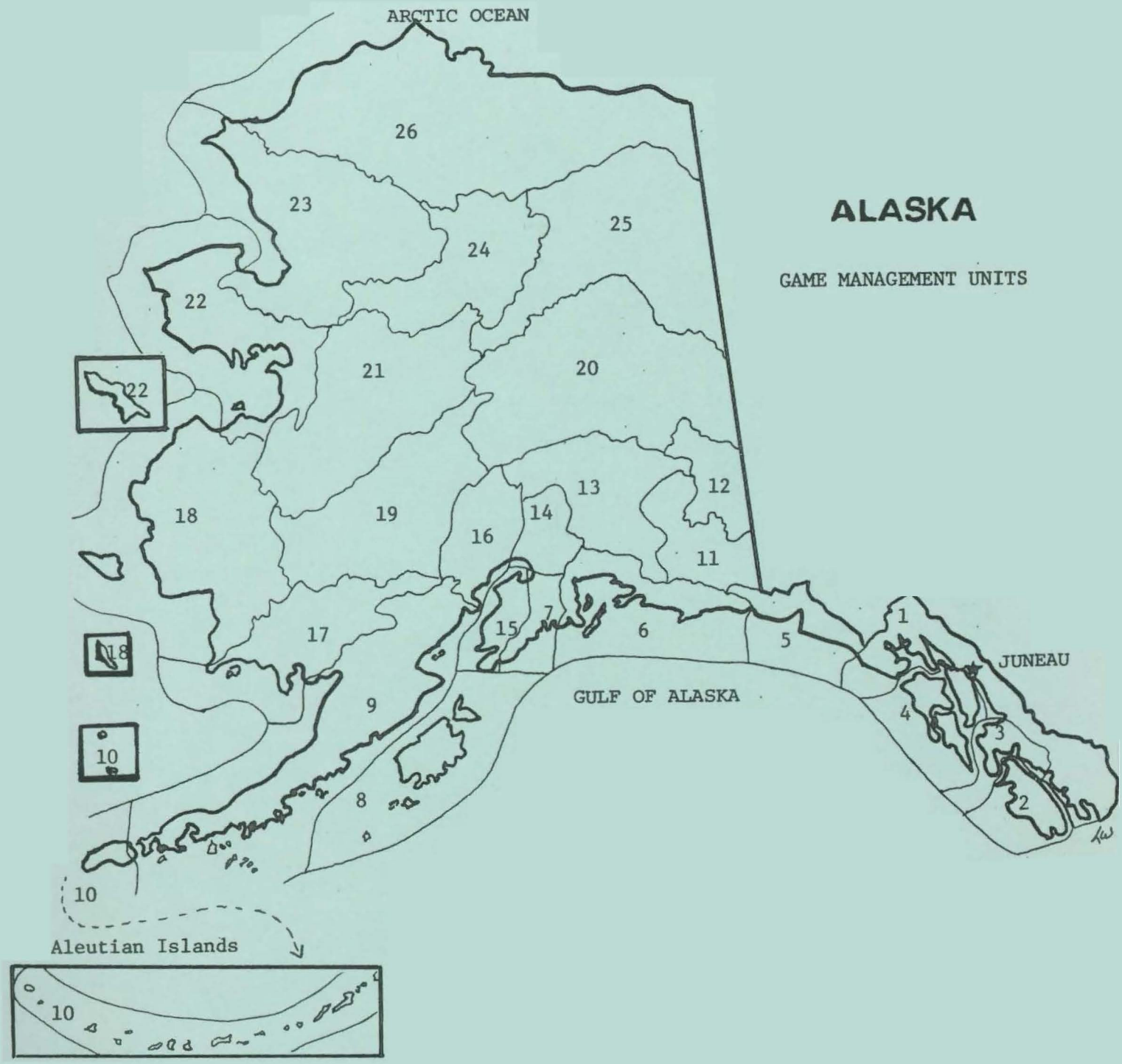
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STATEWIDE HARVESTS AND POPULATION STATUS

Black Bear

Sealing of black bears was required again this year in Units 1 through 7, 11 through 16, and also in Unit 20. Several of these Units do not have black bears (Units 4, 8 and 10) and bears were occasionally submitted for sealing from Units where not required (9, 17, 19, 21, 23, 24 and 25). A total of 1,067 black bears were sealed. Harvest trends are not yet apparent in most Units, since the sealing requirement has only been in effect for four years, but several Units warrant close scrutiny. Unit 6 reported a harvest of 151 bears and this may have the maximum desired take, considering that the bulk of these animals were harvested in the Valdez, Cordova, Whittier area; if the harvest could be spread throughout the Unit, this number would not be excessive. Units 7 (97 bears) and 15 (128 bears) may also be receiving maximum desired harvest pressure, particularly with the growing human population pressures from the Anchorage-Kenai urban areas; a close scrutiny of these areas should be made.

Brown/Grizzly Bear

The 1976 statewide sport harvest was 830 bears, which is near average (821) for the last six years. In addition, 39 nonsport kills were reported. As usual, Game Management Units 9, 4 and 8 were the Units of heaviest harvest, with 153, 142 and 117 bears taken respectively. In Unit 9, where only the spring season was open, hunters averaged 10 bears harvested daily during the 15 day season. For the second year in a row, Unit 4 sustained its highest kill on record, yet at the same time, the mean age of both harvested sexes was the highest on record; males averaged 9.1 years and females 8.2 years of age.

Brown bear populations appear healthy statewide.

Polar Bear

In 1976 the reported polar bear harvest, including both sealed and unsealed bears was 160; all were taken by Natives under the exemption to the Marine Mammal Protection Act. The majority of animals was taken in the Western Arctic, where the harvest was high compared to the long term Native harvest. The increased take was due to two factors; the ban on use of airplanes which reduced the molestation factor, and unusually favorable ice conditions, which allowed the bears to come closer to the coast.

Caribou

In the six caribou herds (in Units 11, 12, 13, 14 and 20) where caribou harvest reports were required, the reported harvest was 1,199, extrapolated to 1,249. This includes animals from the Chisana, Delta, Forty-mile McKinley, Mentasta and Nelchina herds. In addition, 106 animals were harvested on Adak and 87 on the Kenai peninsula.

Harvest reports were not required for harvesting caribou of the Alaska Peninsula and Mulchatna herds. Biologists estimated that less than 1,000 animals were taken from the Alaska Peninsula herd and less than 750 from the Mulchatna herd.

Status of caribou varied considerably between herds. Generally speaking, the Adak, Forty-mile, Chisana, Mentasta, Nelchina, Mulchatna and Porcupine herds remained fairly stable in population sizes although several of these herds are at low levels of abundance. The McKinley, Macomb and Delta herds appear to continue declining, and only the Alaska Peninsula herd appears to be increasing in population by significant numbers.

The Western Arctic herd was not reported in this volume; its status will be included in the Federal Aid to Wildlife Restoration Final Report entitled "Size, Composition and Productivity of the Arctic Caribou Herd", (W-17-17-9, Study 111B, Jobs 3.19R-3.23R) by James L. Davis.

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BLACK BEAR

SURVEY-INVENTORY PROGRESS REPORT - 1976

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

Seasons and Bag Limits

Units 1A and 2	September 1-June 30	Two bears, provided that not more than one may be a blue or glacier bear and that the taking of cubs or females accompanied by cubs is prohibited.

Harvest and Hunting Pressure

A total of 27 black bears from Unit 1A, and 79 from Unit 2 were sealed during 1976 (Appendix I). These and other figures in this report do not include 5 bears from Unit 1A that were killed by cars or in defense of life and property. The total kill from 1A declined 18 percent from the 33 bears reported in 1975, while in Unit 2 the number of bears taken increased 88 percent over last year and was up 193 percent from 1974.

In the spring portion of the season in Unit 1A, 13 bears were taken on the mainland and 9 on Revilla Island. Twenty-one of these 22 bears were males. In Unit 2, 61 bears were taken during the spring season and 90 percent of these were males. For both Units the spring harvest was 91 percent males, essentially the same ratio found in 1974 and 1975.

The fall harvest was small compared to the spring harvest in Unit 1A; 3 bears were taken on the mainland and 2 on Revilla Island. Four of the 5 were males. In Unit 2, 18 bears were taken in the fall and 61 percent of these were males. The 1976 fall harvest in both Units was almost identical in size and sex ratio to the 1975 take.

The chronology of the harvest is shown in Appendix II. In Unit 1A, 81 percent of the harvest occurred in spring, and 59 percent took place between May 10 and June 1. In Unit 2, 77 percent of the annual harvest occurred during the spring season, and 59 percent occured between May 10 and June 11. Half of the 18 bears taken in the fall in Unit 2 were killed in the October 1-10 period.

The methods of transportation used by successful hunters indicated the value of the road system on Prince of Wales Island. Forty-six percent of the bears in Unit 2 were taken by hunters using road vehicle transportation and only 20 percent were taken by hunters using boats. Thirty-four percent of the hunters flew in to the hunting area. In Unit 1A, where very little roadway exists, 81 percent of the hunters traveled by boat and 15 percent used aircraft. In Unit 2, nonresidents especially prefered aircraft for transportation; 15 of the 18 successful nonresident hunters traveled to the area by plane.

No bears were taken by nonresidents in Unit 1A in 1976, while in Unit 2, 23 percent of the kill was by nonresidents. Seventy-two percent of the nonresident kill occurred during the spring season.

No black bears have been taken during professional guided hunts in either of Units 1A or 2 during the past three years.

Data on incidental take of black bears indicated that four percent of the spring harvest and 14 percent of the fall harvest occurred incidentally to other activities rather than during hunts specifically for black bears.

Forty-one percent of the successful spring hunters saved part or all of the meat from their bears, as opposed to 27 percent of fall hunters.

Skull measurements again showed larger bears in Unit 2 than in 1A. In Unit 1A, 25 males averaged 17.8 inches; in Unit 2, 58 males averaged 19.1 inches. Comparable figures in 1975 were 17.2 inches for 1A and 19.3 inches for Unit 2. Male skull sizes in both Units have remained about the same for the past three years. Appendix I shows 1976 skull size data by season and sex.

Ages have been assigned to all the bears from which teeth were collected over the past three years (Appendices III, IV, and V). The ages of males shot during the spring indicate that current harvest levels are not adversely affecting the population. The lower average age of males killed in the fall compared to that of males taken in the spring probably indicates that older males emerge from dens before younger males and consequently are more exposed to spring hunting pressure.

Effort expended by successful hunters in Unit 1A this year was 3.0 hunter days per bear taken, while in Unit 2 it was 2.9 days per bear taken. These figures indicate about the same success in 1A as last year but improved hunting in Unit 2, where successful hunters averaged 3.9 days for each bear taken in 1975.

Ninety-one hunters took the combined kill of 106 black bears from Units 1A and 2; 15 hunters took two bears each.

Three of the 16 bears taken on the mainland portion of Unit 1A were cinnamon-colored black bears. This color phase does not occur in Unit 2 or on the islands in Unit 1A.

Composition and Productivity

No data available.

Management Summary and Conclusions

Since the initiation of the black bear sealing requirement three years ago, the harvest in Unit 1A has been decreasing, while the harvest in Unit 2 has shown a fairly rapid increase. Some of the Unit 2 increase is probably due to an ever-expanding road system plus the initiation of a State ferry run between Prince of Wales Island and Ketchikan. Almost all of the nonresident black bear hunters hunt in Unit 2, and most use aircraft

transportation. Since most of the air charter business is located in Unit 2, it is much easier and cheaper to travel to Prince of Wales than to most parts of Unit 1A. In addition, the larger bears in Unit 2 probably appeal to the nonresident hunter more than do the smaller bears in Unit 1A.

Both average skull size and average age of the bears sealed indicate that current harvest levels are not affecting the black bear population in either Unit 1A or Unit 2. No changes in current hunting regulations are recommended.

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APPENDIX 1. Black Bear Sport Harvest Statistics for GMU's 1A and 2 with Color Phase, Kill by Non-Residents Mean Skull Size and Methods of Transportation Used for Calendar Year 1976.

GMU	Season	Total Kill	No. Males	No. Females	Unk. Sex	Kill By Non - Res.	** Mean Skull Size - Male	** Mean Skull Size - Female	% * Cinnamon	Transport Used - % Air	Boat	Road Vehicle
1-A Mainland	Spring	13	12	1	0	0	17.8(12)	15.1 (1)	23	0	100	0
	Fall	3	2	1	0	0	18.2(2)	16.5 (1)	0	33	67	0
	Total	16	14	2	0	0	17.9(14)	15.8 (2)	19	6	94	0
1-A Revilla	Spring	9	9	0	0	0	17.6(9)	--	-	38	50	12
	Fall	2	2	0	0	0	18.0(2)	--	-	0	100	0
	Total	11	11	0	0	0	17.7(11)	--	-	30	60	10
Total 1-A	Spring	22	21	1	0	0	17.7(21)	15.1 (1)	-	14	81	5
	Fall	5	4	1	0	0	18.1(4)	16.5 (1)		20	80	0
	Total	27	25	2	0	0	17.8(25)	15.8 (2)	-	15	81	4
2	Spring	61	53	6	2	13(21%)	19.4(50)	16.8 (6)	-	31	23	46
	Fall	18	11	7	0	5(28%)	17.5(8)	16.8 (7)	-	44	11	44
	Total	79	64	13	2	18(23%)	19.1(58)	16.8 (13)	-	34	20	46

*Cinnamon phase occurs only on mainland.
** ( ) = Sample Size

APPENDIX II

CHRONOLOGY OF 1976 BLACK BEAR HUNTING HARVEST

Units 1A and 2

DATE	UNIT 1A	UNIT 2
April 21 - 30	1	2
May 1 - 10	2	3
11 - 20	6	19
21 - 31	10	17
June 1 - 10	3	11
11 - 20		7
21 - 30		2
Sept. 1 - 10	1	1
11 - 20	3	3
21 - 30	1	0
Oct. 1 - 10		9
11 - 20		1
21 - 31		2
Nov. 1 - 10		2

APPENDIX III

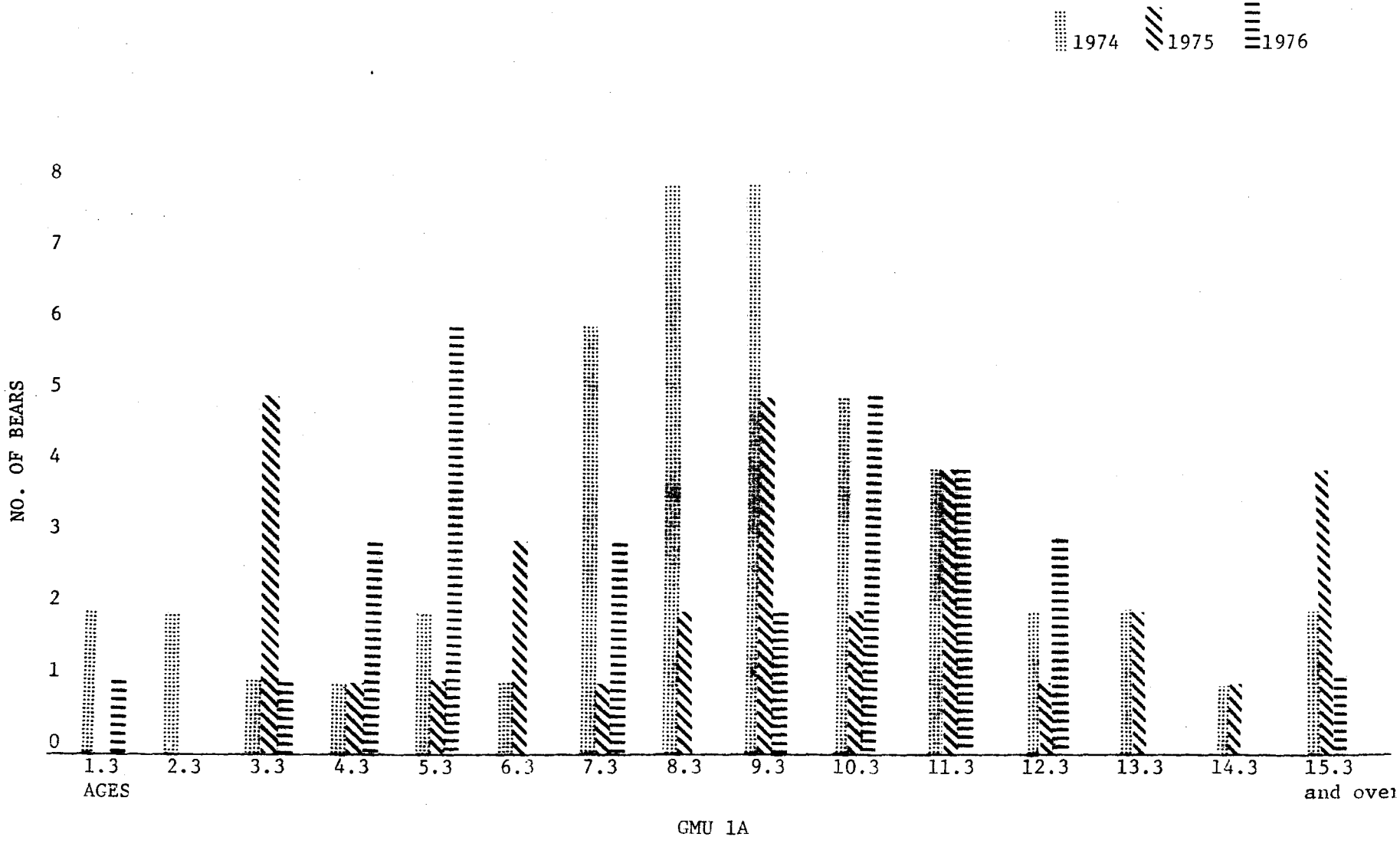
AVERAGE CEMENTUM AGES OF BLACK BEARS, UNITS 1A AND 2

1974, 1975, 1976

		1974	1975	1976
1A Mainland	Males (Spring)	10.5(18)*	12.1(12)	9.3 (12)
	Males (Fall)	9.6(2)	3.6 (1)	10.1 (2)
	Females (Spring)	-	-	5.3 (1)
	Females (Fall)	11.3(3)	-	7.6 (1)
1A Revilla	Males (Spring)	7.6(13)	7.4(9)	8.5 (9)
	Males (Fall)	8.0 (5)	6.1(2)	5.1 (2)
	Females (Spring)	6.8(2)	11.0(3)	-
	Females (Fall)	1.6(1)	13.6(1)	-
Total 1A	Males (Spring)	9.3(31)	10.1(21)	9.0 (21)
	Males (Fall)	8.5(7)	5.3(3)	7.6 (4)
	Females (Spring)	6.8(2)	11.0(3)	5.3 (1)
	Females (Fall)	8.9(4)	13.6(1)	7.6 (1)
Unit 2	Males (Spring)	7.9(15)	9.8(24)	10.0 (28)
	Males (Fall)	6.9(3)	7.4(6)	5.4 (10)
	Females (Spring)	5.6(3)	9.3(2)	8.6 (4)
	Females (Fall)	-	4.8(5)	7.2 (7)

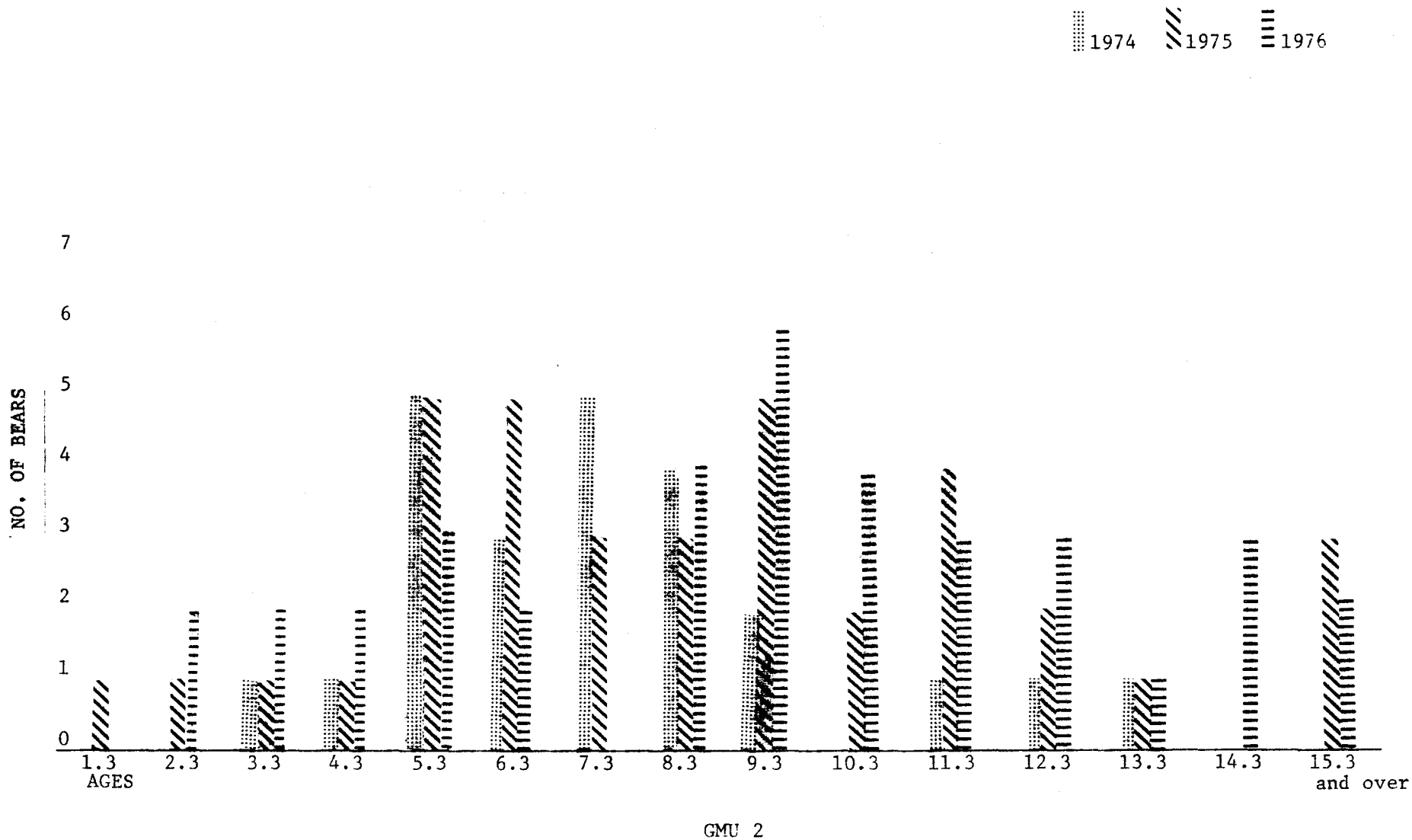
* Sample size in parenthesis.

APPENDIX V



GMU 1A

APPENDIX IV



GMU 2

BLACK BEAR

SURVEY-INVENTORY PROGRESS REPORT - CALENDAR YEAR 1976

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

Seasons and Bag Limits

Sept. 1 - June 30	Two bears, provided that the taking of cubs or females accompanied by cubs is prohibited

Harvest and Hunting Pressure

The black bear harvest (based on sealing certificate data) in Unit 1B for 1976 was 14 (11 males, 1 female and 2 of unknown sex), compared to eight in 1975 and 15 in 1974.

The average skull size was 18.3 inches (n=9) for males and 16.8 inches (n=1) for females. The average age was 9.0 years (n=10) for males in 1976 and compares closely with averages of 8.8 years (n=12) in 1974 and 10.2 (n=5) in 1975. The female sample sizes were too small for comparisons.

Chronology of the harvest showed that 79 percent of the 1976 harvest occurred in May and June, similar to the 88 percent during the same period in 1975. The remainder of the harvest in 1976 occurred in September (21 percent).

Successful hunters in 1976 spent 46 days (as indicated on sealing forms) pursuing black bears in GMU 1B, compared to 36 days in 1975. Of these 46 days, 35 were accounted for in the northern half of the Unit (Cape Fanshaw to LeConte Bay).

Of the 14 successful hunters reporting, eight were residents and six were nonresidents. Bears killed by nonresident hunters accounted for 43 percent of the total harvest in 1976.

None of the 14 successful hunters took two bears in Unit 1B.

Transportation methods used by successful hunters were aircraft (14 percent) and boats (86 percent).

Two guides operated in GMU 1B in 1976, compared to one in 1975. Of the 14 successful hunters, four were guided nonresidents. Guided hunters accounted for 29 percent of the 1976 harvest, which compared closely with 25 percent in 1975. Of the 14 bears harvested, four were taken incidental to other activities of the hunters. Meat was salvaged from eight bears.

Composition and Productivity

No data were collected in 1976.

Management Summary and Conclusions

Except for a low harvest in 1975, the harvest data have not reflected any significant changes in hunting pressure or harvest trends. The Cape Fanshaw-LeConte Bay area continues to be the most utilized area in Unit 1B; however, the harvest (except for 1975) has been nearly equally divided between this area and the remaining portion of the Unit.

Current hunting pressure and harvest levels are considered light throughout the Unit.

Recommendations

No change in seasons or bag limits is recommended.

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BLACK BEAR

SURVEY-INVENTORY PROGRESS REPORT - CY 1976

Game Management Unit 1C and 1D - Northern mainland portion of Southeast Alaska

Seasons and Bag Limits

September 1-June 30	Two bears, provided that not more than one may be a blue or glacier bear and that the taking of cubs or females accompanied by cubs is prohibited.

Harvest and Hunting Pressure

The 1976 sport harvest in subunit 1C was 64 black bears (58 males, 6 females), an increase of 39 percent over the 1975 harvest. Fifty-eight were taken during the spring season (52 males, 6 females) and 6 (4 males, 2 females) during the fall season. In addition, 2 males were taken during the fall in defense of life and property. Cinnamon-phase bears accounted for 11 percent of the 1976 harvest. Nonresident hunters took 25 bears--39 percent. Seven hunters (4 nonresidents and 3 residents) took the limit of 2 bears.

The 1976 sport harvest in subunit 1D was 26 black bears (21 males, 5 females), an increase of 44 percent over 1975. Seventeen bears (15 males, 2 females) were taken during the spring season and 9 (6 males, 3 females) during the fall season. Ten of the bears (38 percent) were of the cinnamon phase.

Resident hunters accounted for the entire 1D harvest. Two hunters took the limit of 2 bears.

Composition and Productivity

The spring black bear harvest throughout Southeast has consisted predominantly of males. During 1974-1976, males accounted for 86 percent of the spring harvest in subunit 1C and 76 percent in subunit 1D, which was the lowest percentage of males of any of the units or subunits in Southeast. The spring harvest (Fig. 1) differs significantly from the fall harvest in average age ($P>.001$, $dF = 195$) with more older bears taken in the spring and also in sex composition (spring, 84 percent males; fall, 62 percent males). Earlier emergence of males, variations in behavior or in home ranges of males and females, and/or hunter preference for larger animals may be factors contributing to differences in the sex and age composition between the spring and fall harvests.

Age data from black bears harvested in subunits 1C and 1D, 1973 - 1976, are presented in Tables 1 and 2. The best indication of the effects of increasing harvest would be average age of spring males, which did not change substantially in 1976 for either subunit.

Management Summary and Conclusions

Hunting pressure and hunter success are largely influenced by weather conditions in Southeast Alaska. In many areas, hunter access is difficult and vegetation cover is dense. Although the harvest has increased, black bears are plentiful and the current level of harvest does not appear to have an impact upon populations, as indicated by the age structure of the harvest.

Recommendations

No changes in seasons or bag limits are recommended at this time.

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Figure 1. Spring and fall black bear harvest, Game Management Units 1C & 1D, 1973-1976, males and females combined.

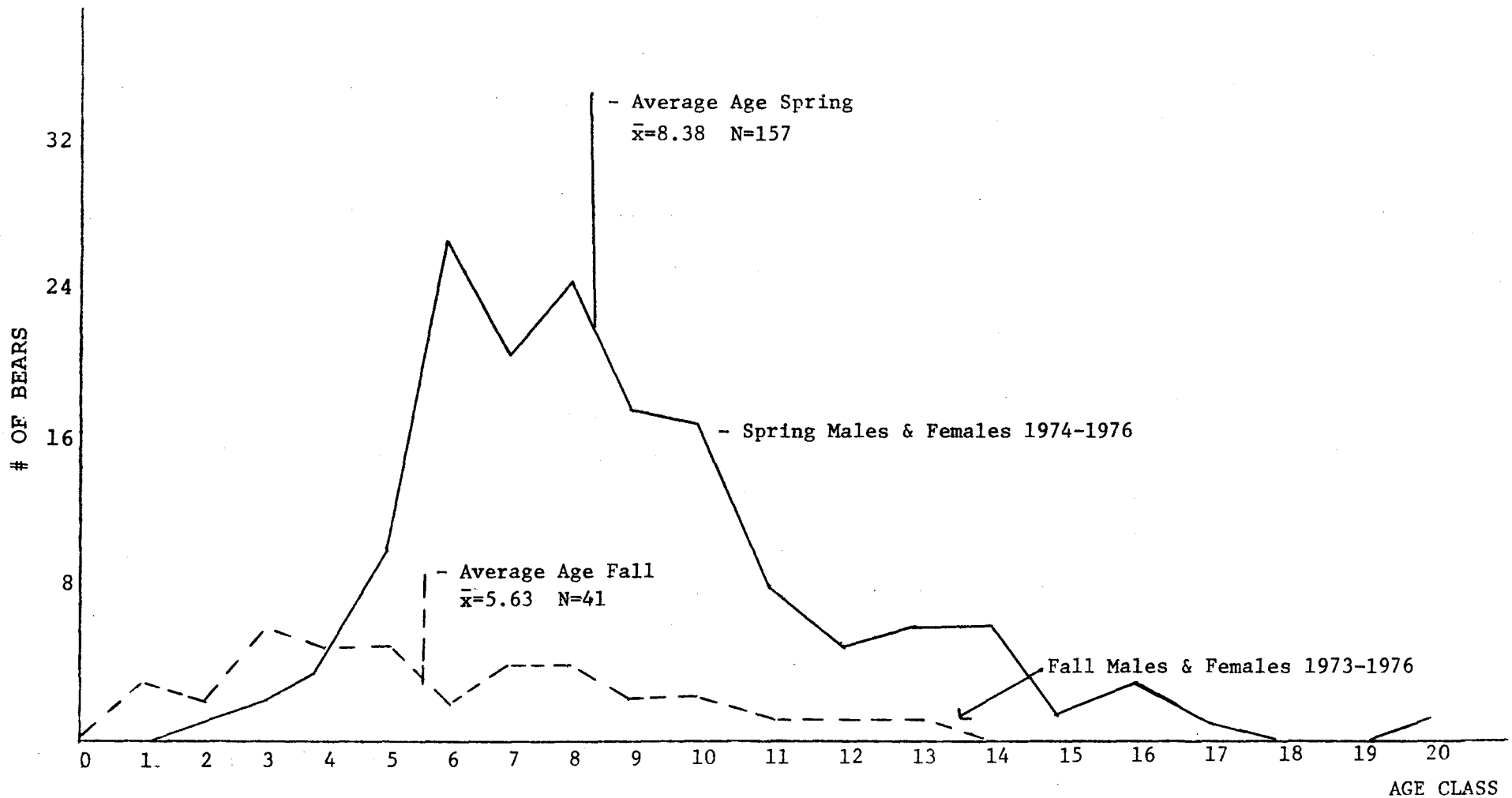

Table 1. Average ages of the black bears harvested 1973-1976, GMU 1C.

	Spring				Fall			
	Male		Female		Male		Female	
	#	$\bar{x}$ Age	#	$\bar{x}$ Age	#	$\bar{x}$ Age	#	$\bar{x}$ Age
1973	0	0.00	0	0.00	7	4.71	7	7.14
1974	26	7.96	7	8.14	3	4.00	2	9.00
1975	32	8.96	4	9.25	1	12.00	3	3.33
1976	49	8.46	6	9.00	2	5.00	2	4.00
Totals	107	8.49	17	8.70	13	5.15	14	6.14

Table 2. Average ages of the black bears harvested 1973-1976, GMU 1D.

	Spring				Fall			
	Male		Female		Male		Female	
	#	$\bar{x}$ Age	#	$\bar{x}$ Age	#	$\bar{x}$ Age	#	$\bar{x}$ Age
1973	0	0.00	0	0.00	2	4.50	0	0.00
1974	8	7.38	0	0.00	0	0.00	0	0.00
1975	7	8.71	4	5.00	3	4.66	1	4.00
1976	12	9.25	2	10.00	6	6.33	2	6.50
Totals	27	8.18	6	6.67	11	5.54	3	5.67

BLACK BEAR

SURVEY-INVENTORY PROGRESS REPORT - 1976

Game Management Unit 3 - Petersburg and Wrangell Area

Seasons and Bag Limits

Sept. 1 - June 30	Two bears, provided that not more than one may be a blue or glacier bear and that the taking of cubs or females accompanied by cubs is prohibited.

Harvest and Hunting Pressure

The black bear harvest (based on sealing certificate data) in Unit 3 for 1976 was 60 (52 males, 7 females, and 1 unknown sex), continuing the steady increase in harvest (25 percent increase over 1975) since the initiation of mandatory sealing in 1973.

The average skull size was 18.4 inches (n=47) for males and 17.0 inches (n=7) for females. The average age was 8.9 years (n=52) for males and 9.9 years (n=6) for females. These statistics are similar to those of bears taken in 1974 and 1975.

Chronology of the harvest showed that 80 percent of the 1976 harvest occurred in May and June, similar to the 79 percent during the same period in 1975. The remainder of the harvest in 1976 occurred in September (15 percent) and October (5 percent).

Successful hunters in 1976 spent 258 days (as indicated on sealing forms) pursuing black bear in GMU 3 compared to 291 days in 1975. Over half of this time in 1976 was spent on Kuiu Island (App. I).

Of the 53 successful hunters reporting, 21 were residents and 32 were nonresidents. Bears killed by nonresident hunters accounted for 63 percent of the total harvest in 1976.

Seven hunters (1 resident and 6 nonresidents) took two bears each. The second bear comprised 12 percent of the total harvest in 1976 compared to 21 percent in 1975.

Transportation used by successful hunters were: boats - 82 percent, foot - 7 percent and highway vehicles - 3 percent.

There were 10 guides active in GMU 3 in 1976 compared to seven in 1975. Of 53 successful hunters, 28 were guided and all guided hunters were nonresidents. Guided hunters accounted for 55 percent of the 1976 harvest, nearly identical to 54 percent in 1975. Of the 60 bears taken, 10 were incidental to other activities of the hunters. The meat was salvaged from 25 percent of the bears harvested.

Composition and Productivity

No data was collected in 1976.

Management Summary and Conclusions

Hunting pressure and harvest have continually increased in GMU 3 since 1974. Most of the annual harvest in Unit 3 since 1974 has been from Kuiu and Kupreanof Islands. These Islands were the only areas showing significant increases in harvest over 1975. Although Kuiu Island accounted for 57 percent of the total harvest in 1976, Kupreanof Island showed the most significant harvest increase over that of 1975. This increase was mainly attributed to a 120 percent increase in nonresident take which went from five bears in 1975 to 11 bears in 1976.

Although the male harvest has been consistently high, averaging 87 percent since 1974, no apparent adverse impacts have been noted to date. Skull sizes and mean ages of males have been relatively constant through this period. Analysis of the age data showed that since 1974, the spring mean male age consistently has been about 2 years older than the mean male age of fall-killed bears. The fall harvest for this period has been considerably smaller than the spring harvest. Age data also indicate a lack of bears 3 years old or younger in the harvest.

Recommendations

No change in seasons or bag limits is recommended.

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BLACK BEAR

SURVEY-INVENTORY PROGRESS REPORT - 1976

Game Management Unit 5 - Yakutat

Seasons and Bag Limits

Sept. 1 - June 30	Two bears, provided that not more than one may be a blue or glacier bear and that the taking of cubs or females accompanied by cubs is prohibited.

Harvest and Hunting Pressure

Hunting pressure was similar to that in previous years, with the majority of black bears (16) being taken from the mountain slopes along Yakutat Bay and Russell and Nunatak Fjords during the spring season.

The sport kill was 19 bears (all males), 18 of which were taken during the spring season and one during the fall season. Seventeen were of the black color phase and two were of the blue or glacier phase. Average age of males was 8.2 years (Table 1). Non-residents accounted for 67 percent of the harvest (10 black, 2 blue).

Composition and Productivity

A black bear survey was conducted on May 21, 1976, from Ustay Lake to Gateway Knob and along the mountain slopes northeast of the Alsek Glacier. A total of 23 bears was observed all of the black color phase, 20 solitary bears and a sow with 2 cubs of the year. Other miscellaneous sightings during spring and summer 1976 included 8 solitary black-phase bears and a black sow with 2 glacier-phase cubs of the year. Hunters during May reported black bears to be numerous along mountain slopes adjacent to the east shore of Yakutat Bay.

Management Summary and Conclusions

Black bears in Unit 5 are numerous in most areas south and east of Yakutat Bay but are infrequently sighted between Icy Bay and Yakutat Bay. Hunting pressure and harvest has been low in most areas, with the exceptions of the mountain slopes adjacent to Chicago Harbor and east of the Tanis Mesa U.S. Forest Service cabin. Additional information is needed on population genetics and the frequency of occurrence of the blue color phase.

Recommendations

No changes in seasons or bag limits are recommended.

PREPARED BY:

Roland L. Quimby
Game Biologist II

SUBMITTED BY:

Robert E. Pegau
Regional Research/Management Coordinator

Table 1. Spring black bear age data, Unit 5.

	Males		Females	
	N	$\bar{x}$ Age	N	$\bar{x}$ Age
1973	6	11.00	3	4.66
1974	6	6.50	2	6.00
1975	8	7.75	2	7.00
1976	14	8.21	0	0.00
Total	34	8.29	7	5.71

BLACK BEAR

SURVEY-INVENTORY PROGRESS REPORT - 1976

Game Management Unit 6 - Prince William Sound and Gulf Coast

Seasons and Bag Limits

January 1-June 30 September 1-December 31	One bear, provided that the taking of cubs or females accompanied by cubs is prohibited.

Harvest and Hunting Pressure

The 1976 sport harvest in Unit 6 was 147 black bears. The harvest was composed of 79 males, 61 females and seven of unknown sex. The 1976 harvest is nearly identical to the 1975 harvest in total numbers but composition varied considerably (Appendix I). The proportion of females in the 1976 harvest was 20 percent higher than in the previous two years. In addition to the sport harvest, 10 nonsport black bears were taken in Unit 6.

In the spring season, 108 bears (73.5 percent of the annual harvest) were killed by sport hunters. This level of harvest is similar to the previous two years (Appendix I). During the spring season, 56 bears were taken in May and 52 in June (Appendix II). No distinct peak of harvest occurred during either the spring or fall seasons. Most bears are usually taken from mid-May through mid-June.

Data on skull sizes were obtained from 141 bears. Skull sizes (length plus width) for 77 males averaged 16.6 inches; 57 females averaged 15.6 inches (Appendix III).

Age data are not available at this time.

Distribution of the 1976 harvest (Appendix IV) was more dispersed than in previous years. The harvest predominantly came from the northern and western side of Prince William Sound from Port Wells to the Copper River and from Port Nellie Juan to the Cape Fairfield area.

Composition and Productivity

Composition or productivity data, other than that derived from the hunter kill, are not available.

Management Summary and Conclusions

During the 1976 black bear season, 147 bears were killed by sport hunters. Ten additional bears were taken for non-sport reasons. Thus, in 1976 a total of 157 black bears were killed in Unit 6. As in 1974

and 1975, the spring season continued to account for more than 70 percent of the annual harvest. The bulk of the spring harvest occurred between mid-May and mid-June.

Data for skull sizes of males (Appendix II) and sex composition of the kill (Appendix I) available for 1974-1976 indicate that the level of harvest (150± bear) attained during the past two years may have affected these characteristics of the black bear population. If this trend should continue it will be necessary to reduce the take of males. The disproportionate harvest of the male segment of the population may be attributable to the fact that males, especially large and/or old individuals, are more vulnerable than other sex-age classes because of their larger home ranges and greater activity. Males abandon the hibernaculum earlier and through aggression may prevent other sex-age classes from utilizing important beach fringe areas for feeding in the spring. If such is the case, hunters will continue to remove the largest and oldest males from the population at a faster rate than other sex-age classes and the trend toward smaller skull sizes will continue.

Recommendations

Retain the current season and bag limit.

PREPARED BY:

Julius Reynolds
Game Biologist III

SUBMITTED BY:

John Vania
Regional Management Coordinator

APPENDIX I

Black bear harvest by year and sex for Game Management Unit 6, 1974-1976.

Year	Males	Females	Unknown	Annual total
1974	71 (66)*	28 (26)	9 (8)	108
1975	104 (70)	34 (23)	10 (7)	148
1976	79 (54)	61 (41)	7 (5)	147

Black bear harvest by year and season for Game Management Unit 6, 1974-1976.

Year	Spring	Fall	Unknown	Annual total
1974	81 (75)*	23 (21)	4 (4)	108
1975	135 (91)	13 (9)	0 (-)	148
1976	108 (73)	39 (27)	0 (-)	147

* Percent of annual totals in parentheses.

Prepared by: Julius Reynolds, Game Biologist III

APPENDIX II

Black bear sport harvest by month, season and sex for Game Management Unit 6, 1976.

	Male	Female	Unknown	Total	Percent of annual total
Spring					
May	35	17	4	56	38
June	22	29	1	52	35
Total for spring season	57	46	5	108	73
Percent of spring total	53	43	5		
Fall					
September	16	12	2	30	21
October	6	3	0	9	6
Total for fall season	22	15	2	39	27
Percent of fall total	56	38	5		
Spring and fall					
Annual total	79	61	7	147	
Percent of total	54	41	5		

Prepared by: Julius Reynolds, Game Biologist III

APPENDIX III

Skull sizes (length plus width, inches) of male and female black bears killed in Game Management Unit 6, 1974-1976.

Year	Season	Males	Females
1976	Spring	16.7" (55)*	15.6" (45)
1976	Fall	16.3" (22)	15.8" (12)
1976	Spring and Fall	16.6" (77)	15.6" (57)
1975	Spring and Fall	17.2" (97)	15.6" (32)
1974	Spring and Fall	18.1" (61)	15.6" (26)

* Sample size in parentheses.

Prepared by: Julius Reynolds, Game Biologist III

APPENDIX IV

Number and location of black bears killed by sport hunters in Game Management Unit 6, 1976.

Area	Year 1974	1975	1976
East of Copper River to Icy Bay	5 (5)*	22 (15)	10 (7)
Cordova to Copper River	12 (11)	4 (3)	21 (14)
Tatitlek to Cordova	37 (34)	12 (8)	19 (13)
Valdez Arm	5 (5)	28 (19)	22 (15)
Esther Island to Valdez Arm	14 (13)	32 (22)	27 (18)
Port Wells	9 (8)	18 (12)	14 (10)
Passage Canal to Port Nellie Juan	12 (11)	12 (8)	5 (3)
Port Nellie Juan to Cape Fairfield	11 (10)	14 (9)	22 (15)
Unit 6 - Unknown	3 (3)	6 (4)	7 (5)
Total for all areas	108	148	147

* Percent of annual harvest in parentheses.

Prepared by: Julius Reynolds, Game Biologist III

BLACK BEAR
SURVEY-INVENTORY PROGRESS REPORT - 1976

Game Management Unit 7- Seward

Seasons and Bag Limits

August 10-June 30	Three bears, provided that not more than one may be a blue or glacier bear and that the taking of cubs or females accompanied by cubs is prohibited.

Harvest and Hunting Pressure

Ninety-nine black bears from Unit 7 were sealed in 1976 (Appendix I). The 1976 harvest was up 60 percent from 1975 and 123 percent from 1974. The spring harvest of 41 bears was composed of 19 males, 19 females and 6 of unknown sex. The fall harvest of 57 bears was made up of 32 males, 19 females and 1 of unknown sex.

Male bears made up 57 percent of the 1976 harvest. Fifty percent of the spring harvest was male and 68 percent of the fall harvest was male. The percent of males in the harvest declined substantially from the 1975 level of 80 percent.

Nonresidents accounted for 14 percent of the 1976 harvest (23 percent of the fall harvest and 2 percent of the spring). The percent of the harvest taken by nonresidents has been increasing rapidly. Nonresidents accounted for 2.5 percent of the 1974 harvest and 12.9 percent of the 1975 harvest.

The mean skull size for male bears taken in 1976 was 16.1 inches and for female bears was 15.7 inches (Appendix II). The mean skull size for males declined from 16.7 inches in 1975 and 16.8 inches in 1974. The mean skull size for females had increased from 15.1 in 1975 and 15.4 in 1974. These changes were caused by a sharp decline in the skull size of males taken in the fall and a sharp increase in the size of females taken in the fall, respectively.

The average number of days hunted to kill a bear increased from 2.2 in 1975 to 2.6 in 1976 for residents and from 2.9 to 5.1 for nonresidents. The great difference between the average days hunted by residents and nonresidents is explained by the fact that many bears are taken incidentally by residents and are reported as one day hunts.

Ten black bears were taken by guided hunters; of these 4 were taken by residents and 6 by nonresidents. Among successful resident hunters, 4.7 percent utilized guides while among nonresident hunters, 43 percent utilized guides.

Thirty-four percent of all black bears taken were incidental to hunting for another species, and 70 percent of all hunters reported salvaging at least a portion of the meat.

The percent of successful hunters utilizing aircraft, off-road vehicles and other means changed only slightly from 1975. The percent of hunters utilizing boats declined from 38 to 22, and that for use of horses increased from 2 to 9 percent.

Management Summary and Conclusions

The 1976 black bear harvest was 60 percent greater than the 1975 harvest, and 123 percent greater than the 1974 harvest. At the same time, the percentage of the harvest taken by nonresidents rapidly increased. Although we have no record of effort, it appears that a rapid build-up in hunting pressure is occurring.

The skull size of male bears declined by 0.6 inches while that of females increased by 0.6 inches. The changes from 1975 are entirely due to sharp changes in skull size of bears taken in the fall season. At this point, the data are confusing and do not establish a trend, but they seem to indicate that the population has been little affected by hunting.

The sex composition of the harvest has not followed a trend. In 1975, 80 percent of the harvest was males, but in 1976 the percent of males in the harvest dropped to 62, a figure near the 1974 level.

These data indicate that there is no problem with the current level of harvest. However, if the harvest continues to increase, bear numbers could be substantially reduced before skull measurements and male percent of harvest change substantially.

Because of this danger, the black bear harvest should be leveled off long enough to critically assess the current rate of harvest. If another substantial increase in the harvest occurs in 1977, regulations should be enacted to control the harvest at about the 1976 level.

Recommendations

No regulatory changes are recommended at this time.

PREPARED BY:

Paul A. LeRoux
Game Biologist III

SUBMITTED BY:

John S. Vania
Regional Management Coordinator

Appendix I. Harvest data for black bears taken in Game Management Unit 7, July 1, 1973-76.

Year	Season	Resident			Nonresident			Total			Total[1/]	Percent males[2/]	Percent nonresidents
		Males	Females	Unknown	Males	Females	Unknown	Males	Females	Unknown			
1973	Fall	13	14	1	5	0	0	18	20	1	39	47	28
1974	Spring	14	8	6	0	0	0	14	8	6	28	64	0
1974	Fall	6	5	0	1	0	0	7	5	0	12	58	8
1974	Annual Total	20	13	6	1	0	0	21	13	6	40	62	3
1975	Spring	26	6	4	2	0	1	28	6	5	39	82	8
1975	Fall	11	4	3	4	1	0	15	5	3	23	75	22
1975	Annual Total	37	10	7	6	1	1	43	11	8	62	80	13
1976	Spring	18	19	3	1	0	0	19	19	3	41	50	2
1976	Fall	25	13	6	7	6	0	32	19	6	57	63	23
1976	Annual	43	32	9	8	6	0	51	38	9	99	57	14

1/ Total may exceed sum of fall and spring due to nonsport kills occurring during the closed season.
2/ Percent males based on bears of known sex.

Prepared by: Paul A. LeRoux, Game Biologist III

Appendix II. Mean skull sizes (inches) of black bear taken in Game Management Unit 7, July 1, 1973-76.

Year	Spring Season		Fall Season		Combined Seasons	
	Males	Females	Males	Females	Males	Females
1973	--	--	16.1(13)	15.4(17)	--	--
1974	16.4(13)[2]	15.1 (7)	16.6 (6)	15.9 (4)	16.8(19)	15.4(11)
1975	16.6(16)	15.3 (5)	16.8(26)	14.8 (5)	16.7(42)	15.1(10)
1976	16.6(19)	15.3(16)	15.8(30)	16.1(18)	16.1(49)	15.7(34)

[2] Sample size in parentheses.

Prepared by: Paul LeRoux, Game Biologist III

Appendix III. Residency, day hunted, number of guided hunts, and method of transportation for successful black bear hunters in game management unit 7, July 1, 1973-76.

Year	Residency of successful hunters				Average No. days hunted		Guided hunts				Transportation used									
	Res.		Nonres.				Res.		Nonres.		Aircraft		ORV		Boat		Horse		Other	
	No.	%	No.	%	Res.	Nonres.	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
1973	27	71	11	29	2.3	3.4	0	0	8	73	16	42	1	3	3	8	3	8	15	39
1974	39	98	1	3	2.0	1	1	100	1	3	9	21	0	0	16	37	4	9	14	33
1975	54	87	8	13	2.2	2.9	0	0	4	50	9	15	1	2	23	38	1	2	27	44
1976	84	86	14	14	2.6	5.1	4	5	6	43	17	18	3	3	21	22	9	9	45	47

Prepared by: Paul A. Leroux, Game Biologist III

Appendix IV. Chronology of black bear hunting harvest in game management unit 7, 1969 and July 1, 1973-76.

Year	Sex				Month of kill											
	Male	Female	Unknown	Total	J	F	M	A	M	J	J	A	S	O	N	D
1969[a]	17	13	2	32	0	0	0	0	7	2	0	9	11	2	1	0
1973	16	21	1	38	-	-	-	-	-	-	-	15	21	2	0	0
1974	22	16	5	43	0	0	0	0	16	12	0	6	4	5	0	0
1975	43	11	8	62	0	0	0	0	17	22	0	12	8	3	0	0
1976	52	38	9	99	0	0	0	0	17	24	1	20	31	6	0	0

[a] Data from multiple species harvest questionnaire.

Prepared by: Paul A. LeRoux, Game Biologist III

BLACK BEAR

SURVEY-INVENTORY PROGRESS REPORT - CY 1976

Game Management Unit 9 - Alaska Peninsula

Seasons and Bag Limits

No closed season	Three bears, provided that the taking of cubs or females accompanied by cubs is prohibited.

Harvest and Hunting Pressure

No harvest data are available as the sealing of black bear is not required in this unit. The estimated harvest is 10-20 bears annually.

Composition and Productivity

No work was accomplished.

Management Summary and Conclusions

Black bear occur regularly in the northern portion of Unit 9. Occasional reports of black bear as far south as Katmai National Monument are received. Most of the harvest is believed incidental to hunts for other species. Some black bears are harvested by local residents for human consumption.

Recommendations

No changes in seasons and bag limits are recommended at this time.

PREPARED BY:

Nick Steen
Game Biologist II

SUBMITTED BY:

John S. Vania
Regional Management Coordinator

BLACK BEAR

SURVEY-INVENTORY PROGRESS REPORT -CY 1976

Game Management Unit 11 - Wrangell Mountains

Seasons and Bag Limits

No closed season	Three bears, provided that the taking of cubs or females accompanied by cubs is prohibited.

Harvest and Hunting Pressure

A requirement that the hide and skull of black bears be presented to the Department of Fish and Game for sealing went into effect July 1, 1973. This report includes data collected from July 1, 1973 through 1976.

Information from sealing data indicates a harvest of ten black bears during 1976. Eight of the 10 were males, one was female and one was reported as unknown sex. In 1976 the mean skull size for 20 males was 17. 1 inches and the mean skull size for 10 females was 16.3 inches (Appendix I).

Analysis of the harvest by location of kill shows that 8 black bears were taken in the Chitina Valley, one on the Suslota Creek and one on the Chetaslina River. Resident hunters accounted for 70 percent of the harvest (Appendix ii). All nonresidents, but none of the residents, were on guided hunts. The data indicate that aircraft is still the most popular method of transportation used by black bear hunters in Unit 11. The average number of days required to harvest a black bear was 3.6.

Though data from all black bear hunters are not available, most black bears are believed to be harvested incidental to hunts for other big game species. Data from the revised sealing certificate indicate that half of the 1976 harvest was taken incidental to hunts for other species. Data presented in Appendix III indicate that most black bears are taken when seasons are also open for other big game species. Two black bears were harvested in the spring and the remaining 8 were taken during the fall hunting season.

Only 2 of 64 black bears killed in Unit 11 since fall 1973 were of other than the black color phase; one was a cinnamon phase and one was probably mistaken for a blue phase black bear.

Composition and Productivity

Mean skull sizes of bears harvested over the 4-year period suggest that most bears were age 6-years or older. Ages determined from cemental annuli in premolar teeth are not available at this time.

Management Summary and Conclusions

A comparison of the data collected from sealing certificates for the past four years indicates that in Game Management Unit 11, hunters are drawing from a lightly hunted population of black bears. The reported harvest declined steadily from 1973 to 1975 and then increased slightly in 1976 but the general decline in the bear harvest from 1973 through 1976 was probably more influenced by chance than directly correlated to a declining black bear population.

Recommendations

No changes in seasons or bag limits are recommended at this time.

PREPARED BY:

Ted Spraker
Game Biologist II

SUBMITTED BY:

John S. Vania
Regional Management Coordinator

Appendix I. Sex and skull size (inches) of black bears harvested in Game Management Unit 11, 1973-1976.

Year	Total harvest	No. males	Percent males	No. females	Percent females	No. unknown sex	Percent unknown sex	Mean skull size(m) Males	Mean skull size(m) Females
1973*	31	20	65	11	35	0	0	17.0(20)	15.9(8)
1974	16	10	63	5	31	1	6	16.8 (10)	15.1 (5)
1975	7	2	29	5	71	0	0	16.8 (2)	16.5 (3)
1976	10	8	80	1	10	1	10	17.1 (8)	16.3 (1)

* Data available for 7/1-12/31 in 1973.

Prepared by: Ted Spraker, Game Biologist II

Appendix II. Residency, days hunted, number of guided hunts, and methods of transportation for successful black bear hunters in Game Management Unit 11, 1973-1976.

	Residency of successful hunters					No. guided hunts				Transportation used									
	Nonres.		Res.		Avg. no.	Nonres.		Res.		Aircraft		Off-road vehicle		Boat		Horse		Other	
Year	No.	%	No.	%	days hunted	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
1973*	18	58	13	42	3.7	18	100	0	0	9	29	3	10	0	0	8	26	11	35
1974	7	44	9	56	5.3	7	100	0	0	5	31	2	13	0	0	3	19	5	37
1975	1	14	6	86	3.2	1	100	0	0	3	43	1	14	1	14	0	0	2	29
1976	3	30	7	70	3.6	3	100	0	0	7	70	1	10	0	0	0	0	2	20

* Data available for 7/1-12/31 in 1973.

Prepared by: Ted Spraker, Game Biologist II

Appendix III. Relationship of annual black bear harvest to the opening and closing of other big game seasons, 1974-1976.

	Year		
	1974	1975	1976
January 1-May 9	0	0	0
May 10-20	1	1	2
May 21-31	0	0	0
June 1-10	1	0	0
June 11-20	0	0	0
June 21-30	0	0	0
July 1-10	0	0	0
July 11-20	0	0	0
July 21-31	0	0	0
August 1-9*	0	0	0
August 10-19**	4	1	0
August 20-31	2	1	2
September 1-10***	3	2	3
September 11-20****	2	1	2
September 21-30	3	0	1
October 1-10	0	1	0
October 11-20	0	0	0
October 21-December 31	0	0	0

* Hunting seasons for all ungulates closed (May 1 to August 9).
** Sheep and goat seasons opened on August 10.
*** Moose season opened on September 1 and caribou season opened on September 5.
**** Sheep, caribou and moose seasons closed on September 20.

Prepared by: Ted Spraker, Game Biologist II

BLACK BEAR

SURVEY-INVENTORY PROGRESS REPORT - 1976

Game Management Unit 12 - Upper Tanana, White River

Seasons and Bag Limits

Unit 12	No closed season	Three bears, provided that the taking of cubs or females accompanied by cubs is prohibited

Harvest and Hunting Pressure

Information derived from sealing documents revealed that 17 black bears (10 males) were taken in Unit 12 during calendar year 1976. In addition, one bear was hit and killed by a car. The 1975 harvest was also 17, and 24 black bear were reported taken during 1974. Of the bears taken during 1976, 33 percent were of the cinnamon color phase.

Chronology of the 1976 sport harvest was as follows: May (7),June (5), July (0), August (2) and September (3). Nine bears were reported harvested from the Tanana River drainage, six from the Tok and two from the Nabesna. All but one of the bears harvested were taken by resident hunters.

Approximately half the bears harvested were reported as being incidentally taken, but the meat was salvaged from practically all animals. During 1976, no bears were reported to have been taken in defense of life and property.

Management Summary and Recommendations

There has been an obvious increase in the amount of sport hunting for black bears in recent years, particularly during the spring and early summer. As indicated by information provided at the time of sealing, the meat of bears killed was salvaged for domestic consumption in most cases.

Despite the increasing interest in black bear hunting, the harvest has remained rather low despite moderate bear populations in Unit 12. The low reported harvest was probably due partly to incomplete compliance with the relatively recent sealing requirement, particularly in remote areas. The other factor contributing to the low harvest is that few hunters really put forth the effort required to find bears. The majority of hunters continued to road hunt for black bears or take them incidental to other activities.

Black bear populations in interior Alaska appear to be regulated by factors other than hunting, and the current liberal season and bag limit has no apparent effect on population size. Until hunting pressure greatly increases or management plans dictate otherwise, there is no reason to modify present seasons and bag limits.

PREPARED BY:

Larry B. Jennings
Game Biologist III

SUBMITTED BY:

Oliver E. Burris
Regional Management Coordinator

BLACK BEAR

SURVEY-INVENTORY PROGRESS REPORT - 1976

Game Management Unit 13 - Nelchina Basin

Seasons and Bag Limits

No closed season	Three bears, provided that the taking of cubs or females accompanied by cubs is prohibited.

Harvest and Hunting Pressure

Hide and skull sealing documents indicated a sport harvest of 60 black bears for Game Management Unit 13 in 1976. Appendix I shows the composition of harvest by subunit and the average male and female skull measurements for fall seasons 1973-1976. Information on method of transportation, percentage of guided hunts and residency of hunters has also been obtained since fall 1973 and is shown in Appendix II.

Appendix III shows the time period when black bears are harvested in Unit 13. During 1976, information was obtained on percentage of incidental kills and percentage of hunters who salvaged the meat as well as the hide and skull from black bears they had taken. This information is presented in Appendix IV. Approximately one-half of the black bears sealed in Game Management Unit 13 were killed while the hunter was primarily involved in other activities.

Composition and Productivity

The only information on sex and age composition of black bears in Unit 13 comes from hunter-killed bears. In 1976, 63 percent of the harvest was male; this value is within the range of harvests from previous years. The skull size of bears killed in 1976 also remained essentially unchanged from sizes in previous years.

Eleven (18%) of the black bears taken in Unit 13 were of the cinnamon color phase. The remaining bears were of the black color phase.

Management Summary and Conclusions

Information presently used to evaluate the biological well-being of black bears in Unit 13 consists of number, sex composition, and skull size of bears killed by hunters, number of man-days expended and location of the kills. Although year-to-year fluctuations occur in some of these data, data indicate that harvests are well within a sustained yield level.

Recommendations

No changes in seasons and bag limits are recommended.

PREPARED BY:

Sterling Eide
Game Biologist III

SUBMITTED BY:

John S. Vania
Regional Management Coordinator

Appendix I. Location, sex and mean skull size (length plus width in inches) of black bears harvested in subunits of Game Management Unit 13, 1973-1976.

Year	Subunit	Total harvest	Males		Females		Unknown sex		Mean skull size (n)	
			No.	Percent	No.	Percent	No.	Percent	Males	Females
1973*	A	11	5	45	6	55	0	0	17.2(5)	15.4(5)
1974	A	3	3	100	0	0	0	0	17 5/8(3)	----(0)
1975	A	17	8	47	7	41	2	12	17 2/8(6)	15 0/8 (6)
1976	A	3	1	33	2	67	0	0	17.0 (1)	14 6/8(2)
1973*	B	3	1	33	2	67	0	0	15.8(1)	15.4(2)
1974	B	4	4	100	0	0	0	0	17 2/8(4)	----(0)
1975	B	3	3	100	0	0	0	0	17 6/8(3)	----(0)
1976	B	2	1	50	1	50	0	0	17 5/8(1)	14 7/8(1)
1973*	C	1	1	100	0	0	0	0	14.0 (1)	----(0)
1974	C	6	2	33	4	67	0	0	14 5/8(2)	16 1/8(1)
1975	C	5	4	80	1	20	0	0	16 4/8(3)	----(0)
1976	C	4	1	25	3	75	0	0	15 3/8(1)	16 5/8(3)
1973*	D	32	20	63	10	31	2	6	16.1(16)	15.6(8)
1974	D	32	19	59	11	34	2	6	16 5/8(16)	14 5/8(9)
1975	D	33	24	73	6	18	3	9	16 5/8(20)	15 3/8(4)
1976	D	34	22	65	11	32	1	3	16 5/8(19)	15 4/8(7)
1973*	E	22	15	68	7	32	0	0	16.1(13)	15.6(5)
1974	E	5	4	80	1	20	0	0	15 1/8(2)	16 7/8(1)
1975	E	13	8	62	2	15	3	23	17 1/8(8)	14 0/8 (2)
1976	E	17	13	76	2	12	2	12	17 0/8 (11)	15 6/8(2)
Annual totals										
1973*		69	42	61	25	36	2	3	16.2(36)	15.5(20)
1974		50	32	64	16	32	2	4	16 2/8(27)	15 7/8(11)
1975		71	47	66	16	23	8	11	16 7/8(40)	15 0/8 (12)
1976		60	38	63	19	32	3	5	16 6/8(33)	15 5/8(15)

* Data available for 7/1-12/31 in 1973.

PREPARED BY: Sterling Eide, Game Biologist III

Appendix II. Relationship of annual black bear harvest to the opening and closing of other big game seasons, 1974-1976.

	Year		
	1974	1975	1976
May 1-10*	--	--	1
May 11-20	2	2	2
May 21-31	2	9	7
June 1-10	1	6	4
June 11-20	0	3	3
June 21-30	2	2	4
July 1-10	2	2	1
July 11-20	2	4	3
July 21-31	3	3	3
August 1-9	2	3	1
August 10-19**	5	4	0
August 20-31	4	6	1
September 1-10***	16	17	12
September 11-20****	5	8	12
September 21-30	2	1	4
October 1-10	2	1	3
October 11-April 30	0	0	0

* Hunting seasons for all ungulates closed (May 1 to August 9).
** Sheep and goat seasons opened on August 10.
*** Moose season opened on September 1 and caribou season opened on September 5.
**** Sheep, caribou and moose seasons closed on September 20.

PREPARED BY: Sterling Eide, Game Biologist III

Appendix III. Residency, days hunted, number of guided hunts, and methods of transportation for successful black bear hunters in subunits of Game Management Unit 13, 1973-1976.

Year	Subunit	Successful hunters				Avg.no.days hunted	Number guided hunts				Transportation used									
		Nonres.		Res.			Nonres.		Res.		Aircraft		Off-road vehicle		Boat		Horse		Other	
		No.	%	No.	%		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
1973*	A	6	55	5	45	3.5	3	60	0	0	4	36	0	0	0	0	0	0	7	64
1974	A	0	0	3	100	5.0	0	0	0	0	2	67	0	0	0	0	0	0	1	33
1975	A	3	18	14	82	3.3	2	67	0	0	5	29	0	0	3	18	0	0	9	53
1976	A	0	0	3	100	1.3	0	0	0	0	0	0	0	0	0	0	0	0	3	100
1973*	B	0	0	3	100	6.0	0	0	0	0	1	33	0	0	0	0	0	0	2	67
1974	B	0	0	4	100	1.4	0	0	0	0	0	0	0	0	0	0	0	0	4	100
1975	B	2	67	1	33	3.3	2	100	0	0	2	67	0	0	0	0	0	0	1	33
1976	B	0	0	2	100	3.0	0	0	0	0	0	0	0	0	1	50	0	0	1	50
1973*	C	0	0	1	100	1.0	0	0	0	0	0	0	0	0	0	0	0	0	1	100
1974	C	0	0	6	100	1.7	0	0	0	0	0	0	3	50	0	0	0	0	3	50
1975	C	1	20	4	80	1.2	0	0	0	0	0	0	0	0	0	0	0	0	5	100
1976	C	0	0	4	100	2.0	0	0	0	0	0	0	0	0	0	0	0	0	4	100
1973*	D	12	38	20	62	2.6	11	92	0	0	10	31	2	6	1	3	3	9	16	50
1974	D	10	31	22	69	5.0	9	90	0	0	9	28	0	0	2	6	4	13	17	53
1975	D	7	21	26	79	4.1	5	71	0	0	4	13	2	6	2	6	4	13	20	63
1976	D	7	21	27	79	2.4	6	86	0	0	6	26	3	13	2	9	1	4	11	48
1973*	E	16	73	6	27	4.9	16	100	1	17	13	59	0	0	2	9	0	0	7	32
1974	E	0	0	5	100	3.4	0	0	1	20	2	40	0	0	0	0	0	0	3	60
1975	E	2	15	11	85	3.7	2	100	0	0	4	31	0	0	0	0	0	0	9	69
1976	E	6	35	11	65	4.9	3	50	0	0	6	38	3	19	1	6	0	0	6	38
Annual totals																				
1973*		34	49	35	51	3.6	30	88	1	3	28	41	2	3	3	4	3	4	33	48
1974		10	20	40	80	3.3	9	90	1	3	13	26	3	6	2	4	4	8	28	56
1975		15	21	56	79	3.6	11	73	0	0	15	21	2	3	5	7	4	6	44	63
1976		13	22	47	78	3.1	9	69	0	0	12	25	6	13	4	8	1	2	25	52

* Data available for 7/1-12/31 in 1973.

PREPARED BY: Sterling Eide, Game Biologist III

Appendix IV. Residence of hunters taking black bears incidental to other activities and number of hunters salvaging meat from the bears killed in subunits of Game Management Unit 13, 1976.

Resident hunters

Subunit	Incidental kill Yes	No	Unk.	Salvaged meat Yes	No	Unk.
A	2	1	0	2	0	1
B	2	0	0	2	0	0
C	3	1	0	3	1	0
D	15	7	5	17	4	6
E	4	4	3	4	3	4
Unit total	26(55)*	13(28)	8(17)	8(17)	11(23)	3(23)

Nonresident hunters

Subunit	Incidental kill Yes	No	Unk.	Salvaged meat Yes	No	Unk.
A	0	0	0	0	0	0
B	0	0	0	0	0	0
C	0	0	0	0	0	0
D	2	4	1	3	3	1
E	1	4	1	2	3	1
Unit total	3(23)	8(62)	2(15)	5(39)	6(46)	2(15)

Resident and nonresident hunters

Subunit	Incidental kill Yes	No	Unk.	Salvaged meat Yes	No	Unk.
A	2	1	0	2	0	1
B	2	0	0	2	0	0
C	3	1	0	3	1	0
D	17	11	6	20	7	7
E	5	8	4	6	6	5
Unit total	29(48)	21(35)	10(17)	33(55)	14(23)	13(22)

* Percentage of totals in parentheses.

BLACK BEAR

SURVEY-INVENTORY PROGRESS REPORT - CY 1976

Game Management Subunits 14A and B - Upper Cook Inlet

Seasons and Bag Limits

No closed season	Three bears, provided that the taking of cubs or females accompanied by cubs is prohibited.

Harvest and Hunting Pressure

Forty-eight black bears were harvested in subunits 14A and B during 1976 (Appendix I). Seven (19%) of the bears were taken in the spring (January 1 to June 30) and 30 (81%) were killed in the fall (July 1 to December 31) (Appendix II). Of the total harvest, 26 bears were taken in subunit 14A and 11 were taken in subunit 14B.

All of the hunters who took black bears in subunit 14A were residents (Appendix III). In subunit 14B, 31 percent of the successful hunters were nonresidents and 69 percent were residents.

Fifteen successful black bear hunters (65 %) in subunit 14A reported using "other" methods of transportation. Hunters using boats and off-road vehicles accounted for 22 percent of the harvest while aircraft was used by 13 percent of the successful hunters. No hunters reported using horses in subunit 14A. In 14B, "other" methods of transportation were used by two successful black bear hunters, while seven used aircraft and one hunter indicated using both boats and horses.

In 1976, successful black bear hunters spent an average of 1.8 days to kill a bear. In subunit 14B successful hunters took an average of 4.5 days to bag a black bear. No data are available for unsuccessful black bear hunters.

Composition and Productivity

Twenty (61%) of the black bears of known sex taken in these subunits in 1976 were males, 13 (39%) were females and 5 were of unknown sex.

Fourteen (64%) of the black bears of known sex taken in subunit 14A during 1976 were males, eight (36%) were females and four were of unknown sex. In subunit 14B, five males, five females and one bear of unknown sex were reported in the harvest. The mean skull size of male bears harvested in subunit 14A during the past four years is 16.5 inches. Comparable data for subunit 14B male bears are 16.6 inches.

Management Summary and Conclusions

The black bear harvest from subunits 14A and 14B has fluctuated markedly since 1974. Considering that the 1973 harvest data are representative of fall only, it appears that the low harvest of 24 bears in 1974 was more unusual than the high harvest of 89 bears in 1975. The cause of the low harvest in 1974 is unknown. Past experience indicates that annual variation of natural forage frequently correlates with annual black bear harvests. Black bear vulnerability may be largely a function of sightability.

The percentage of males in annual harvest has fluctuated around 60 percent. The average skull size of male bears has declined, but skull size of female bears has remained stable over the past four years. Also, skull size of male bears from subunit 14A during the past four years has decreased compared with those from subunit 14B. Subunit 14B is relatively inaccessible and lightly hunted. These changes in skull size would be expected from a bear population that is adjusting to boar removal by greater productivity.

Most of the harvest has occurred in the fall. Spring harvests mainly occurred after black bears left the dens, but before deciduous vegetation had leafed out. Fall harvests primarily occurred during established ungulate hunting seasons, when hunters were afield in bear home ranges. Earlier and later harvests resulted mainly from food-seeking bears encountering human habitations.

Generally, black bear hunting remains a sport primarily of the non-mechanized resident hunter. This is also true of nuisance bear kills. Aircraft are useful in this area to distribute the harvest but are seldom of direct aid in harvesting bears.

Recommendations

No changes in seasons or bag limits are recommended at this time.

PREPARED BY:

Jack C. Didrickson and Carl McIlroy
Game Biologist III and Game Biologist III

SUBMITTED BY:

John S. Vania
Regional Management Coordinator

Appendix I. Black bear harvest with mean skull size of male and female bears sealed in Alaska's Game Management Subunits 14A and B, July 1, 1973-76.

Subunit	Year[1]	Total harvest	No. males	Percent[2] males	No. females	Percent[2] females	No unknown sex	Mean Skull Size(n) males	Mean Skull Size(n) females
14A	1973	42	24	59	17	41	1	17.6(21)	15.6(15)
	1974	17	9	53	8	47	0	17.3 (7)	15.9 (5)
	1975	65	33	59	23	41	9	16.1(27)	15.6(22)
	1976	26	14	64	8	36	4	14.6(11)	16.8 (6)
14B	1973	22	19	90	2	10	1	16.8(16)	13.6 (1)
	1974	7	2	50	2	50	3	17.8 (2)	14.9 (2)
	1975	15	8	62	5	38	2	15.6 (7)	15.2 (4)
	1976	11	5	50	5	50	1	16.6 (4)	15.9 (4)
Unknown	1973	3	0	--	3	100	0	---- (0)	15.3 (2)
	1974	0	0	--	0	--	0	---- (0)	---- (0)
	1975	0	0	--	0	--	0	---- (0)	---- (0)
	1976	1	1	100	0	--	0	16.3 (1)	---- (0)
Total	1973	67	43	66	22	34	2	17.3(37)	15.5(18)
	1974	24	11	52	10	48	3	17.4 (9)	15.6 (7)
	1975	80	41	59	28	41	11	16.0(34)	15.5(26)
	1976	48	20	61	13	39	5	15.2(16)	16.5(10)

1/ 1973 data for period July 1-December 31; 1974, 1975 and 1976 data for period January 1-December 31.
2/ Percentage based on known sex bears.
3/ Sample size in parenthesis.

Prepared by: Jack C. Didrickson, Game Biologist III
Carl McIlroy, Game Biologist III

Appendix II. Chronology of black bear harvest in Alaska's game management subunits 14A and B, July 1, 1973-76.

Time Interval	No. harvested 1973	1974	1975	1976	Time Interval	No. harvested 1973	1974	1975	1976
Prior to May	--	0	0	0	July 1-10	1	0	3	7
May 1-10	--	1	0	1	July 11-20	2	0	7	2
May 11-20	--	1	0	1	July 21-31	5	0	5	2
May 21-31	--	0	4	4	Aug. 1-9[1/]	2	0	3	1
June 1-10	--	1	9	1	Aug. 10-19[2/]	10	2	6	0
June 11-20	--	1	6	0	Aug. 20-31	13	4	6	5
June 21-30	--	2	4	0	Sept. 1-10	20	3	10	5
					Sept. 11-20[3/]	11	8	13	6
					Sept. 21-30	0	1	1	1
					Oct. 1-10	0	0	1	0
					Oct. 11-20	3	0	0	1
					Oct. 21-Dec.31	0	0	0	0
Total Harvest Prior to July 1	--	6	23	7	Total Harvest After July 1	67	18	55	30

1/ Period August 1-9 used because sheep season opened on Aug. 10.
2/ Period August 10-19 used becuase this time interval represents the period when sheep season was open, but before moose season opened on Aug. 20.
3/ Sept. 20 was the closing data of moose and sheep seasons in Subunits 14A and B.

Prepared by: Jack C. Didrickson, Game Biologist III
Carl McIlroy, Game Biologist III

Appendix III. Reported residency, days hunted and methods of transportation of successful black bear hunters in Alaska's game management subunits 14A and B; July 1, 1973-76.

		Residency of successful hunters					Transportation used									
		Nonres.		Res.		Avg. no.	Aircraft		O.R.V.		Boat		Horse		Other	
Subunit	Year	No.	%	No.	%	days hunted	No.	%	No.	%	No.	%	No.	%	No.	%
14A	1973	3	7	39	93	2.3	3	7	5	12	3	7	3	7	28	67
	1974	0	0	17	100	1.6	3	18	2	12	0	0	0	0	12	71
	1975	2	3	63	97	2.2	6	10	9	15	9	15	0	0	38	61
	1976	0	0	23	100	1.8	3	13	2	9	3	13	0	0	15	65
14B	1973	4	18	18	82	2.7	6**	26	2	9	1	4	1	4	13	57
	1974	4	57	3	43	9.6	3	43	1	14	0	0	1	14	2	29
	1975	0	0	15	100	2.3	2	15	1	8	1	8	1	8	8	62
	1976	4	31	9	69	4.5	7	64	0	0	1	9	1	9	2	18
Unknown	1973	1	33	2	67	3.3	0	0	0	0	0	0	0	0	3	100
	1974	0	--	0	--	--	0	--	0	--	0	--	0	--	0	--
	1975	0	--	0	--	--	0	--	0	--	0	--	0	--	0	--
	1976	1	100	0	0	2.0	1	100	0	--	0	--	0	--	0	--
Unit total	1973	8	12	59	88	2.5	9	13	7	10	4	6	4	6	44	65
	1974	4	17	20	83	3.8	6	25	3	13	0	0	1	4	14	58
	1975	2	3	78	97	2.2	8	11	10	13	10	13	1	1	46	61
	1976	5	14	32	86	2.7	11	31	2	6	4	11	1	3	17	49

* These data are based on sport-killed bears.
** One hunter reported using both aircraft and horse and was included twice.

Prepared by: Jack C. Didrickson, Game Biologist III
Carl McIlroy, Game Biologist III

BLACK BEAR

SURVEY-INVENTORY PROGRESS REPORT -CY 1976

Game Management Unit 14C - Anchorage

Seasons and Bag Limits

Unit 14(C) (except that portion in Chugach State Park).	No closed season	Three bears, provided that the taking of cubs or females accompanied by cubs is prohibited.
Unit 14(C) in Chugach State Park.	Day after Labor Day-April 30	One bear, provided that taking of cubs or females accompanied by cubs is prohibited.

Harvest and Hunting Pressure

During 1976, 10 black bears were killed in Subunit 14C. Two of the 10 bears taken were non-sport kills. Of the 8 sport kills, 6 were harvested prior to June 30, and 2 were taken after that date. During the entire 1975 season, 17 black bears were taken.

All bears were taken by residents of Anchorage and surrounding communities. One hunter utilized aircraft; all other hunters relied on foot travel. Each successful hunter spent an average of three days afield to kill a bear. The number of unsuccessful hunters is not known. The seven bears for which the kill location is known were taken in the Eklutna-Hunter Creek-Lake George area. In previous years most of the spring harvest also came from these drainages.

Composition and Productivity

Four of the eight bears harvested in 1973 were males, three were females and one was of unknown sex.

Since skull measurements were available for only three of the bears, these data are not presented.

Management Summary and Conclusions

The 1976 black bear harvest in Subunit 14C was less than half the 1975 harvest. Fluctuations in the numbers of bears harvested annually are not uncommon throughout many areas of southcentral Alaska. This variation is associated with several factors, including the quantity and availability of berries. In 1976, at many locations in Subunit 14C, the berry crop was reported to be very sparse.

By influencing hunter pressure, weather conditions can also significantly affect the numbers of bears harvested. In 1976 inclement weather prevailed

throughout most of the fall bear season. In previous years a large percentage of the bear harvest came from areas south of Thunderbird Creek, but in 1976 no bears were taken in these areas. A similar pattern was true for sheep hunters in 14C in 1976. The weather conditions in the entire subunit were poor, but poorest in the southern portions.

Another factor contributing to the reduced bear harvest in 1976 was the creation of two areas closed to big game hunting, the Eagle River closed area and the Anchorage Hillside Closed Area. During 1975, two of 17 bears taken in the subunit came from these newly established closed areas.

Even with a reduction in hunting area, it is doubtful that an annual harvest of 20-25 bears would be detrimental to the population.

Recommendations

It is recommended that the spring bear season within Chugach State Park be extended from its present closing date of April 30 to the Friday before Memorial Day weekend (May 26). Extension of this open season would allow greater utilization of the bear resource at a time of little other use. A similar recommendation was made last year but it was not proposed in 1976 because the Board of Game was not accepting proposals on black bear seasons and bag limits.

PREPARED BY:

David Harkness
Game Biologist II

SUBMITTED BY:

John S. Vania
Regional Management Coordinator

BLACK BEAR

SURVEY-INVENTORY PROGRESS REPORT - FOR REGULATORY YEAR 1976-77

Game Management Unit 15 - Western Kenai Peninsula

Seasons and Bag Limits

Unit 15	Aug. 10 - June 30	Three bears; provided that not more than one may be a blue or glacier bear and that the taking of cubs or females accompanied by cubs is prohibited.

Harvest and Hunting Pressure

Seventy-five black bears were sealed from Unit 15 in 1977 (Appendix I). This was a 41 percent decrease from the 1976 harvest of 128. The spring harvest of 27 bears was composed of 21 males, 4 females and 2 of unknown sex. The fall harvest was composed of 27 males and 21 females.

Male bears accounted for 67 percent of the annual harvest. The spring harvest was comprised of 85 percent males compared to 76 percent in 1976 while the fall harvest was comprised of 56 percent males, unchanged from 1976 (Appendix II).

Nonresidents killed 13 bears or 19 percent of the annual harvest. Two of these were killed in Subunit 15B, 11 in 15C, and 1 in an unspecified part of Unit 15. Nonresidents took 2 bears in the spring season and 11 in the fall.

The mean skull size for male bears taken in 1977 was 15.7 inches and females was 15.4 inches (Appendix I). The mean skull size for male bears declined 0.7 inches from 16.4 inches, the average for the previous 4 years. The skull size for females killed in 1977 was 15.4 inches, compared to 15.3 inches, the average for the previous 4 years.

The mean number of days hunted by successful hunters was 2.6 in 1977 compared to 3.1 in 1976 and 3.8 in 1975 (Appendix III). This statistic is intended to be an index to bear abundance and hunter effort but it may not be reliable because of differential interpretation of the questionnaire.

Six bears were taken by guided hunters. All were non-residents and hunted in subunit 15C.

Composition and Productivity

No data are available.

Management Summary and Conclusions

The black bear harvest in Unit 15 has fluctuated over the past 5

years without following any discernable trend. It appears that salmon runs and berry crops greatly affect bear distribution and thus the harvest. The very large harvest in 1976 appears to have been due to the unusual availability of bears in subunit 15C. The harvest in 15C decreased from 72 in 1976 to 31 in 1977; an amount alone that accounts for 77 percent of the difference in the harvest between 1976 and 1977.

The mean size of skulls from male bears declined by 0.7 inches from 1976 to 1977 while the mean size of female skulls declined by 0.3 inches. The decline in male skull size may be an expected fluctuation due to sample size and is not a concern at this time, since the harvest was composed of 65 percent males.

Recommendations

No changes are recommended.

PREPARED BY:

Paul A. LeRoux
Game Biologist III

SUBMITTED BY:

James Faro
Regional Management Coordinator

APPENDIX I. Sex composition and skull size (inches) for black bears harvested in subunits of game management unit 15 in Alaska, 1969-77.

Game management unit 15

Year	Total harvest	No. males	Percent[3] males	No. females	Percent females	No. unknown sex	Mean skull size (n) males	Mean skull size (n) females
1969[1]	50	33	69	15	31	2	-	-
1973[2]	71	38	61	24	39	9	16.2 (30)	15.7 (21)
1974	67	42	66	22	34	3	16.3 (37)	14.5 (19)
1975	84	50	67	25	33	9	16.6 (40)	15.6 (20)
1976	128	75	61	47	39	6	16.4 (64)	15.7 (33)
1977	74	47	65	25	35	2	15.7 (42)	15.4 (23)

Game management unit 15 (A)

Year	Total harvest	No. males	Percent[3] males	No. females	Percent females	No. unknown sex	Mean skull size (n) males	Mean skull size (n) females
1973[2]	35	21	70	9	30	5	15.8 (17)	16.3 (9)
1974	18	9	50	9	50	0	17.2 (9)	13.5 (8)
1975	16	10	77	3	23	3	15.8 (10)	16.1 (2)
1976	27	15	60	10	40	2	15.8 (14)	16.8 (6)
1977	29	21	75	7	25	1	15.2 (21)	15.4 (7)

1 Data from multiple species harvest questionnaire.
2 Harvest for July 1-Dec. only. Black bear sealing was intiaited July 1, 1973.
3 Percent determined from bears of known sex.

PREPARED BY: Paul LeRoux, Game Biologist III

APPENDIX I. Continued. Sex composition and skull size (inches) for black bears harvested in subunits of game management unit 15 in Alaska, 1969-77.

Game management unit 15 (B)

Year	Total harvest	No. males	Percent[2] males	No. females	Percent females	No. unknown sex	Mean skull size (n) males	Mean skull size (n) females
1973[1]	20	10	56	8	44	2	16.3 (8)	15.3 (8)
1974	26	19	73	7	27	0	15.7 (19)	15.0 (6)
1975	21	12	67	6	33	3	16.0 (9)	16.8 (5)
1976	25	13	52	11	48	1	16.7 (12)	15.8 (10)
1977	14	8	57	6	43	0	16.6 (8)	14.8 (4)

Game management unit 15 (C)

Year	Total harvest	No. males	Percent[2] males	No. females	Percent females	No. unknown sex	Mean skull size (n)- males	Mean skull size (n)- females
1973[1]	16	7	50	7	50	2	17.8 (5)	14.9 (4)
1974	23	14	70	6	30	3	16.6 (9)	15.6 (5)
1975	47	26	63	15	37	6	17.2 (21)	15.0 (13)
1976	72	44	61	26	39	2	16.5 (38)	15.3 (17)
1977	30	17	59	12	41	1	16.1 (13)	15.6 (12)

1 Harvest for July-Dec. 31 only. Black bear sealing was initated July 1, 1973.
2 Percent determined from bears of known sex.

PREPARED BY: Paul LeRoux, Game Biologist III

APPENDIX II. Chronology of number and sex of black bears harvested in Game management unit 15 in Alaska, July 1, 1978 through 1977.

	No. bears					Percent of annual harvest				Percent males[1]			
	1973	1974	1975	1976	1977	1974	1975	1976	1977	1974	1975	1976	1977
April 21-30		0	0	2	0	0	0	2	0	0	0	0	-
May 1-10		1	3	0	2	1	4	0	3	100	33	0	100
May 11-20		3	4	4	4	4	6	3	5	67	75	100	75
May 21-31		4	3	10	11	6	4	8	15	25	100	80	80
June 1-10		1	8	13	4	1	11	10	5	100	63	83	75
June 11-20		0	6	5	3	0	9	4	4	0	83	80	67
June 21-30		5	4	2	3	7	6	2	4	100	75	50	100
Spring total		14	28	36	27	19	40	29	36	71	71	76	85
Aug. 10-19	14	7	12	19	7	10	17	15	9	71	58	56	57
Aug. 20-31	14	11	8	13	2	16	11	10	3	54	88	54	50
Sept. 1-10	16	12	6	24	9	18	9	19	12	58	50	55	56
Sept. 11-20	15	6	7	17	15	9	10	13	20	50	71	63	67
Oct. 1-10	2	2	6	7	4	3	9	5	5	50	83	29	50
Oct. 11-20	1	4	0	3	4	6	0	2	5	100	0	100	50
Oct. 21-31	0	0	0	1	0	0	0	1	0	0	0	0	0
Nov. 1-Dec. 31	0	0	0	0	1	0	0	0	1	0	0	0	100
Fall total	70	53	42	92	48	78	60	70	64	60	67	56	56

1 Percent determined from bears of known sex.

PREPARED BY: Paul A. LeRoux, Game Biologist II

APPENDIX III. Residency, days hunted, number of guided hunts and method of transportation for successful black bear hunters in subunits of game management unit 15 in Alaska, July 1, 1978 through 1977.

Game management unit 15

Year	Residency of successful hunters: Nonres. No.	%	Res. No.	%	Av. Days Hunted	No. guided hunts: Nonres. No.	%	Res. No.	%	Transportation used: Aircraft No.	%	Off road vehicle No.	%	Boat No.	%	Horse No.	%	Other No.	%
1973[1]	8	11	63	89	2.5	4	50	2	3	13	18	1	1	16	23	8	11	33	46
1974	15	22	52	78	3.4	8	53	2	4	25	38	4	6	15	23	5	8	17	26
1975	13	16	70	84	3.8	2	15	0	0	26	31	2	2	25	30	6	7	24	29
1976	26	20	101	80	3.1	12	46	3	3	24	19	4	3	34	27	10	8	55	43
1977	14	19	61	81	2.4	6	43	0	0	17	23	1	1	15	20	8	11	33	45

Game management unit 15 (A)

Year	Residency of successful hunters: Nonres. No.	%	Res. No.	%	Av. Days Hunted	No. guided hunts: Nonres. No.	%	Res. No.	%	Transportation used: Aircraft No.	%	Off road vehicle No.	%	Boat No.	%	Horse No.	%	Other No.	%
1973[1]	1	3	34	97	2.1	0	0	1	3	5	14	0	0	1	3	1	3	28	80
1974	2	11	16	89	2.4	0	0	2	12	4	22	3	17	3	17	0	0	8	44
1975	0	0	16	100	2.1	0	0	0	0	0	0	2	13	0	0	0	0	14	87
1976	1	4	26	96	2.1	0	0	1	4	1	4	2	7	2	7	0	0	22	81
1977	0	0	29	100	2.0	0	0	0	0	5	17	1	3	3	10	0	0	20	69

1 Harvest for July 1-Dec. 31 only. Black bear sealing was initiated July 1, 1973.

PREPARED BY: Paul A. LeRoux, Game Biologist III.

APPENDIX III. Continued. Residency, days hunted, number of guided hunts and method of transportation for successful black bear hunters in subunits of game management unit 15 in Alaska, July 1, 1978 through 1977.

Game management unit 15 (B)

Year	Residency of successful hunters				Av. Days Hunted	No. guided hunts				Transportation used									
	Nonres.		Res.			Nonres.		Res.		Aircraft		Off road vehicle		Boat		Horse		Other	
	No.	%	No.	%		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
1973[1]	0	0	20	100	2.7	0	0	1	5	3	15	0	0	10	50	4	20	3	15
1974	9	35	17	65	4.0	4	44	0	0	11	42	0	0	9	35	1	4	5	19
1975	4	20	16	80	4.1	1	25	0	0	9	45	0	0	5	25	3	15	3	15
1976	2	8	23	92	3.6	0	0	1	4	4	16	0	0	10	40	2	8	9	36
1977	2	14	12	86	2.2	0	0	0	0	4	29	0	0	6	43	1	7	3	21

Game management unit 15 (C)

Year	Residency of successful hunters				Av. Days Hunted	No. guided hunts				Transportation used									
	Nonres.		Res.			Nonres.		Res.		Aircraft		Off road vehicle		Boat		Horse		Other	
	No.	%	No.	%		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
1973[1]	7	44	9	56	3.7	4	57	0	0	5	31	1	6	5	31	3	19	2	13
1974	4	17	19	83	3.6	4	100	0	0	10	43	1	4	3	13	4	17	5	22
1975	9	19	38	81	4.5	1	11	0	0	17	36	0	0	20	43	3	6	7	15
1976	21	29	51	71	3.2	12	57	1	1	17	24	2	3	21	29	8	11	24	33
1977	11	35	20	65	3.1	6	55	0	0	8	26	0	0	6	19	7	23	10	32

1 Harvest for July 1-Dec. 31 only. Black bear sealing was initiated July 1, 1973.

PREPARED BY: Paul A. LeRoux, Game Biologist III

BLACK BEAR

SURVEY-INVENTORY PROGRESS REPORT -CY 1976

Game Management Unit 15 - Western Kenai Peninsula

Seasons and Bag Limits

Unit 15C	August 10 - June 30	Three bears, provided that not more than one may be a blue or glacier bear and that the taking of cubs or females accompanied by cubs is prohibited.

Harvest and Hunting Pressure

Black bear harvest data are minimal prior to 1974. A voluntary response questionnaire was compiled in 1969 (Appendix I). In Game Management Unit 15, sealing of bear hides and skulls was initiated July 1, 1973; these first-year data are considered incomplete.

One hundred twenty-eight black bears were sealed in 1976 (Appendix I) - 44 more bears than in 1975. Harvest in subunits A and B increased moderately over 1974-75 figures. Harvest in 15C increased from 23 bears in 1974 to 47 and 72 bears in 1975 and 1976, respectively. The increased harvest was probably the direct result of increased hunting pressure.

The percentage of males in the Unit 15 harvest declined from 67 percent (1975) to 59 percent (1976) (Appendix II). The regulation prohibiting the taking of sows with cubs, as well as the behavior of males, makes spring harvests highly biased in favor of males and fall harvests less so. The 1976 fall harvest of 92 bears was more than double the 1975 harvest of 42 bears, but at the same time the percentage of males in the fall harvest declined from 67 percent (1975) to 56 percent (1976). The proportion of male bears harvested usually declines with increased hunting pressure.

The skull size of males in subunit 15C decreased from a mean of 17.1 inches for 1973-75 (n=35) to a mean of 16.5 inches in 1976 (n=38). The decrease in skull size of bears in subunit C was associated with a corresponding increase in the skull diminsions (15.9 to 16.7 inches) of bears harvested in subunit 15B. However, considering all of Game Management Unit 15, skull sizes have remained relatively constant over the past three years.

Nonresidents accounted for twice as many bears (26) in 1976 as in 1975 (13) (Appendix III). Twenty-one of the 26 bears harvested in 15C were taken by nonresidents; 9 of these hunters were without guides.

The mean number of days hunted per bear killed dropped from 3.8 in 1975 to 3.1 in 1976 (Appendix III). This statistic is intended to give a measure of bear abundance and hunter effort but is inaccurate because of differential interpretation of the questionnaire.

Fifteen black bears were taken by guided hunters, twelve by nonresidents in 15C and three by residents (one in each subunit). In 1975, only two Unit 15 black bears were taken by guided hunters.

Numbers of bears harvested by hunters using aircraft, ORV's, and horses remained relatively constant. Boat hunters increased their take in all subunits by 35 percent, from 25 bears in 1975 to 34 bears in 1976. A larger increase occurred in the "other" category (principally vehicle and foot access) of transportation. Overall, this latter category rose 129 percent from 24 in 1975 to 55 in 1976.

Composition and Productivity

Inexpensive techniques for measuring sex and age composition of black bear populations have not been developed. To date, premolar teeth collected for aging purposes have not been processed.

Seventy-seven black bears were observed in August and September during goat surveys west of a line from Gore Point to Bear Cove. This sample was composed of 46 lone bears, 11 sows and 20 cubs.

Management Summary and Conclusions

Although black bear numbers may fluctuate independently of hunting pressure in some areas, McIlroy (1972)[1] and others have documented reduced densities of black bears subjected to high hunting pressures. The terrain and habitat of subunits A and B are such that black bear harvests probably will remain below sustained yield levels in the foreseeable future. However, the harvest in subunit C has doubled each year since 1974 and is expected to continue to increase. The harvest, sex ratio and mean skull size should be closely watched in subunit C. Other parameters, such as hunter effort and age of bears harvested, may be needed to evaluate the status of bear populations in this subunit.

Recommendations

No change in season or bag limits is recommended.

If budgets allow, teeth from subunit C bears should be processed. The "days hunted" question on the sealing form could be expanded to read "days hunted bear this license year." If a multiple take, the question should then read "days hunted since previous kill."

Black bears are counted and grouped during goat and sheep surveys. The relationship of these observations to population composition and numbers should be explored.

[1] McIlroy, C.W. 1972. Effects of hunting on black bears in Prince William Sound. J. Wildl. Manage. 36(3):828-837.

PREPARED BY:

David Hardy
Game Biologist II

SUBMITTED BY:

John S. Vania
Regional Management Coordinator

Appendix I. Numbers, sex composition and skull size (inches) of black bears harvested in subunits of Game Management Unit 15, 1969 and July 1, 1973-76.

Year	Total[1] harvest	No. males	Percent[2] males	No. females	Percent females	No. unknown sex	Mean skull size(n) Males	Mean skull size(n) Females
Subunit A								
1973	35	21	70	9	30	5	15.8(17)	16.3 (9)
1974	18	9	50	9	50	0	17.2 (9)	13.5 (8)
1975	16	10	77	3	23	3	15.8(10)	16.1 (2)
1976	27	15	60	10	40	2	15.8(14)	16.8 (6)
Subunit B								
1973	20	10	56	8	44	2	16.3 (8)	15.3 (8)
1974	26	19	73	7	27	0	15.7(19)	15.0 (6)
1975	21	12	67	6	33	3	16.0 (9)	16.8 (5)
1976	25	13	54	11	46	1	16.7(12)	15.8(10)

Appendix I. Continued.

Year	Total harvest	No. males	Percent males	No. females	Percent females	No. unknown sex	Mean skull size (n) Males	Mean skull size (n) Females
Subunit C								
1973	16	7	50	7	50	2	17.8 (5)	14.9 (4)
1974	23	14	70	6	30	3	16.6 (9)	15.6 (5)
1975	47	26	63	15	37	6	17.2(21)	15.0(13)
1976	72	44	63	26	37	2	16.5(38)	15.3(17)
Subunits A, B and C								
1969[3]	50	33	69	15	31	2	--	--
1973	71	38	61	24	39	9	16.2(30)	15.7(21)
1974	67	42	66	22	34	3	16.3(37)	14.5(19)
1975	84	50	67	25	33	9	16.6(40)	15.6(20)
1976	128	75	61	47	39	6	16.4(64)	15.7(33)

[1] Total harvest may not equal the sum for subunits.
[2] Percent determined from bears of known sex.
[3] Data from multiple species harvest questionnaire.

Prepared by: Dave Hardy, Game Biologist II

Appendix II. Chronology of number and sex of black bears harvested in Game Management Unit 15, July 1, 1973 through 1976.

	No. bears				Percent of the annual harvest			Percent males[1]		
	1973	1974	1975	1976	1974	1975	1976	1974	1975	1976
Spring										
April 21-30		0	0	2	0	0	2	0	0	0
May 1-10		1	3	0	1	4	0	100	33	0
May 11-20		3	4	4	4	6	3	67	75	100
May 21-31		4	3	10	6	4	8	25	100	80
June 1-10		1	8	13	1	11	10	100	63	83
June 11-20		0	6	5	0	9	4	0	83	80
June 21-30		5	4	2	7	6	2	100	75	50
Total		14	28	36	21	40	29	71	71	76
Fall										
Aug. 10-19	14	7	12	19	10	17	15	71	58	56
Aug. 20-31	14	11	8	13	16	11	10	54	88	54
Sept. 1-10	16	12	6	24	18	9	19	58	50	55
Sept. 11-20	15	6	7	17	9	10	13	50	71	63
Sept. 21-30	8	11	3	7	16	4	5	54	33	71
Oct. 1-10	2	2	6	7	3	9	5	50	83	29
Oct. 11-20	1	4	0	3	6	0	2	100	0	100
Oct. 21-31	0	0	0	1	0	0	1	0	0	0
Total	70	53	42	91	78	60	70	60	67	56

[1] Percent determined from bears of known sex and calculated for each year within each 10-day interval.

Prepared by: Dave Hardy, Game Biologist II

Appendix III. Residency, days hunted, number of guided hunts and method of transportation for successful black bear hunters, in subunits of Game Management Unit 15, 1973-1976.

	Residency of successful hunters					No. guided hunts				Transportation used									
	Nonres.		Res.		Avg. no.	Nonres.		Res.		Aircraft		Off-road vehicle		Boat		Horse		Other	
Year	No.	%	No.	%	days hunted	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Subunit A																			
1973[1]	1	3	34	97	2.1	0	0	1	3	5	14	0	0	1	3	1	3	28	80
1974	2	11	16	89	2.4	0	0	2	12	4	22	3	17	3	17	0	0	8	44
1975	0	0	16	100	2.1	0	0	0	0	0	0	2	13	0	0	0	0	14	87
1976	1	4	26	96	2.1	0	0	1	4	1	4	2	7	2	7	0	0	22	81
Subunit B																			
1973[1]	0	0	20	100	2.7	0	0	1	5	3	15	0	0	10	50	4	20	3	15
1974	9	35	17	65	4.0	4	44	0	0	11	42	0	0	9	35	1	4	5	19
1975	4	20	16	80	4.1	1	25	0	0	9	45	0	0	5	25	3	15	3	15
1976	2	8	23	92	3.6	0	0	1	4	4	16	0	0	10	40	2	8	9	36

Appendix III. Continued.

Year	Residency of successful hunters: Nonres. No.	Nonres. %	Res. No.	Res. %	Avg. no. days hunted	No. guided hunts: Nonres. No.	Nonres. %	Res. No.	Res. %	Transportation used: Aircraft No.	Aircraft %	Off-road vehicle No.	Off-road vehicle %	Boat No.	Boat %	Horse No.	Horse %	Other No.	Other %
Subunit C																			
1973[1]	7	44	9	56	3.7	4	57	0	0	5	31	1	6	5	31	3	19	2	13
1974	4	17	19	83	3.6	4	100	0	0	10	43	1	4	3	13	4	17	5	22
1975	9	19	38	81	4.5	1	11	0	0	17	36	0	0	20	43	3	6	7	15
1976	21	29	51	71	3.2	12	57	1	2	17	24	2	3	21	29	8	11	24	33
Subunits A, B and C																			
1973[1]	8	11	63	89	2.5	4	50	2	3	13	18	1	1	16	23	8	11	33	46
1974	15	22	52	78	3.4	8	53	2	4	25	8	4	6	15	23	5	8	17	26
1975	13	16	70	84	3.8	2	15	0	0	26	31	2	2	25	30	6	7	24	29
1976	26	20	101	80	3.1	12	46	3	2	24	19	4	3	34	27	10	8	55	43

[1] Data available for July through December, 1973.

Prepared by: Dave Hardy, Game Biologist II

BLACK BEAR

SURVEY-INVENTORY PROGRESS REPORT FOR REGULATORY YEAR 1976-77

Game Management Unit 16 - West Side of Cook Inlet, Subunits A and B

Seasons and Bag Limits

No closed season	Three bears, provided that the taking of cubs or females accompanied by cubs is prohibited.

Harvest and Hunting Pressure

A total of 92 black bears taken in Unit 16 were sealed during 1976. This level of harvest is somewhat below the previous three year average of 114 (Appendix I). Of 82 bears of known sex, 55 (67%) were males and 27 (33%) were females.

Twenty-five bears (27%) were taken during the spring season, prior to July 1 (Appendix II). The majority (17) of these were harvested in May. Of the 67 bears taken in the fall, 47 (70%) were harvested during the first 20 days in September.

Sixteen bears, 10 males, three females and three of unknown sex, were taken in Subunit 16A. Seventy-six bears, 47 males, 24 females and seven of unknown sex, came from Subunit 16B.

Information pertaining to the number of unsuccessful black bear hunters in Unit 16 during 1976 is unavailable. Successful hunters in Subunit A spent an average of 2.5 days hunting black bear while those in Subunit B hunted an average of 3.8 days (Appendix III).

Sealing data reveal that 77 percent of the hunters in Subunit 16B used aircraft for transportation. Boats were the most common method of transportation in Subunit 16A where seven (44%) hunters used them. This was the only major difference in methods of access between these subunits.

Residency information shows that 74 (80%) of the 92 successful hunters were residents, two of whom were on guided hunts. Fifteen of the 18 nonresidents were accompanied by guides.

Composition and Productivity

The mean skull size of 49 male bears harvested in Unit 16 was 16.5 inches. The mean skull size of 25 females was 15.4 inches. Both

figures are comparable to the averages during the preceding three years. The mean skull size for males was larger in Subunit B (16.8) than in Subunit A (15.9). The reverse is true for females where the average skull size was larger for Subunit A (15.7) than for Subunit B (15.4).

Management Summary and Conclusions

The Unit 16 black bear harvest in 1976 of 92 bears was below the previous year's harvest of 119 and was below the previous three year average of 114. The spring harvest of 25 black bears is the lowest ever recorded for this unit.

Greatest harvest fluctuation occurs in Subunit B and appears to have very little parallel with the number of moose hunters afield. The availability of road access has probably been a factor in minimizing the harvest fluctuation in Subunit A.

Mean skull sizes of black bears have been relatively constant since 1973 in both subunits.

Recommendations

No changes in seasons or bag limits are recommended at this time.

PREPARED BY:

Jack C. Didrickson and Kenton P. Taylor
Game Biologist III and Game Biologist II

SUBMITTED BY:

John S. Vania
Regional Supervisor

Appendix I. Mean skull size (inches) for black bear harvested in Game Management Unit 16, from July 1, 1973-76.

Subunit	Year[1]	Total harvest	No. males	Percent[1] males	No. females	Percent[2] females	No. unknown sex	Mean skull size[3] Males	Mean skull size[3] Females
16A	1973	15	8	62	5	38	2	15.2 (8)	15.2 (5)
	1974	15	9	64	5	36	1	15.7 (9)	15.2 (4)
	1975	18	12	75	4	25	2	15.8 (10)	15.3 (4)
	1976	16	10	77	3	23	3	15.9 (9)	15.7 (3)
16B	1973	140	88	68	42	32	10	16.7 (72)	15.7 (38)
	1974	49	34	72	13	28	2	17.1 (31)	16.1 (11)
	1975	100	63	73	23	27	14	16.8 (53)	15.4 (20)
	1976	76	45	65	24	33	7	16.8 (40)	15.4 (22)
16?	1973	1	0	0	0	0	1	---- (0)	---- (0)
	1974	2	1	50	1	50	0	17.6 (1)	14.4 (1)
	1975	1	1	100	0	0	0	17.2 (1)	---- (0)
	1976	0	0	0	0	0	0	---- (0)	---- (0)
Total	1973	156	96	67	47	33	13	16.5 (80)	15.6 (43)
	1974	66	44	70	19	30	3	16.8 (41)	15.8 (16)
	1975	119	76	74	27	26	16	16.6 (64)	15.4 (24)
	1976	92	55	67	27	33	10	16.5 (49)	15.4 (25)

1/ 1973 data for period July 1-December 31; 1974 and 1975 data for period January 1-December 31.
2/ Percentage based on known sex bears.
3/ Skull sample size in parenthesis.

PREPARED BY: Jack C. Didrickson, Game Biologist III and Kenton P. Taylor, Game Biologist II.

Appendix II. Chronology of black bear harvest and its relationship to open seasons for other species of big game in Alaska's Game Management Unit 16 from July 1, 1973-76.

Year and No. harvested in spring					Year and No. harvested in fall				
Date	1973	1974	1975	1976	Date	1973	1974	1975	1976
Prior to April 1	--	0	0	0	July 1-10	1	2	0	1
April 1-30	--	1	0	0	July 11-20	0	0	1	0
May 1-10	--	2	1	0	July 21-31	2	0	2	0
May 11-20	--	14	4	6	Aug. 1-9	4	1	3	0
May 21-31	--	8	14	11	Aug. 10-19	10	3	4	2
June 1-10	--	2	8	6	Aug. 20-31[2/]	33	8	11	6
June 11-20	--	3	8	2	Sept. 1-10	53	1	23	25
June 21-30	--	3	3	0	Sept. 11-20	37	8	25	22
					Sept. 21-30[3/]	15	5	9	7
May (date unknown)	--	3	0	0	Oct. 1-10[4/]	0	1	3	4
					Oct. 11-20	1	0	0	0
					Oct. 21-Dec. 31	0	1	0	0
Total Harvest Prior to July	--	36	38	25	Total Harvest After July 1	156	30	81	67

1/ Sheep season open but before moose season opened on August 20 in 1973 and 1974.
2/ September 20 is the traditional closing date of sheep season and was the closing date of the fall moose season in 1975.
3/ September 30 was the closing date of the fall moose season in 1973, 1974 and 1976.

PREPARED BY: Jack C. Didrickson, Game Biologist and Kenton P. Taylor, Game Biologist II

Appendix III. Residency of successful hunters and guided hunters, number of days hunted and methods of transportation for successful black bear hunters in Alaska's Game Management Unit 16; from July 1, 1973 -76.

		Residence									Transportation used									
		successful hunters				guided hunters														
		Nonres.		Res.		Nonres.		Res.		Av. days	Aircraft		O.R.V.[a]		Boat		Horse		Other	
Subunit	Year	No.	%	No.	%	No.	%	No.	%	hunted	No.	%	No.	%	No.	%	No.	%	No.	%
16A	1973	1	7	14	93	0	0	0	0	2.2	1	7	2	13	1	7	0	0	11	73
	1974	0	0	15	100	0	0	0	0	1.9	4	29	4	29	0	0	0	0	7	43
	1975	3	17	15	83	1	33	0	0	3.3	1	6	4	24	1	6	0	0	11	65
	1976	0	0	16	100	0	0	0	0	2.5	0	0	5	31	7	44	0	0	4	25
16B	1973	46	33	94	67	34	74	1	1	4.4	190*	78	1	1	30*	21	0	0	4	3
	1974	16	33	33	67	16	100	2	6	2.8	36**	72	0	0	8	16	1**	2	5	10
	1975	29	29	71	71	12	41	1	1	4.1	77	79	0	0	8	8	0	0	13	13
	1976	18	24	58	76	15	83	2	3	3.8	60***	77	0	0	11***	14	1	1	6	8
16?	1973	1	100	0	0	1	100	0	0	2.0	1	100	0	0	0	0	0	0	0	0
	1974	0	0	2	100	0	0	0	0	1.5	2	100	0	0	0	0	0	0	0	0
	1975	0	0	1	100	0	0	0	0	2.0	1	100	0	0	0	0	0	0	0	0
	1976	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0	0
Total	1973	48	31	108	69	35	73	1	1	4.3	111	71	3	2	31	20	0	0	15	10
	1974	16	24	50	76	16	100	2	4	2.6	42	64	4	6	8	12	1	2	12	18
	1975	32	27	87	73	13	41	1	1	4.0	79	68	4	3	9	8	0	0	24	21
	1976	18	20	74	80	15	83	2	3	3.6	60	64	5	5	18	19	1	1	10	11

* Four hunters reported using both aircraft and boat were included in both categories.
** One hunter reported using both aircraft and horse was included in both categories.
*** Two hunters reported using both aircraft and boat were included in both categories.
a Off-road vehicle.

PREPARED BY: Jack C. Didrickson, Game Biologist III and Kenton P. Taylor, Game Biologist II

BLACK BEAR

SURVEY-INVENTORY PROGRESS REPORT - 1976

Game Management Unit 17 - Bristol Bay

Seasons and Bag Limits

No closed season	Three bears, provided that the taking of cubs or females accompanied by cubs is prohibited.

Harvest and Hunting Pressure

No harvest data are available as sealing of black bear is not required in this unit. The estimated harvest is 10-20 bears annually.

Composition and Productivity

No work accomplished.

Management Summary and Conclusions

Most of the harvest is believed incidental to hunts for other species. Some black bear are harvested by local residents for human consumption.

Recommendations

No changes in seasons and bag limits are recommended at this time.

PREPARED BY:

Nick Steen
Game Biologist II

SUBMITTED BY:

John S. Vania
Regional Management Coordinator

BLACK BEAR

SURVEY-INVENTORY PROGRESS REPORT - CY 1976

Game Management Unit 20 - Fairbanks, Central Tanana Valley

Seasons and Bag Limits

Unit 20	No closed season	Three bears, provided that the taking of cubs or females accompanied by cubs is prohibited

Harvest and Hunting Pressure

This report covers data collected during calendar year 1976. Based on sealing data, 159 black bears were harvested in Unit 20 during 1976 (March-October). These data are summarized in Appendix I. This harvest represented a 39 percent increase from the reported take of 114 bears in 1975. Sex composition of the harvest (75% males) did not differ significantly from that of the previous two years. Seventy-two and 78 percent males were taken in 1974 and 1975, respectively.

Analysis of sealing data indicated that the majority of the harvest occurred in accessible portions of Subunits 20B and 20C. Sixty-two bears were taken in Subunit 20B, and 83 bears were taken in Subunit 20C. These two areas accounted for 91 percent of the total harvest in Unit 20. The numerous rivers, creeks, roads and trails within these subunits sustained the bulk of the black bear hunting pressure. The Chena River and the Chena Hot Springs Road were heavily hunted, and 41 bears were reported to have been taken from these areas. Extensive residential areas in good bear habitat near Fairbanks tend to increase the incidence of black bear-human interactions. Such interactions contributed to the 1976 harvest.

The chronology of the harvest during 1976 indicated that 62 percent of the known-date harvest occurred during May and June. The same was true in 1975.

Interest in black bear hunting apparently increased in 1976. Fifty-six percent of the 145 successful bear hunters that indicated whether or not their kill was incidental replied that they had intentionally hunted black bears. Sixty-three percent of those hunters taking bears during May and June indicated that they were hunting specifically for bears. During July through October, only 22 percent of the harvest was taken by hunters seeking black bears. Most black bears taken during September in Unit 20 were harvested by hunters seeking other big game, primarily moose. Those black bears taken in Unit 20 during 1976 in defense of life and property were taken primarily by licensed hunters.

The meat was salvaged from 82 percent of the black bears taken in Unit 20 during 1976. Nine percent of the hunters failed to indicate whether or not the meat was salvaged, and nine percent indicated that the meat was not salvaged.

Composition and Productivity

Although standardized surveys of black bear populations were not conducted in Unit 20, a total of 12 bears (10 adults and 2 cubs) were observed on May 12, 13 and 20 during moose surveys on the Tanana Flats (Subunit 20A). One possible method for monitoring trends in the black bear population may be to compare the number of bears observed per hour of flight time during moose surveys. In 1975, 0.9 bears were observed per hour. In 1976, 1.5 bears were observed per hour. Additional data must be collected, analyzed and compared to determine whether or not these figures reflect actual changes in abundance, because the sample sizes thus far have been insufficient to warrant trust. Indices of population levels are not available for the remainder of Unit 20. Subunit 20A sustains very little black bear hunting pressure. Consequently it is not known whether or not population trends detected in this subunit are representative of the more heavily hunted portions of Unit 20. Nevertheless, trends in black bear abundance and harvest in Unit 20 appeared to coincide with spring bear density on the Tanana Flats.

Although premolars were obtained from most bears harvested, the teeth have not been processed. Therefore, age data are not available at this time.

Management Summary and Conclusions

The sustained high level of harvest in areas traditionally receiving heavy hunting pressure, and the constant proportion of males comprising the harvest suggest that the current take in Unit 20 is not excessive. The harvest of black bears during periods of pelt primeness in May, June and September should be encouraged to upgrade the trophy status of this species. Tentative management plans for black bear in Unit 20 provide for establishing areas for hunting under aesthetically pleasing conditions along Birch, Preacher and Beaver Creeks, and in the Minto Flats and Murphy Dome areas.

In the portions of Unit 20 susceptible to bear depredations such as residential areas, liberal seasons and bag limits should be continued to minimize nuisance bear problems. Department personnel should continue to educate the public as to proper garbage disposal methods.

PREPARED BY:

David G. Kelleyhouse
Game Biologist II

SUBMITTED BY:

Oliver E. Burris
Regional Management Coordinator

Appendix I. Unit 20 black bear harvest data based on sealing documents, 1976.

Subunit	Total harvest(%)	Sex		Chronology of Harvest								Incidental take?			Meat salvaged		
		M	F	March	April	May	June	July	Aug.	Sept.	Oct.	Y	N	Unk.	Y	N	Unk.
20A	9(6)	7	2	0	0	2	2	0	3	2	0	3	4	2	6	1	2
20B	62(39)	44	18	1	0	20	22	11	2	6	0	27	31	4	53	2	7
20C	83(52)	65	18	0	0	24	27	17	5	9	1	30	45	8	67	11	1
20D	5(3)	4	1	0	0	2	0	0	3	0	0	4	1	0	5	0	0
Totals	159	120	39	1	0	48	51	28	13	17	1	64	81	14	131	14	14
(%)	(100)	(75)	(25)	(1)	(0)	(30)	(32)	(18)	(8)	(11)	(1)	(40)	(51)	(9)	(82)	(9)	(9)

BROWN/GRIZZLY BEAR

SURVEY-INVENTORY PROGRESS REPORT -CY 1976

Game Management Unit 1 - Southeast Mainland

Seasons and Bag Limits

September 1 - June 10	One bear every four regulatory years, provided that the taking of cubs or females accompanied by cubs is prohibited.

Harvest and Hunting Pressure

The harvest of brown bears in Unit 1 during 1976 was 21 animals (10 males, 10 females, 1 sex unknown). This is 36 percent above the average of the last 16 years and 62 percent above the 13 bears taken in 1975.

A summary of Unit 1 brown bear harvests since 1961 is presented in Appendix I.

The average hide and skull sizes of both males and females taken during 1976 were greater than comparable figures from the past 16-year averages. Sample sizes are small, however, and considerable variation occurs from year to year. In 1976, 10 male skulls averaged 22.4 inches and the mean hide size of 10 males was 15.4 feet (length plus width). The average age of 10 males taken in 1976 was 6.9 years and the average for 10 females was 8.9 years - both slightly older than the long-term average age of Unit 1 brown bears.

Thirty-three percent of the brown bear harvest from Unit 1 in 1976 was taken by non-residents.

Nine bears were taken during the spring season and 12 were shot during the fall season.

Most of the brown bear kill occurred in the northern portion of the Unit. Three bears were taken in subunit 1A, none were taken in 1B, 10 came from 1C and 8 were taken in 1D.

Two of the three bears taken in subunit 1A came from the Unuk River. In subunit 1C, five were taken in the Port Snettisham area, four came from Berner's Bay, and one was taken in Saint James Bay. Almost all of the bears taken in subunit 1D came from the Chilkat-Klehini-Kelsall Rivers complex.

Seven of the 21 brown bear taken in Unit 1 in 1976 were taken on guided hunts. Three of the seven were taken in subunit 1C and four were taken in 1D.

Composition and Productivity

No data were available.

Management Summary and Conclusions

The Unit 1 brown bear harvest is small. There is no indication that present levels of harvest are detrimental to bear populations.

Recommendations

No regulatory changes are recommended on the basis of information currently available.

PREPARED BY:

Robert E. Wood
Game Biologist III

SUBMITTED BY:

Robert E. Pegau
Regional Research/Management Coordinator

APPENDIX I

BROWN BEAR SPORT HARVEST, CALENDAR YEAR 1961-1976

					MALE		MALE		FEMALE		MALE		% BEARS
CALENDAR YEAR	TOTAL KILL	# OF MALES	# OF FEMALES	% OF MALES	SKULL SIZE	SAMP SIZE	AGE	SAMP SIZE	AGE	SAMP SIZE	HIDE* SIZE	SAMP SIZE	BY NON-RESIDENT
1961	0012	008	004	067	24.8	001	00.0	000	00.0	000	13.2	008	8
1962	0013	009	003	075	00.0	000	00.0	000	00.0	000	14.0	009	31
1963	0007	004	003	057	00.0	000	00.0	000	00.0	000	14.5	004	29
1964	0020	017	002	089	23.5	005	00.0	000	00.0	000	13.1	017	10
1965	0009	005	004	056	23.3	002	00.0	000	00.0	000	13.7	005	11
1966	0014	010	004	071	00.0	000	00.0	000	00.0	000	12.9	010	29
1967	0030	015	015	050	23.3	006	00.0	000	00.0	000	13.2	015	27
1968	0017	010	007	059	20.8	008	00.0	000	00.0	000	12.9	010	24
1969	0024	016	007	070	21.1	015	06.3	007	07.1	004	13.7	016	4
1970	0012	006	006	050	20.2	006	04.5	006	08.6	004	11.2	006	33
1971	0009	007	002	078	21.0	007	05.1	007	08.8	001	13.3	007	33
1972	0018	008	009	047	19.7	007	06.6	002	10.0	005	12.8	008	22
1973	0010	004	006	040	21.1	004	11.8	004	08.1	006	16.0	004	20
1974	0017	013	004	076	20.8	012	05.8	011	09.1	004	13.2	013	24
1975	0013	008	005	062	21.5	007	06.1	008	06.5	005	13.7	008	15
1976	0021	010	010	050	22.4	010	06.9	010	08.9	010	15.4	010	33
Totals	0246	0150	0091	0062	21.4	0090	06.3	056	08.3	041	13.4	0150	22

* 1961 and 1962 Hide length measured from the base of the tail; 1973 to present date, hide length measured from anus.

BROWN/GRIZZLY BEAR

SURVEY-INVENTORY PROGRESS REPORT 1976

Game Management Unit 4 - Admiralty, Baranof, Chichagof, and adjacent islands.

Seasons and Bag Limits

September 1-June 10	One bear every four regulatory years, provided that the taking of cubs or females accompanied by cubs is prohibited.

Harvest and Hunting Pressure

For the sixth time in the last 8 years the sport harvest of brown bears from Unit 4 exceeded the previous year's harvest. The 1976 kill was 141 animals, an increase of 34 percent over the previous high of 105 in 1975 and an increase of 139 percent over the 12-year average of 59 during the period 1961-1972.

As in past years, the composition of the harvest remained relatively constant. Hide size, skull size, average age, kill by season, chronology of kill, and sex ratio are well within the average for the past 15 years. In fact, the mean age among males in 1976 was 9.4 years compared to an average of 8.1 for the preceding 8 years for which age data are available (Appendices I and II). There were 11 male bears age 17-years or older taken in 1976 compared to 6 taken in the previous 8 years. These bears account for the apparent increase in average age. There was a slight increase in the percentage of bears taken by nonresident hunters in 1976 (60 percent in 1976 as compared to the 15-year average of 53 percent).

Hunter success has always been high among bear hunters in Unit 4. The substantial and continuing increase in the kill suggests an increase in hunting pressure. Complaints from hunters and guides continue, involving competition for bears and hunting area.

Guide effort continued to increase in 1976 with 14 registered guides operating in Unit 4, two of whom for the first time.

Ten bears were reported killed in defense of life and property during 1976.

Composition and Productivity

No data were gathered during the reporting period.

Management Summary and Conclusions

The sport harvest continues to increase annually, yet the pertinent harvest statistics for the record harvest of 1976 were well within those of the past 15 years, except for the number of male bears age 17-years and older.

Increased numbers of hunters and guides operating in Unit 4 have lessened the high aesthetic qualities of the bear hunt, and we are concerned with the continuing increase in bear harvest in this Unit. Action has been taken by the Guide Licensing and Control Board to limit the number of guides who can contract for hunts in Unit 4, and the regulations promulgated will be in effect during the 1977 spring season. A tag fee for resident hunters will be in effect concurrently. Both efforts should reduce the number of hunters in the field and thereby lessen hunter interaction. If the kill is not substantially lowered as well, the Guide Board has the additional option of assigning exclusive guiding areas. Should such a measure be adopted and fail to reduce the kill, permit hunts may be necessary for the 1978 season, as was noted in the 1975 report.

Recommendations

No changes in seasons or bag limits are recommended at this time.

PREPARED BY:

Loyal J. Johnson
Game Biologist III

SUBMITTED BY:

Robert E. Pegau
Regional Research/Management Coordinator

APPENDIX I

Age of Male Brown Bears Harvested in Unit 4

Age	1968	1969	1970	1971	1972	1973	1974	1975	1976
2	-	-	2	2	-	-	6	-	3
3	1	2	1	4	3	6	1	4	5
4	2	3	2	5	7	13	3	13	5
5	2	6	2	1	7	7	11	6	13
6	1	4	8	3	8	7	9	9	5
7	1	4	5	7	5	5	5	2	10
8	-	1	6	5	1	5	5	7	11
9	-	2	2	4	5	-	3	3	6
10	1	2	2	4	-	3	3	5	2
11	-	1	1	2	1	2	2	6	3
12	-	-	4	1	3	3	-	4	7
13	1	1	1	2	5	2	5	-	2
14	-	1	3	-	2	7	1	1	5
15	-	-	-	3	2	-	2	1	4
16	-	-	-	-	-	2	1	5	-
17	-	-	-	-	-	1	-	-	3
18	-	-	-	-	2	-	-	-	3
19	-	-	-	-	1	-	-	-	2
20	1	-	-	-	1	-	-	1	1
21	-	-	-	-	-	-	-	-	-
22	-	-	-	-	-	-	-	-	1
23	-	-	-	-	-	-	-	-	1
24	-	-	-	-	-	-	-	-	-

APPENDIX II

Age of Female Brown Bears Harvested in Unit 4

Age	1968	1969	1970	1971	1972	1973	1974	1975	1976
2	-	-	-	-	-	1	-	2	1
3	-	1	-	-	3	1	3	4	2
4	-	4	1	4	3	5	1	3	7
5	1	2	1	1	1	3	1	4	3
6	-	2	3	3	5	3	2	5	8
7	1	1	2	1	3	4	3	5	6
8	1	-	2	2	-	-	5	3	6
9	-	-	2	6	1	2	2	1	4
10	-	-	1	1	-	2	2	2	2
11	-	2	1	1	-	1	2	1	3
12	-	1	-	-	-	1	-	1	3
13	-	1	-	-	-	3	-	1	2
14	1	-	-	1	1	1	-	-	4
15	-	-	-	-	1	1	-	-	1
16	-	-	-	1	-	2	-	-	-
17	-	-	-	-	-	-	-	-	-
18	-	-	-	1	-	-	-	-	-
19	-	-	-	-	-	-	-	-	-
20	-	-	-	-	-	-	-	-	-
21	-	-	-	-	-	-	-	-	-
22	-	-	-	-	-	-	-	-	1
23	-	-	-	-	-	-	-	-	-

BROWN/GRIZZLY BEAR

SURVEY-INVENTORY PROGRESS REPORT - 1976

Game Management Unit 5 - Yakutat

Seasons and Bag Limits

May 10 - May 25 Sept. 1 - Dec. 31	One bear every four regulatory years, provided the taking of cubs or females accompanied by cubs is prohibited.

Harvest and Hunting Pressure

Hunting pressure was moderate south and east of Yakutat Bay during 1976. As in previous years, the most heavily hunted areas were Yakutat Bay, Russell Fjord, Situk River, Dangerous River and the Alsek River-Dry Bay region. Three guides operated during the spring season and two during the fall. Resident and non-resident hunters were present in approximately equal numbers.

Hunting pressure was light by both residents and non-residents on the Malaspina Forelands. One guide was active in this area during both the spring and fall seasons.

The 1976 sport kill was 16 bears (11 males, 4 females, 1 unknown), one more than the 1961-75 average. Eight bears (6 males, 2 females) were taken during spring season and eight (5 males, 2 females, 1 unknown) during the fall season. Nine (56 percent) were taken by non-residents, one of whom was accompanied by a relative. The average age of male bears was 5.7 years; average skull size was 22.7 inches; and the average hide size was 15.9 feet. All size parameters increased and the average age of male bears was older than comparable data from the 1975 harvest. (Annual Report of Survey-Inventory Activities, Part III; Job VII.)

In addition to the sport harvest, a cub was illegally killed at the Yakutat dump; an adult was killed in defense of life and property near the mouth of the Italio River; and a male taken during the spring season from the Malaspina Forelands was surrendered to the State following a guilty plea to a charge of falsification of documents.

Composition and Productivity

No surveys were conducted specifically to obtain composition or productivity data on the Unit 5 brown bear population. However, miscellaneous bear sightings during aerial surveys and field activities, and sightings from reputable observers were recorded throughout the year. The sightings include 25 solitary bears, 6 sows accompanied by 11 cubs of the year, and 2 sows accompanied by yearling or older cubs.

Management Summary and Conclusions

The present level of harvest south of Yakutat Bay appears compatible with the productivity of the population. The bear population on the Malaspina Forelands has been lightly hunted and could sustain a larger harvest. No change in season is recommended.

PREPARED BY:

Roland L. Quimby
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SUBMITTED BY:

Robert E. Pegau
Regional Research/Management Coordinator

BROWN BEAR

SURVEY-INVENTORY PROGRESS REPORT - 1976

Game Management Unit 6 - Prince William Sound and North Gulf Coast

Seasons and Bag Limits

May 20-25 Oct. 10-Nov. 30	One bear every four regulatory years, provided that the taking of cubs or females accompanied by cubs is prohibited.

Harvest and Hunting Pressure

The 1976 brown bear harvest in Unit 6 was 24 (18 males and six females). The 1976 harvest was one of the smaller harvests since statehood but was identical to the previous year's harvest (Appendix I). Nineteen bears were taken in the spring, which is an average spring harvest (18.7) for the past 16 years. The fall harvest of five bears was well below the average of 13.4.

In addition to the sport harvest, four brown bears were taken in defense of life or property. The non-sport kill has been fairly high the past several years (Appendix II).

Resident hunters took 58 percent (14 of 24) of the harvest (Appendix III), which is similar to the number and percent taken in 1975. Nonresident hunters took a higher ratio of males (9 of 10) than resident hunters (9 of 14).

The average male hide size was 14.3 feet; females averaged 12.9 feet. Male skull size averaged 22.8 inches and females averaged 20.3 inches. Both male and female ages averaged 6.1 years. The 1976 harvest data on hide size, skull size and age data compares favorably with the 16-year averages (Appendix IV).

The actual hunting pressure exerted in Unit 6 is unknown, but it probably has not increased significantly the past several years.

According to the sealing documents, eight bears were taken east of the Copper River, six from the west side of the Copper River Delta, five from Valdez to Cordova, four from Hinchinbrook Island and one from Montague Island (Appendix V).

Management Summary and Conclusions

There is no indication from the current data that season and bag limits are adversely affecting the Unit 6 brown bear population.

Recommendations

Retain the current seasons and bag limits.

PREPARED BY:

Julius Reynolds
Game Biologist III

SUBMITTED BY:

John S. Vania
Regional Management Coordinator

APPENDIX I

Unit 6

Brown Bear Sport Harvest by Season & Sex

	SPRING				FALL				SPRING AND FALL			
Year	Male	Female	Unk.	Total	Male	Female	Unk.	Total	Male	Female	Unk.	Total
1961	4	2	0	6	2	5	0	7	6	7	0	13
1962	8	1	0	9	9	6	0	15	17	7	0	24
1963	5	4	1	10	11	9	0	20	16	13	1	30
1964	13	4	2	19	9	3	1	13	22	7	3	32
1965	12	11	0	23	6	5	0	11	18	16	0	34
1966	14	9	1	24	6	8	0	14	20	17	1	38
1967	23	8	3	34	13	11	2	26	36	19	5	60
1968	22	12	4	38	18	7	1	26	40	19	5	64
1969	8	5	1	14	4	5	0	9	12	10	1	23
1970	9	10	0	19	4	4	1	9	13	14	1	28
1971	11	2	0	13	3	4	0	7	14	6	0	20
1972	14	4	1	19	7	13	0	20	21	17	1	39
1973	12	2	1	15	10	5	1	16	22	7	2	31
1974	9	10	0	19	5	5	0	10	14	15	0	29
1975	13	5	0	18	4	2	0	6	17	7	0	24
1976	14	5	0	19	4	1	0	5	18	6	0	24
Average (16 yr.)	11.9	5.9	.9	18.7	7.2	5.8	.4	13.4	19.1	11.7	1.3	32.0

Submitted By: Julius Reynolds, Game Biologist III

APPENDIX II

Unit 6

Non - Sport Kill of Brown Bears

Year	Number of Bears
1961	0
1962	0
1963	2
1964	0
1965	1
1966	1
1967	3
1968	0
1969	0
1970	0
1971	2
1972	2
1973	6
1974	5
1975	5
1976	4
16 years	31 Bears

APPENDIX III

Unit 6

Brown Bear Sport Harvest by Season, Sex & Residency - 1976

	SPRING		FALL		SPRING AND FALL	
Sex	Resident	Nonresident	Resident	Nonresident	Resident	Nonresident
Male	7	7	2	2	8	9
Female	4	1	1	0	5	1
Totals	11	8	3	2	14 (58%)	10 (42%)

PREPARED BY: Julius Reynolds, Game Biologist III

APPENDIX IV

Unit 6

Brown Bear Sport Harvest Mean Hide, Skull & Age Data

Year	Hide Size (in feet)		Skull Size (in inches)		Age		
	Male	Female	Male	Female	Male	Female	Male & Female
1961	14.2	13.4	19.6				
1962	15.7	13.8	26.2				
1963	13.9	12.7	23.9	20.4			
1964	14.5	13.9	24.5	23.0			
1965	15.4	13.5	25.2	22.1			
1966	14.4	13.8	24.2	22.3			
1967	14.2	13.0	23.7	21.7			
1968	14.5	12.7	23.5	21.7			
1969	14.7	12.4	23.5	20.8	8.2	8.3	8.3
1970	14.4	13.0	23.6	21.2	5.4	6.1	5.8
1971	15.2	12.2	24.9	20.2	9.9	5.3	8.4
1972	13.5	12.6	22.0	20.9	5.4	7.3	6.2
1973	13.9	11.7	23.0	20.0	5.1	4.9	5.0
1974	14.0	12.3	23.2	21.1	6.4	5.8	6.1
1975	14.6	12.4	23.9	21.2	7.9	5.2	7.1
1976	14.3	12.9	22.8	20.3	6.1	6.1	6.1
Average	14.3	12.8	23.3	20.8	6.3	6.6	6.4

PREPARED BY: Lee Miller and Julius Reynolds

APPENDIX V

Unit 6

Brown Bear Sport Harvest by Location & Year

Year	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	16 yr. Average
Montague	4	1	11	6	5	6	15	15	5	2	6	11	1	6	2	1	6.1
Hinchinbrook	1	6	6	9	4	4	8	5	3	2	1	6	2	5	3	4	4.3
Valdez-Cordova	1	1	4	5	8	11	10	12	3	6	5	8	4	6	3	5	5.7
Copper River Delta	3	1	3	1	10	5	7	10	5	2	3	4	6	1	0	6	4.2
East of Copper River	3	15	6	9	6	11	15	20	4	14	7	9	19	11	16	8	10.8
Totals	12	24	30	30	33	37	55	62	20	26	22	38	32	29	24	24	31.1

Submitted By: Julius Reynolds, Game Biologist III

BROWN/GRIZZLY BEAR
SURVEY-INVENTORY PROGRESS REPORT - 1976

Game Management Unit 7 - Eastern Kenai Peninsula

Seasons and Bag Limits

Sept. 10 - Oct. 10	One bear every four regulatory years, provided that the taking of cubs or females accompanied by cubs is prohibited.

Harvest and Hunting Pressure

Brown/grizzly bear sealing records show that three bears, one male and two females, were harvested in Unit 7 (Appendix I). Two of the three bears were taken by guided nonresidents.

One male bear was taken in defense of life and property and is not included in figures above.

Composition and Productivity

Due to the low harvest in this unit, hide and skull size data were too limited for meaningful analysis.

Management Summary and Conclusions

During the past 16 years, 14 sport kills and 6 nonsport kills have been reported from Unit 7. The sport kill has consisted of 8 males and 6 females. Five bears (36% of the sport harvest) have been taken by nonresidents.

Brown bears are relatively abundant in parts of the Unit but there has been little interest in hunting them because of the heavy timber and brush they inhabit.

Brown bear populations appear to be increasing over most of the unit and the kills are well below the sustainable level.

Recommendations

No changes are recommended.

PREPARED BY:

Paul A. LeRoux
Area Game Biologist

SUBMITTED BY:

John S. Vania
Regional Management Coordinator

BROWN/GRIZZLY BEAR - GMU 7

Appendix I

Table 1. Harvest and hunting pressure, Unit 7.

Calendar Year	Total Kill	No. Males	% Males[1]	No. Nonres.	% Nonres.	Mean Hide Size Male[2]	Mean Skull Size Male[3]	Mean Cem Age Male[4]	Calendar Year Seasons
1961	1	0	0	0	0	0	--	--	9/1-9/30
1962	1	0	0	0	0	0	--	--	Same
1963	0	0	0	0	0	0	--	--	Same
1964	0	0	0	0	0	0	--	--	Same
1965	0	0	0	0	0	0	--	--	10/15-11/15
1966	0	0	0	0	0	0	--	--	9/1-9/30
1967	1	1	100	1	100	0	24.2	--	10/15-11/15
1968	0	0	0	0	0	0	--	--	Same
1969	2	2	100	1	50	15.2	24.3	6.8(2)	Same
1970	2	2	100	0	0	13.3	18.9	2.8(2)	9/20-10/15
1971	0	0	0	0	0	0	--	--	9/20-10/15
1972	1	0	0	1	100	0	0	0	9/10-10/10
1973	2	1	50	0	0	13.3	--	--	9/10-10/10
1974	0	0	0	0	0	0	0	0	9/10-10/10
1975	1	1	100	0	0	10.0	18.6	2.8(1)	9/10-10/10
1976	3	1	33	2	67	15.9	--	11.8(1)	9/10-10/10

1/ All male % based on known-sex bears.
2/ Length plus width given in feet.
3/ Length plus width given in inches.
4/ Tooth sample size in parentheses.

Prepared by: Paul A. LeRoux, Game Biologist III

BROWN/GRIZZLY BEAR

SURVEY-INVENTORY PROGRESS REPORT - 1976

Game Management Unit 8 - Kodiak and Adjacent Islands

Seasons and Bag Limits

Unit 8, that portion of Kodiak Island south and west of a line from the mouth of Hidden Basin Creek to the mouth of Kizhuyak River and including Uganik Island and Amook Island.	Oct.25-Dec.31 Mar.1-May 15	One bear every four regulatory years by permit only, provided the taking of cubs and females accompanied by cubs is prohibited. Permits will be awarded by public drawing. Persons obtaining permits will not be allowed to participate in the drawing again for one full year. Two drawings, one for fall season and one for spring season, will be held approximately ten weeks prior to the opening of each season. Conditions of the permit will be described by Commissioner's Announcement as provided for in 5AAC 81. 055(15 and 16) PERMIT HUNTS.
Unit 8, remainder of Kodiak Island.	Sept.1-Dec.31 Jan.1-July 5	One bear every four regulatory years by permit only, provided that the taking of cubs and females accompanied by cubs is prohibited.
Unit 8, Afognak, Shuyak and Raspberry Islands.	Oct.1-Dec.31 Mar.1-May 20	

Harvest and Hunting Pressure

Permit hunting for brown bear in Unit 8 went into effect during the fall 1975 season. During 1976, the first full year of hunting under the permit system, a total of 677 permits were issued, including 294 during the spring season and 383 in the fall season (Appendix I). Although more permits were issued in the fall, frequency of use was higher for the spring season since fall bear hunting is often opportunistic and secondary to deer and elk hunting.

Permits were available without limit for the Afognak Island and northeastern Kodiak Island areas. Drawings were held to award permits

for the remainder of Kodiak Island. During the spring season 113 permittees reported hunting in the limited permit area and 68 permittees reported hunting in the unlimited area (Appendix II). The unlimited area had more hunters in the fall with 98, compared to 66 hunters in the limited area. One hundred forty-five of the 166 hunters (87%) who hunted in the unlimited area were residents. In the limited area where 60 percent of the available permits were reserved for residents, 92 of 179 hunters (51%) of the hunters were residents.

Hunter success was 37 percent in the spring compared to 21 percent for the fall season (Appendix III). Nonresident hunters were 61 percent successful compared to 15 percent success for resident hunters. The relatively higher nonresident success reflects their use of guides as well as the more casual, opportunistic hunting done by some resident hunters.

As shown in Appendix IV, the 1976 sport harvest totaled 117 bears including 73 males (62%), 41 females (35%) and 3 bears of unknown sex (3%). Sixty-seven bears (57%) were killed by nonresident hunters. The spring harvest was 76 bears including 48 males (63%), 25 females (33%) and three bears of unknown sex. Forty-one bears were killed in the fall including 25 males (61%) and 16 females (39%). Four bears were reported wounded and lost in 1976.

Two bears were reported taken in defense of life. One dead bear, found in July 1976 floating in Afognak Lake, was presumably shot by someone the previous fall. Four additional dead bears were reported found in various locations. One of these, an adult female, had been shot.

Distribution of the sport harvest is illustrated in Appendix V. Seventeen bears were taken in the Afognak Island area (Subunit 1) compared to only 9 in 1975. Subunit 4, which includes highly productive hunting areas such as Karluk Lake, Uyak Bay, Red Lake, Frazer Lake and Deadman Bay accounted for 43 percent of the total harvest with 50 bears killed.

Mean age of males taken was 6.2 years, and 51 percent of the males were 5 years or older (Appendix VI). This is a decrease of 0.3 years from the 1975 mean age for males. Twenty-five females (63%) were five years or older. Forty females had a mean age of 8.8 years, an increase of 3.1 years from the 1975 mean age (Appendix VII). Mean skull size in 67 males was 23.6 inches, a decrease of 0.3 inches from the 1975 mean.

During the spring hunt, resident hunters reported observing an average of 4.4 bears, and nonresidents saw an average of 9.2 bears. Fewer bears were reported in the fall, with residents observing an average of 2.5 bears and nonresidents seeing an average of 6.5 bears.

Permit returns indicate that an average of 7.4 and 7.5 days were spent in the field by resident and nonresident hunters respectively during the spring season. During the fall season, resident hunters reported spending an average of 5.3 days afield compared to 7.9 days for nonresidents.

Composition and Productivity

Stream and alpine surveys were conducted from the air by the U.S. Fish and Wildlife Service in selected areas to obtain composition counts. Cubs and yearlings comprised 51 percent of the 80 animals counted in the 1976 alpine habitat surveys (Appendix VIII). In the stream counts, cubs and yearlings comprised 46 percent of the 155 bear total. Young animals in the cub, yearling and subadult classes comprised 65 percent of the 235 animals observed during the alpine and stream surveys.

Management Summary and Conclusions

Results of the 1976 season indicate that a brown bear harvest can be predicted with reasonable accuracy by issuing a predetermined number of permits. There were 215 permits available for a limited permit area during the spring 1976 season. Based on U.S. Fish and Wildlife Service records on past hunter success and frequency of permit use, it was predicted that hunters would take 60 bears. Actual harvest was 63 bears during the spring. The fall season prediction, with 114 permits available was 41 bears. The actual fall harvest was 29 bears. The total predicted annual harvest was 101 bears compared to the 92 bears actually taken. Unusual weather conditions or changes in frequency of use of the permits will influence the accuracy of the harvest predictions necessitating periodic adjustments in the permit allowances.

The 1976 sport harvest of 117 bears represents a slight decrease from the 1975 harvest of 119 bears, but is below the previous 10 year's average annual harvest of 136 bears. Harvest continues to favor males at about a 3:2 ratio. Slight decreases occurred in average age and skull size of males from those recorded in 1975. Twenty-five females (63%) harvested were mature animals five years or older. Seven additional mortalities from defense of life and unknown causes were recorded, bringing the total recorded mortality to 124 in 1976.

Harvest and hunting pressure in the Afognak Island area is increasing. One-hundred sixty-six of 345 reporting hunters (48%) hunted the unlimited permit area in 1976 and most of this effort occurred in the Afognak Island group. A reliable bear population estimate in this heavily forested area will be difficult to obtain and a conservative approach to harvest should be taken. The increasing human activity associated with the recently established logging industry on Afognak Island may result in more unreported bear kills. Improved access provided by a new logging road linking Kazakof and Discoverer Bays probably contributed to the higher than usual 1976 sport harvest in the Afognak Group.

Productivity, as indicated by the 1976 composition counts, appears similar to that of previous years. Forty-five percent of the bears of known sex harvested in 1976 were less than five years old, indicating a high proportion of young bears in the population, and perhaps a higher susceptibility to hunting as well.

Recommendations

The present permit system for hunting brown bear should be continued for at least another year. Two or more season's results may be needed to arrive at a number of permits with which a reliable average harvest can be predicted.

Annual harvest in the Afognak Island group (Subunit 1) should not exceed 20 bears. Any evidence of increased incidental kill should prompt commensurate restrictions in sport harvest there. The Afognak fall season should be set to open on October 16, two weeks later than usual, to reduce fall harvest.

PREPARED BY:

Roger Smith
Game Biologist III

SUBMITTED BY:

John S. Vania
Regional Management Coordinator

APPENDIX I

Brown Bear Permit Issuance and Use Statistics, Unit 8, 1976

	Spring		Fall		Combined Spring & Fall	
	No.	%	No.	%	No.	%
Permits issued	294	100%	383	100%	677	100%
Permit reports returned	254	86%	369	96%	623	92%
Permit reports not returned	41	14%	14	4%	55	8%
Reporting permit holders who hunted	181	71%	164	44%	345	55%
Reporting permit holders who did not hunt	73	29%	205	56%	278	45%
Successful hunters reporting	67	37%	35	21%	102	30%

Prepared By: Roger Smith, Game Biologist III

APPENDIX II

Distribution of Brown Bear Hunting by
Season and Hunter Residency, 1976, Unit 8

Spring	No. residents who reported hunting	No. non-residents who reported hunting	Total hunters
Limited permit area	55	58	113
Unlimited permit area	59	9	68
	114	67	181
Fall			
Limited permit area	37	29	66
Unlimited permit area	86	12	98
	123	41	164
Fall and Spring			
Limited permit area	92	87	179
Unlimited permit area	145	21	166
	237	108	345

Prepared By: Roger Smith, Game Biologist III

APPENDIX III

Brown Bear Hunter Success by Residency and Season
from Permit Returns, Unit 8, 1976

	No. Hunters			No. and % Successful Hunters		
	Resident	Non-Resident	Total Hunters	Resident	Non-Resident	All Hunters
Spring Season	114	67	181	20(18%)	47(70%)	67(37%)
Fall Season	123	41	164	16(13%)	19(46%)	35(21%)
Both Seasons	237	108	345	36(15%)	66(61%)	102(30%)

Prepared By: Roger Smith, Game Biologist III

APPENDIX IV

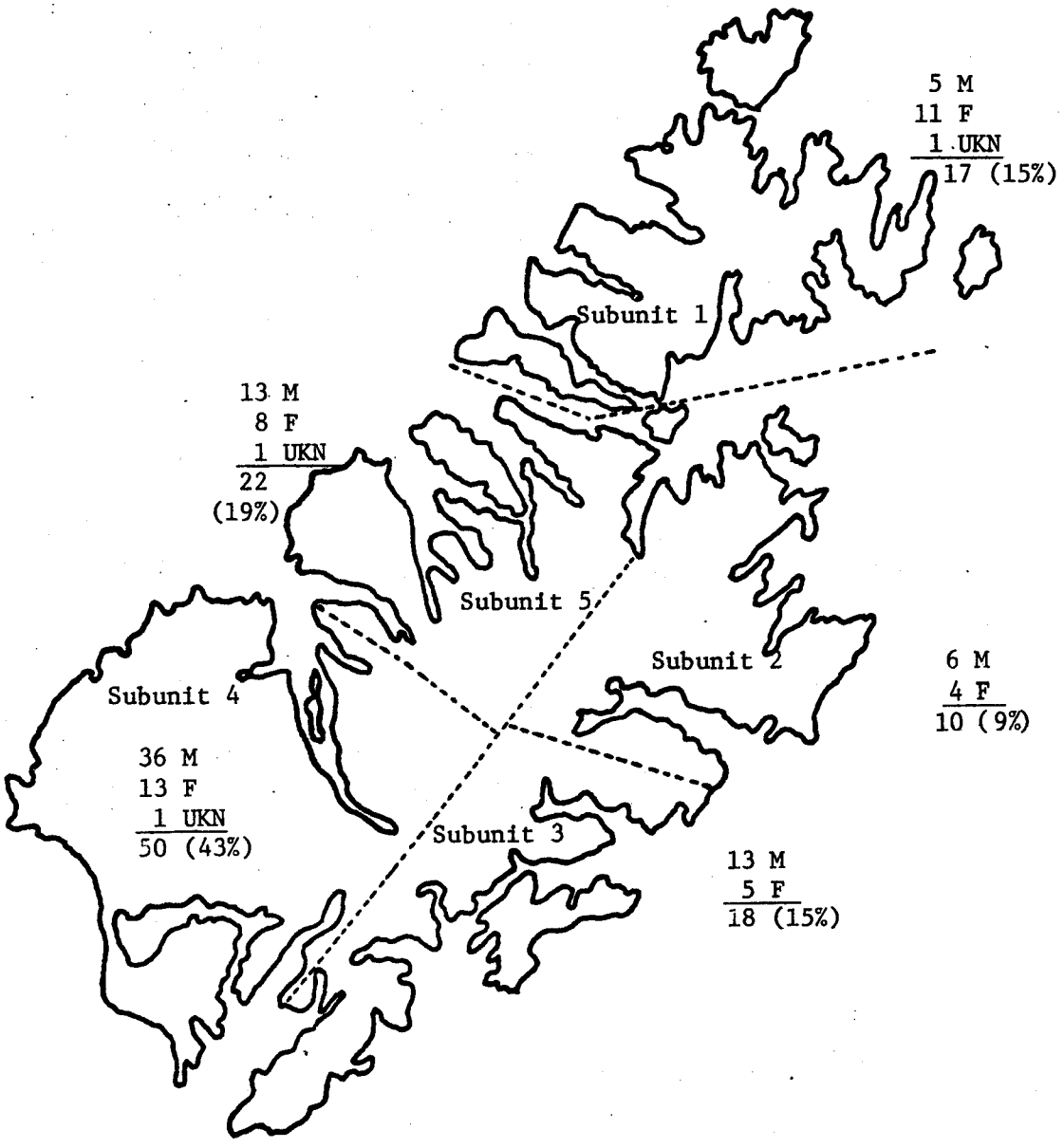
Brown Bear Sport Harvest by Year, Sex of Bear and Residency of Hunter, 1966-1976. Unit 8.

Calendar Year	Total Kill	No. Males	No. Females	% Males	% Females	No. Unknown	No. By Nonresidents	% By Nonresidents
1966	200	107	89	55	45	4	97	49
1967	186	107	78	58	42	1	92	49
1968	105	61	43	59	41	1	62	59
1969	97	61	36	63	37	0	52	54
1970	92	61	29	68	32	2	44	48
1971	113	63	42	60	40	8	51	45
1972	132	80	50	62	38	2	71	54
1973	155	85	70	55	45	0	91	59
1974	165	95	70	58	42	0	113	68
1975	119	70	49	59	41	0	83	70
1976	117	73	41	64	36	3	67	57

Prepared By: Roger Smith, Game Biologist III

APPENDIX V

Distribution of Unit 8 Brown Bear Sport Harvest 1976



PREPARED BY: Roger B. Smith
Game Biologist III

APPENDIX VI

Hide and Skull Size and Age Summary for Male Brown Bear Sport Harvest, Unit 8, 1966-1976.

Calendar Year	Mean Skull Size	Skull Sample Size	Mean Hide Size	Hide Sample Size	Mean Age	Sample Size	No. >- 5yr	% >- 5yr	Mean Age >- 5yr
1966	24.5	64	15.7	107					
1967	23.9	63	15.3	107		-- NO DATA --			
1968	23.9	57	15.6	61					
1969	24.3	58	16.0	60	5.7	52	28	54%	7.4
1970	23.8	57	15.2	60	5.5	57	25	44%	8.6
1971	24.0	57	15.2	63	6.4	59	28	47%	10.1
1972	23.9	78	15.2	79	6.2	77	36	47%	9.2
1973	24.5	81	15.5	85	7.4	83	55	66%	9.4
1974	24.3	90	15.5	95	7.0	92	59	64%	8.8
1975	23.9	65	15.4	69	6.5	66	39	59%	8.4
1976	23.6	67	14.9	72	6.2	70	36	51%	9.3

Prepared By: Roger Smith, Game Biologist III

APPENDIX VII

Hide and Skull Size and Age Summary for Female Brown Bear Sport Harvest, Unit 8, 1966-1976.

Calendar Year	Mean Skull Size	Skull Sample Size	Mean Hide Size	Hide Sample Size	Mean Age	Sample Size	No. 5yr.	% 5yr.	Mean Age 5yr.
1966	21.9	46	13.6	88					
1967	21.9	33	13.7	78		-- NO DATA --			
1968	21.8	39	14.0	42					
1969	21.8	33	14.2	32	5.2	32	15	47%	7.6
1970	22.1	29	14.3	28	6.8	28	16	57%	9.3
1971	21.6	38	13.8	42	5.5	40	15	37%	9.0
1972	22.0	48	14.0	50	7.8	46	25	54%	11.0
1973	21.5	66	13.7	69	7.1	69	38	55%	9.9
1974	21.9	67	13.8	70	7.5	68	47	69%	9.1
1975	21.5	42	13.3	48	5.7	47	27	57%	7.4
1976	21.7	37	13.4	41	8.8	40	25	63%	11.9

Prepared By: Roger Smith, Game Biologist III

APPENDIX 8

Brown Bear Alpine Composition Counts*
Kodiak National Wildlife Refuge

Category	1971 No.	%	1972 No.	%	1973 No.	%	1974 No.	%	1975 No.	%	1976** No.	%
Adults	16	(33)	112	(52)	80	(55)	44	(43)	72	(45)	29	(36)
Subadults	14	(29)	59	(28)	23	(16)	11	(11)	21	(13)	10	(13)
Cub	8	(17)	29	(14)	38	(26)	29	(28)	22	(14)	20	(25)
Yearling	10	(21)	13	(6)	5	(3)	18	(18)	45	(28)	21	(26)
Totals	48		213		146		102		160		80	

** Uyak Bay transects not completed

Brown Bear Stream Composition Counts*
Kodiak National Wildlife Refuge

Category	1971 No.	%	1972 No.	%	1973 No.	%	1974 No.	%	1975 No.	%	1976 No.	%
Adults	63	(32)	93	(39)	100	(55)	73	(43)	118	(37)	53	(34)
Subadults	71	(37)	88	(36)	47	(26)	59	(35)	66	(21)	31	(20)
Cub	44	(23)	39	(16)	17	(9)	18	(11)	79	(25)	9	(6)
Yearling	16	(8)	22	(9)	18	(10)	19	(11)	53	(17)	62	(40)
Totals	194		242		182		169		316		155	

* From U.S. Fish and Wildlife Records.

Prepared By: Roger Smith, Game Biologist III

BROWN BEAR

SURVEY-INVENTORY PROGRESS REPORT - 1976

Game Management Unit 9 - Alaska Peninsula

Seasons and Bag Limits:

Spring Season	May 10-25	One bear every four regulatory years, provided that the taking of cubs or females accompanied by cubs is prohibited.
Fall Season		
Unit 9, except the drainages of the Naknek River	Season closed in '76-77 regulatory year	
Unit 9, the drainages of the Naknek River	Sept. 1-Oct. 31	One bear every four regulatory years by permit only, provided that the taking of cubs and females accompanied by cubs is prohibited. Conditions of permit will be described by Commissioner's announcement.

Harvest and Hunting Pressure:

The sport harvest of 144 bears for calendar year 1976 represents one of the lowest reported harvests for the Alaska Peninsula (Appendix I). The spring season was unit-wide and produced 139 bears. During the fall, only the lower drainages of the Naknek River were open to hunting in a permit hunt designed to direct sport hunting pressure on nuisance bears near the communities of Naknek, South Naknek, and King Salmon. Five bears were taken during the 61-day season. The yearly harvest of 126 bears south of Katmai National Monument-Naknek River was well under the established management objective for the area of 150 bears annually.

Males comprised 65 percent of the harvest, representing the highest percentage since 1971 (Appendix I). Mean male hide size, skull size, and cementum age were also higher than in recent years and these increases reflect the lack of unit-wide harvest in the fall. Spring seasons have characteristically produced a higher percentage of males in the harvest and larger mean hide size, skull size and older mean cementum age for males (Appendix II).

Composition and Productivity:

Litter size data for 1976 are available from McNeil River, Katmai National Monument, and the Becharof Lake area. McNeil River State Game Sanctuary observations recorded a mean family size of 2.3 cubs of the year and 2.2 cubs older than one year. At Becharof Lake, Commercial Fish Division personnel recorded a mean litter size of 2.0 for family groups of both cubs and yearlings observed during salmon stream surveys. Data provided by Will Troyer from aerial surveys of Katmai National Monument gave a mean litter size of 2.4 cubs of the year and 1.9 for family groups with yearlings or older offspring. Although none of the sample sizes are large, data are comparable with similar figures for previous years. The reproductive success of brown bears on the Alaska Peninsula appears to be excellent with good recruitment of young animals into the subadult age classes.

Management Summary and Conclusions:

With the exception of the lower drainage of the Naknek River, Unit 9 was closed to brown bear hunting during fall 1976. Management is now based on a system of alternate-year hunting in an effort to maintain a harvest within the management goal of 150 bears annually for the area south of the Naknek River-Katmai National Monument. Recent seasons have demonstrated the ability of sport hunting to take or exceed the desired level of harvest during either a fall or spring season alone. As a result, in 1974 and 1975, emergency closures of the spring season had to be ordered to prevent overharvest. Because characteristics of the fall and spring brown bear harvest are significantly different (Appendix II), it is desirable to maintain both seasons to manipulate the sex ratio within the population and thus insure high productivity. Because of the scheduling of the regulatory year, annual seasons would result in a pattern of cancelling spring season each year to prevent a harvest in excess of management goals or, in effect, the maintenance of a fall season only. By altering hunting between regulatory years it should be possible to keep the harvest level for the two-year period within the combined management objective of 300 bears south of the Naknek River-Katmai National Monument (150 bears annually for two years) and still maintain both the fall and spring seasons. In addition, the alternate regulatory year approach will distribute hunting pressure between two cohorts of sub-adult bears that have recently separated from the sow (sows normally separate from their offspring in the spring following den emergence and prior to breeding). These recently independent sub-adult bears have proven particularly vulnerable to sport hunting during the first season after separation. Under an alternate-year system, a fall season will distribute pressure on sub-adult bears separated from their sows during the previous spring, and the spring season will distribute pressure on sub-adult bears separated that same spring. Were seasons alternated on a calendar year basis, one cohort would be huntèd during both the first spring and the first fall after separation, while the next year's cohort would not be hunted until the second spring after separation. Biologically, it is desirable to maintain uniform recruitment into the population and to distribute harvest pressure over several cohorts.

The present Alaska Peninsula bear population, though abundant, is dominated by females because of past sport hunting practices. The population structure is young and few old age class individuals are now present. Bears are commonly observed in all areas of the Peninsula by both the public and Department personnel. It is too early to determine the effectiveness of the alternate-year approach in raising mean male age, hide size, and skull size and its ability to maintain harvest at the desired management goal.

The Naknek River permit hunt was initiated to reduce, through sport hunting, the number of bears in close proximity to the communities of Naknek, South Naknek, and King Salmon. These bears frequently enter the communities and represent a danger to human life and property. The population has sustained a high harvest level as a result of either illegal kills or kills in "defense of life and property". Four of the five bears taken during the fall season were sub-adults which had wandered close to human settlements. Time is necessary to determine whether the program will be successful in easing the long-existing problem. In addition to sponsoring the permit hunt, the Department is working with the Bristol Bay Borough and with local residents to reduce the improper garbage disposal practices of canneries and individuals which originally allowed the situation to develop.

Recommendations:

No changes in seasons and bag limits are recommended at this time.

PREPARED BY:

James B. Faro
Game Biologist III

SUBMITTED BY:

John S. Vania
Regional Management Coordinator

APPENDIX I

GAME MANAGEMENT UNIT 9

Brown/Grizzly Bear Sport Harvest, Calendar Year 1961 through 1976

Calendar Year	Total Kill	%[1] Males	% Nonres.	Mean Hide Size Male[2]	Mean Skull Size Male[3]	Mean Cem. Age Male[4]	Calendar Year Season
1961	120	73	59	16.4			1/1-5/31, All of 9; 10/1-12/31 S. of Egegik Paule Bay, Rem. Unit 9/10-12/31
1962	154	70	62	16.4			Same
1963	164	65	70	16.0			1/1-5/31, 9/1-12/31
1964	156	70	71	16.2			Same
1965	209	66	66	15.7			1/1-5/31, All 9 N. of Meshik 9/1-12/31 S. of Meshik 9/15-12/31
1966	229	72	75	15.7			N. of Meshik 1/1-5/31, 9/1-12/31 S. of Meshik 1/1-5/31 & 9/15-21/31
1967	214	70	76	15.8	24.9	--	1/1-5/20, 9/15-12/31
1968	160	73	84	15.4	24.2	--	1/1-5/10, 9/15-12/31
1969	93	75	72	15.7	24.6	7.5(55)	1/1-5/10 All of 9 & 9/15-10/31 N. of Park, 10/1-11/30 S. of Park
1970	158	67	75	15.2	24.0	6.9(93)	S. of Park 5/1-5/15 N. of Park 5/1-5/25, All of 9 10/1-10/31
1971	195	66	70	15.1	24.0	6.8(112)	5/10-5/25, 10/1-10/31
1972	279	56	73	14.7	23.5	6.8(146)	Same
1973	242	58	76	14.8	23.5	6.0(129)	5/10-5/25, 10/7-10/21
1974	141	53	81	14.3	22.4	5.5(73)	10/7-10/21
1975	224	55	63	14.4	23.1	6.0(119)	5/10-5/25, 10/7-10/21
1976	144	72	57	15.2	24.5	7.5(98)	5/10-5/25; Naknek drainage only, 9/1-10/31

1/ Based upon known sex individuals.
2/ Length plus width given in feet.
3/ Length plus width given in inches.
4/ Tooth sample size in parenthesis.

PREPARED BY: James B. Faro, Game Biologist

APPENDIX II

Comparison of Spring and Fall Harvest Data, GMU 9, 1963-1976

Year	Male Cementum Lines 1/		Percent Males	
	Spring Season	Fall Season	Spring Season	Fall Season
1961	Not Available		82	60
1962	Not Available		80	54
1963	Not Available		82	51
1964	Not Available		84	59
1965	Not Available		80	54
1966	Not Available		89	58
1967	Not Available		81	58
1968	Not Available		82	66
1969	7.8(39)	6.7(16)	87	58
1970	8.2(48)	5.6(45)	78	59
1971	8.6(41)	5.7(71)	83	59
1972	8.4(41)	6.2(105)	69	53
1973	6.4(65)	5.6(64)	70	50
1974	No season	5.5(73)	No Season	53
1975	6.9(42)	5.6(77)	63	52
1976	7.5(96)	5.8(2) 2/	72	75 2/

1/ Tooth sample size in parenthesis.

2/ Only Naknek River drainage open fall 1976.

PREPARED BY: James B. Faro, Game Biologist III

BROWN BEAR

SURVEY-INVENTORY PROGRESS REPORT - 1976

Game Management Unit 10 - Aleutian Islands

Season and Bag Limits:

Spring Season	May 10-May 25	One bear every four regulatory years, provided that the taking of cubs or females accompanied by cubs is prohibited.
Fall Season	Oct. 1-Oct. 21	One bear every four regulatory years, provided that the taking of cubs or females accompanied by cubs is prohibited.

Harvest and Hunting Pressure:

The 1976 fall harvest from Unimak Island was four bears, all taken by Alaskan residents (Appendix I). No bears were reported taken during the spring season. Only one male bear was harvested. Due to the small sample size, no conclusions can be drawn concerning the status of this population.

Composition and Productivity:

No data are available.

Management Summary and Conclusions:

Unimak Island is the only island of the Aleutians that has a brown bear population. Hunting access for bears is regulated by a permit system under the control of the U.S. Fish and Wildlife Service. The number of permits issued annually is conservative and remains the primary factor in limiting the harvest level. Liberalization of the season dates would not significantly alter existing harvest levels in spite of the fact that the island appears to have an abundant bear population. The permit system favors use by Alaskan residents, and it has been eight years since a nonresident reported taking a bear from the island.

Recommendations:

No changes in season or bag limits are recommended at this time.

PREPARED BY:

James B. Faro
Game Biologist III

SUMBITTED BY:

John S. Vania
Regional Management Coordinator

APPENDIX I

GAME MANAGEMENT UNIT 10

Brown/Grizzly Bear Sport Harvest, Calendar Year 1961 through 1976.

Calendar Year	Total Kill	% Males 1/	% Nonres.	Mean Hide Size Male 2/	Mean Skull Size Male 3/	Mean Cem. Age Male 4/	Calendar Year Season
1961	1	100	0	18.1	27.6	--	1/1-5/31 10/1-12/31
1962	3	67	0	16.6	--	--	Same
1963	0	0	0	--	--	--	1/1-5/31 9/1-12/31
1964	15	60	33	17.0	26.6	--	Same
1965	10	70	10	15.6	25.4	--	1/1-5/31 9/15-12/31
1966	6	67	17	17.3	26.3	--	Same
1967	8	38	0	13.4	23.0	--	1/1-5/20 9/15-12/31
1968	4	50	100	14.9	23.2	--	Same
1969	4	75	0	19.5	27.2	14.8(1)	1/1-5/10 10/1-11/30
1970	5	80	0	12.5	19.9	2.8(4)	5/1-5/15 10/1-10/31
1971	4	25	0	15.4	23.4	2.8(1)	5/10-5/25 10/1-10/31
1972	5	60	0	13.7	19.9	3.5(3)	Same
1973	3	33	0	11.3	22.5	4.8(1)	Same
1974	5	60	0	16.3	25.9	10.0(3)	Same
1975	6	40	0	14.7	22.6	5.1(2)	5/10-5/25 10/1-10/21
1976	4	25	0	13.8	24.0	4.8(1)	Same

1/ All male % based on known-sex bears.
2/ Length plus width given in feet.
3/ Length plus width given in inches.
4/ Tooth sample size in parenthesis.

SUBMITTED BY: James B. Faro, Game Biologist

BROWN/GRIZZLY BEAR

SURVEY-INVENTORY PROGRESS REPORT FOR CALENDAR YEAR 1976

Game Management Unit 11 - Wrangell Mountains, Chitina River

Seasons and Bag Limits

Sept.1-Oct.10 May 10-May 25	One bear every four regulatory years, provided that the taking of cubs or females accompanied by cubs is prohibited.

Harvest and Hunting Pressure

Tabulated data on brown/grizzly bear harvests from 1961 through 1976 are presented in Appendix I. The 1976 harvest of 27 bears (6 spring, 21 fall) is the highest harvest reported from 1961 to 1976 in Unit 11. Sixty-seven percent (16 bears) of the known sex harvest was male during 1976, six percent higher than the average since 1961. The mean male hide and skull size and the mean age declined by .7 feet, 1.5 inches and 1.4 years, respectively, in 1976 when compared to the preceding year (Appendix I).

Harvest by nonresidents made up 67 percent (18 bears) of the 1976 harvest.

Composition and Productivity

No data is available.

Management Summary and Conclusions

Although harvest sample sizes are small, all presently used indices suggest that hunters are harvesting brown/grizzly bears from an increasing population in Unit 11. The subadult male cohort is suspected to represent a high percentage of the harvest when selecting from an increasing bear population due to their known high degree of vulnerability. Data (not shown) reveals that during the past four years the subadult male cohort has made up an average of 48 percent of the male harvest with the highest percentage in 1976 at 56 percent. These data together with the relatively high percentage of males (average 64 %) during the same time period further indicate that Unit 11 brown/grizzly bear population is increasing.

Recommendations

No change in seasons or bag limits is recommended at this time.

PREPARED BY:

Ted Spraker
Game Biologist II

SUBMITTED BY:

John S. Vania
Regional Management Coordinator

Appendix I. Brown/grizzly bear sport harvest, calendar years 1961 through 1976. By: year, total kill, number of males, percent of males, no. of nonresidents, percent of nonresidents, mean hide size of males, mean skull size of males, mean cementum lines of males and calendar year seasons.

GAME MANAGEMENT UNIT 11

Calendar Year	Total Kill	No. Males	% Males[1]	No. Nonres.	% Nonres.	Mean Hide Size Male[2]	Mean Skull Size Male[3]	Mean Cem. Lines Male[4]	Calendar Year Seasons
1691	6	3	60	3	50	11.9			5/15-6/15 9/1-12/31
1962	15	6	40	11	73	12.3			Same
1963	9	6	67	7	78	12.7			Same
1964	23	14	67	16	70	13.4			Same
1965	19	9	50	13	68	13.3			Same
1966	11	9	90	8	73	12.9			Same
1967	19	9	47	14	74	12.6	23.2		Same
1968	15	8	53	7	47	12.1	21.0		Same
1969	9	6	67	2	22	15.3	23.0	7.4(5)	5/15-6/15 9/1-9/30
1970	15	9	60	7	47	13.9	22.2	8.5(9)	5/15-6/10 9/15-10/5
1971	17	9	64	15	88	13.9	23.5	8.7(9)	9/15-10/5
1972	13	7	54	9	69	12.8	22.2	8.4(7)	9/10-10/10
1973	19	12	63	13	68	12.2	20.5	6.4(12)	5/15-5/31 9/10-10/10
1974	14	9	64	12	86	12.9	21.5	6.4(9)	Same
1975	20	12	63	12	60	12.8	21.9	7.2(10)	5/10-5/25 9/1-10/10
1976	27	16	67	18	67	12.1	20.4	5.8(16)	5/10-5/25 9/1-10/10

1/ All male % based on known-sex bears.
2/ Length plus width given in feet.
3/ Length plus width given in inches.
4/ Sample size in parenthesis.

PREPARED BY: Ted Spraker, Game Biologist II

BROWN/GRIZZLY BEAR

SURVEY-INVENTORY PROGRESS REPORT

Game Management Unit 12 - Upper Tanana-White Rivers

Period Covered: January 1 - June 30, 1977

Seasons and Bag Limits

Unit 12	May 10 - May 25	One bear every four regulatory years, provided that the taking of cubs or females accompanied by cubs is prohibited

Harvest and Hunting Pressure

According to data obtained from sealing documents, nine grizzly bears were harvested from Unit 12 during the 1977 spring season. The harvest consisted of seven females and two males. Five bears were harvested from the Nabesna River drainage, three from the Tok drainage and one from the Tetlin drainage. Skull size of bears harvested during the spring 1977 season averaged 20.6 inches (males) and 19.0 inches (females). The mean hide sizes of this harvest were 10.5 feet (males) and 11.7 feet (females). Eight hunters were residents and one a nonresident. Residents typically outnumber nonresidents during spring bear seasons and 1977 was no exception.

Management Summary and Recommendations

The spring grizzly harvest in Unit 12 remained moderate, and only a slight increase has been noted in recent years. Interest in spring hunting remained low, especially among nonresidents. There appeared to be more interest among residents, but their participation has remained low. It is unknown what effect, if any, the $25 resident tag fee will have on grizzly harvests. The unit contains a large amount of grizzly habitat, and casual observations suggest that grizzlies are moderately abundant and possibly increasing in numbers.

No changes are recommended in the spring season.

PREPARED BY:

Larry Jennings
Game Biologist III

SUBMITTED BY:

Oliver E. Burris
Regional Management Coordinator

BROWN/GRIZZLY BEAR

SURVEY-INVENTORY PROGRESS REPORT FOR CALENDAR YEAR 1976

Game Management Unit 13 - Nelchina Basin

Seasons and Bag Limits

Sept. 1 - Oct. 10	One bear every four regulatory years, provided that the taking of cubs or females accompanied by cubs is prohibited.

Harvest and Hunting Pressure

The 1976 brown/grizzly bear harvest was 58 bears and was the fourth highest harvest ever recorded in GMU 13 (Appendix I). Twenty-two more bears were taken in 1976 than during the previous year. Harvest declined and comprised the lowest percent of the total brown bear harvest ever recorded in Unit 13. Mean hide and skull size for males was slightly above the average for all years since sealing began. Percent males in the harvest was 53 percent compared to a 16-year mean of 57 percent.

Composition and Productivity

During 1976, Fish and Game biologists stationed at Glennallen were asked to record all observations of brown/grizzly bears by date, location and composition. A total of 113 bears were recorded. The sex and age composition derived from these recorded sightings and a comparison of data from Unit 9 and Unit 26 are shown in Appendix II. Although the sample size is small, productivity in Unit 13 appears to be greater than in the Arctic as indicated by Unit 26 data but less than that recorded in southwest Alaska as shown for Unit 9. The percentage of legal bears (bears other than cubs or sows accompanied by cubs) also lies between the values for these two areas.

Management Summary and Conclusion

Key indicators of the harvest have shown little change since 1961. Hide and skull size and mean age remained at or above the 16-year average in 1976. Percentage of males dropped below the 16-year average but remained within values previously recorded. Total number of bears harvested, although lower than 1974 and 1975 harvests, remained well above the 16-year average. Composition data collected in 1976 indicate that single bears comprise nearly half of the total bear population present in Unit 13 and that productivity levels are midway between those existant in the highly productive areas of southwest Alaska and the low production areas of the Arctic.

Recommendations

1.) Retain present season at least one more year to determine if key indicators begin to show signs of exploitation.

2.) Initiate additional research to determine life history and population information.

PREPARED BY:

Sterling Eide
Game Biologist III

SUBMITTED BY:

John S. Vania
Regional Management Coordinator

APPENDIX I. Brown-Grizzly Bear Sport Harvest, Calendar Year 1961 through 1976: Participation by Nonresidents in the Bear Harvest with Mean Hide, Skull Size and Cementum Lines of Male Bear Presented for Sealing.

GAME MANAGEMENT UNIT 13

Calendar Year	Total Kill	No. Males	% Males[1]	No. Nonres.	% Nonres.	Mean Hide Size Male[2]	Mean Skull Size Male[3]	Mean Cem. Lines Male[4]	Calendar Year Seasons
1961	41	20	50	25	61	13.1	23.4		9/1-9/30
1962	34	21	62	19	56	14.0	21.0		Same
1963	41	21	53	26	63	12.7	23.3		Same
1964	36	15	43	23	64	12.8	21.3		Same
1965	44	25	58	21	48	12.9	21.5		Same
1966	63	33	56	41	65	13.1	21.2		Same
1967	31	16	53	14	45	12.9	22.2		Same
1968	38	18	49	18	47	12.9	22.0		9/15-10/15
1969	17	15	88	8	47	13.1	22.0	6.7(12)	9/20-10/20
1970	27	18	69	15	56	12.7	20.5	5.2(14)	9/15-10/5
1971	72	32	48	44	61	12.3	20.4	5.0(26)	9/1-10/5
1972	47	27	57	25	53	13.0	21.3	6.9(27)	9/10-10/10
1973	44	26	60	26	59	13.4	21.7	6.9(25)	9/10-10/10
1974	72	40	56	34	47	12.8	21.1	6.3(39)	9/1-10/10
1975	80	43	58	37	46	13.0	21.7	7.2(40)	9/1-10/10
1976	58	28	53	22	38	13.1	21.5	6.8(28)	9/1-10/10

1) All male % based on known-sex bears.
2) Length plus width given in feet.
3) Length plus width given in inches.
4) Tooth sample size in parenthesis.

SUBMITTED BY: Sterling Eide, Game Biologist III

APPENDIX II. A Comparison of Composition of Brown/Grizzly from Aerial Observations Between Unit 13 and Selected Alaskan Game Management Units.

	Unit 13 (1976)	Unit 26[1/]	Unit 9[2/]
Females w/ young	18%	16%	22%
All cubs	37%	28%	43%
Single bears	45%	57%	36%
Young/litter	2.1	1.8	2.0
Sample size	113	464	321

1/ 1970 S & I Report on Brown Bears (A.D.F.&G.), Bucholtz.

2/ 1970 Brown Bear Studies (A.D.F.&G.), L.P. Glenn.

SUBMITTED BY: Sterling Eide, Game Biologist III

BROWN/GRIZZLY BEAR

SURVEY-INVENTORY PROGRESS REPORT - CY 1976

Game Management Unit 14 - Upper Cook Inlet

Seasons and Bag Limits

Unit 14, except that portion of Unit 14(C) in Chugach State Park	Sept. 10-Oct. 10	One bear every four regulatory years, provided that the taking of cubs or females accompanied by cubs is prohibited.
Unit 14(C) in Chugach State Park		No open season.

Harvest and Hunting Pressure

Eight bears were killed in Game Management Unit 14 during 1976 (Appendix I). A decreasing trend in total harvest since 1963 is evident. Chugach State Park (subunit 14C) has been closed to hunting since 1973, and this closure probably contributed to the decrease in total harvests. Nonresident hunters have taken a relatively smaller portion of each harvest during the 1970's as compared to the 1960's.

Composition and Productivity

Percentages of males in the harvests have varied greatly, as expected when dealing with such small numbers. Cumulatively, the weighted mean percentage of all males harvested is 50 percent of the total harvests. The weighted mean cementum age of all male bears harvested since 1969 is 5.5 years. These values are typical of heavily harvested bear populations.

Management Summary and Conclusions

Total bear harvests from Unit 14 have declined in the 1970's compared to the 1960's. This decline is due partly to cessation of hunting in subunit 14C following the creation of Chugach State Park.

Recommendations

No changes in seasons and bag limits are recommended at this time.

PREPARED BY:

Jack C. Didrickson and Carl McIlroy
Game Biologist III and Game Biologist III

SUBMITTED BY:

John S. Vania
Regional Management Coordinator

Appendix I. Brown/Grizzly Bear Sport Harvest, Calendar Years 1963 through 1976. Participation by Nonresidents in the Bear Harvest with Mean Hide, Skull Size and Cementum Age of Male Bears Presented for Sealing in Alaska's Game Management Unit 14.

Calendar Year	Total Kill	No. Males	% 1/ Males	No. Nonres.	% Nonres.	Mean Hide 2/ Size Male	Mean Skull 3/ Size Male	Mean Cem. 4/ Age Male	Calendar Year Seasons
1963	13	8	67	5	38	12.9	20.0		9/1-9/30
1964	12	9	75	1	8	13.0	16.7		9/1-9/30
1965	15	7	47	7	47	12.7	25.9		9/1-10/15
1966	5	2	40	2	40	13.5	28.1		9/1-9/30
1967	12	6	55	6	50	11.9	21.2		9/1-9/30
1968	11	3	30	6	55	14.5	21.9		9/1-9/30
1969	2	2	100	0	0	13.1	19.5	1.8(2)	9/20-10/20
1970	4	0	0	0	0	00.0	----	0	9/15-10/5
1971	16	6	38	4	25	11.9	20.1	3.0(6)	9/1-10/5
1972	4	2	50	0	0	12.6	22.2	4.8(2)	9/10-10/10
1973	1	1	100	0	0	10.8	----	2.8(1)	9/10-10/10
1974	3	1	50	0	0	10.7	16.8	3.8(1)	9/10-10/10
1975	5	4	80	1	20	14.4	23.0	9.8(4)	9/10-10/10
1976	8	2	33	4	50	15.0	24.2	10.8(2)	9/10-10/10

1/ All male % based on known-sex bears.
2/ Length plus width given in feet.
3/ Length plus width given in inches.
4/ Tooth sample size in parenthesis.

PREPARED BY: Jack C. Didrickson, Game Biologist III
Carl McIlroy, Game Biologist III

BROWN/GRIZZLY BEAR
SURVEY-INVENTORY PROGRESS REPORT - CY 1976

Game Management Unit 15 - Western Kenai Peninsula

Seasons and Bag Limits

Sept. 10 - Oct. 10	One bear every four regulatory years, provided that the taking of cubs or females accompanied by cubs is prohibited.

Harvest and Hunting Pressure

Brown/grizzly bear sealing reports indicate that four male bears were taken during the 1976 season (Appendix I). One bear (25% of the harvest) was taken by a nonresident.

One large male bear was also taken in defense of life near Sterling and one of unknown sex in the Homer area. These animals are not included in the appendix.

Composition and Productivity

Hide and skull sample sizes are too small to warrant analysis (Appendix I).

Management Summary and Conclusions

The 1976 sport harvest of 4 male bears is below the sustained yield level. The lower levels of harvest the past two seasons may be due to the shortened moose season, which overlaps the bear season, and the reduced number of hunters afield for moose. Most bears are harvested incidental to moose hunting in this unit.

Although there is presently no economically feasible method of censusing bears, they appear to be increasing in numbers. This conclusion is supported by the increased incidence of brown bear sightings and nuisance bears.

Recommendations

No changes are recommended.

PREPARED BY:

Paul A. LeRoux
Area Game Biologist

SUBMITTED BY:

John S.Vania
Regional Management Coordinator

BROWN/GRIZZLY BEAR - GMU 15

APPENDIX I

Table 1. Harvest and hunting pressure, Unit 15.

Calendar Year	Total Kill	No. Males 1/	% Males 1/	No. Nonres.	% Nonres.	Mean Hide Size Male 2/	Mean Skull Size Male 3/	Mean Cem Age Male 4/	Calendar Year Seasons
1961	4	2	50	0	0	17.6(1)			9/1-9/30
1962	5	2	40	3	60	11.5(2)			Same
1963	4	2	50	0	0	12.9(2)			Same
1964	2	2	100	2	100	12.9(2)	23.3(1)		Same
1965	3	1	33	1	33	13.2(1)			Same
1966	4	1	25	1	25	17.3(1)			Same
1967	4	2	50	1	25	15.5(2)	24.5(2)		Same
1968	11	7	64	1	9	14.5(6)	26.0(4)		Same
1969	6	4	67	0	0	14.4(4)	24.8(3)	6.8(2)	Same
1970	4	2	50	1	25	15.3(2)	26.2(1)	7.8(1)	9/20-10/15
1971	3	2	67	0	0	12.9(2)	19.1(2)	2.8(2)	9/01-10/15
1972	2	1	50	0	0	--	23.7(1)	3.8(1)	9/10-10/10
1973	6	3	50	3	50	13.8(3)	21.0(3)	4.8(3)	9/10-10/10
1974	8	4	50	2	25	13.2(4)	20.4(3)	7.8(3)	9/10-10/10
1975	5	3	60	0	0	13.5(2)	23.8(3)	9.5(3)	9/10-10/10
1976	4	4	100	1	25	11.4(3)	19.3(3)	2.3(4)	9/10-10/10

1/ All male % based on known-sex bears.
2/ Length plus width given in feet, sample size in parenthesis.
3/ Length plus width given in inches, sample size in parenthesis.
4/ Tooth sample size in parenthesis.

Prepared by: Paul LeRoux, Game Biologist II

BROWN/GRIZZLY BEAR

SURVEY-INVENTORY PROGRESS REPORT - CY 1976

Game Management Unit 16 - West Side of Cook Inlet

Seasons and Bag Limits

May 10-May 25 Sept.10-Oct.10	One bear every four regulatory years, provided that the taking of cubs or females accompanied by cubs is prohibited.

Harvest and Hunting Pressure

Twenty-five brown/grizzly bears were harvested in Unit 16 during the 1976 season (Appendix I). This was 3.2 percent of the statewide harvest. Three males were taken during the spring. Eight males, 12 females and two of unknown sex were taken in the fall season. Nonresident hunters took seven bears (28%) from Unit 16 in 1976, the lowest nonresident percentage on record. The spring harvest of three bears is the lowest recorded since 1963.

Composition and Productivity

Forty-eight percent of the known sex brown/grizzly bears taken in Unit 16 in 1976 were males. Harvests from 1973 through 1976 show a slight preponderance of males taken (57 males to 46 females). The mean age of bears in the 1976 harvest was 4.5 for males (the lowest ever recorded) and 6.2 for females. Trend line analysis indicates a stable mean age in the harvest of both sexes. The 1976 mean skull size of males was 20.9 inches, somewhat lower than the 15 year average of 22.4. Annual sample sizes are small, but a gradual decline in the average male skull size is indicated.

Management Summary and Conclusion

Harvest levels during 1969, 1970 and 1971 averaged approximately 40 bears per year taken from Unit 16 with no apparent effects on the mean skull sizes or mean ages of either males or females. Harvest levels during the past three years have not exceeded 25 bears annually. During the 1976 session of the Alaska State Legislature, a bill was passed making it mandatory for a resident to purchase a $25.00 brown bear tag prior to hunting. Since the nonresident harvest has declined substantially and the $25.00 resident tag fee can be expected to reduce resident pressure, a low harvest during the 1977 season should be expected. There appears to be no biological reason for not advancing the fall season opening to September 1.

Recommendations

A September 1 opening of the fall brown/grizzly season in Unit 16 is recommended.

PREPARED BY:

Jack C. Didrickson and Kenton P. Taylor
Game Biologist III and Game Biologist II

SUBMITTED BY:

John S. Vania
Regional Management Coordinator

Appendix I. Brown/grizzly bear sport harvest, calendar years 1964 through 1975 by: year, total kill, number of males, percentage of males, number of nonresidents, percentage of nonresidents, mean hide size of males, mean skull size of males, mean cementum lines of males and calendar year seasons in Alaska's Game Management Unit 16.

Calendar Year	Total Kill	No. Males	% Males[1/]	No. Nonres.	% Nonres.	Mean Hide Size Male[2/]	Mean Skull Size Male[3/]	Mean Cem. Lines Male[4/]	Calendar Year Seasons
1964	19	13	68	9	47	12.7			5/15-6/15 9/1-12/31
1965	37	22	73	19	51	13.5			Same
1966	28	11	41	14	50	13.3			Same
1967	25	11	48	16	64	14.2	22.6		Same
1968	23	16	70	16	70	14.4	23.4		Same
1969	37	23	64	17	46	14.2	22.6	6.8(22)	5/15-6/15 9/1-10/15
1970	41	32	80	28	68	14.1	22.3	6.8(28)	5/15-6/10 9/1-10/15
1971	41	20	51	20	49	13.1	21.7	5.1(18)	5/15-6/10 9/1-10/15
1972	23	13	59	11	48	13.7	23.6	8.0(12)	5/15-6/10 9/10-10/10
1973	43	24	60	24	56	13.0	22.0	6.5(24)	5/10-5/25 9/1-10/10
1974	24	14	64	16	67	13.3	22.2	6.6(14)	5/10-5/25 9/10-10/10
1975	19	8	44	8	42	13.6	21.7	7.2(8)	5/10-5/25 9/10-10/10
1976	25	11	48	7	28	12.5	20.9	4.5(11)	5/10-5/25 9/10-10/10

1/ All male % based on known-sex bears.
2/ Length plus width given in feet.
3/ Length plus width given in inches.
4/ Tooth sample size in parenthesis.

Prepared by: Jack C. Didrickson, Game Biologist III and Kenton P. Taylor, Game Biologist II

BROWN BEAR

SURVEY-INVENTORY PROGRESS REPORT - CY 1976

Game Management Unit 17 - Bristol Bay

Seasons and Bag Limits

Spring Season	May 10-May 25	One bear every four regulatory years, provided that the taking of cubs or females accompanied by cubs is prohibited.
Fall Season	Oct.7-Oct.21	One bear every four regulatory years, provided that the taking of cubs or females accompanied by cubs is prohibited.

Harvest and Hunting Pressure

The total harvest for the 1976 season (37 bears) increased by eight over the level of the previous two years (Appendix I). A third of the harvest occurred in the spring (12 bears) and the remainder in the fall. The spring harvest was 92 percent males, but the sexes were nearly equally represented (56% males) in the fall. Resident hunters harvested two bears in the spring and two in the fall. The remainder of the harvest (89%) was by nonresidents. No significant changes were noted for data on mean hide size, skull size, and mean cementum age of male bears (Appendix I).

Composition and Productivity

No data are available.

Management Summary and Conclusions

The recorded harvest for 1976 was the second highest in the unit's history - nearly 50 percent higher than the ten-year (1967-1976) average of 24.3 bears annually. The spring harvest was at a level comparable with recent years; the fall season accounted for the increased overall harvest. This occurred because the Alaska Peninsula, which borders Unit 17, was closed to brown bear hunting during the fall and hunting pressure then transferred to the closest unit with an open season. The increased pressure was primarily a response of the guide industry, as accurately reflected by the high percentage of successful nonresident hunters. Trend cannot be determined at this time from mean male hide size, skull size, and cementum age, but harvest data will have to be carefully assessed in the future to detect adverse impacts on the population if harvest levels continue to grow.

The Alaska Peninsula, Unit 9, is now being managed on the basis of alternate year brown bear seasons. During years with a closed season in Unit 9, the bear resource of Unit 17 will receive additional hunting pressure as guides compensate by transferring their operations to the open area. As a result, a pattern of increased hunting pressure in Unit 17 will develop as guides and hunters become familiar with hunting the area. Present management for the unit primarily reflects hunting regulations in response to the more intensively hunted brown bear resources of Unit 9. As hunting pressure and harvest increase it will be necessary to manage Unit 17 on the basis of its own resources, independent of Unit 9.

Recommendations

No changes in the hunting seasons or bag limits are recommended.

PREPARED BY:

James B. Faro
Game Biologist III

SUBMITTED BY:

John S. Vania
Regional Management Coordinator

APPENDIX I

Game Management Unit 17 - Bristol Bay

Brown/Grizzly Bear Sport Harvest, Calendar Years 1961 through 1976

Calendar Year	Total Kill	% Males 1/	% Nonres.	Mean Hide Size Male 2/	Mean Skull Size Male 3/	Mean Cem. Age Male 4/	Calendar Year Season
1961	2	50	0	13.7	--	--	5/15-6/15 9/1-12/31
1962	2	100	0	15.5	18.8	--	Same
1963	3	100	0	16.3	--	--	Same
1964	4	50	75	11.5	--	--	Same
1965	6	33	83	13.4	20.3	--	Same
1966	9	50	44	14.1	--	--	Same
1967	11	27	91	14.8	22.5	--	Same
1968	10	70	60	13.6	23.4	--	Same
1969	6	50	50	14.8	23.2	8.2(2)	5/15-6/15 9/1-10/15
1970	23	55	87	14.7	23.1	6.1(11)	5/15-6/10 9/1-10/15
1971	33	66	79	14.2	23.1	6.5(18)	Same
1972	35	63	77	13.9	22.1	8.0(21)	Same
1973	41	75	80	15.0	24.3	9.6(26)	5/15-6/10 10/7-10/21
1974	29	83	76	15.2	23.7	7.4(21)	Same
1975	29	79	86	15.1	23.5	9.8(23)	5/10-5/25 10/7-10/21
1976	37	68	89	14.7	22.9	7.7(24)	Same

1/ All male % based on known-sex bears.
2/ Length plus width given in feet.
3/ Length plus width given in inches.
4/ Tooth sample size in parenthesis.

Prepared by: James B. Faro, Game Biologist

BROWN/GRIZZLY BEAR

SURVEY-INVNTORY PROGRESS REPORT - 1976

Game Management Unit 18 - Yukon-Kuskokwim Delta

Period Covered: July 1, 1976 - June 30, 1977

Seasons and Bag Limits

Unit 18	Sept. 10 - Oct. 10 May 10 - May 25	One bear every four regulatory years, provided that the taking of cubs or females accompanied by cubs is prohibited

Harvest and Hunting Pressure

One brown bear, a female, was reported taken during 1976 in Unit 18. This bear was taken during the fall season by a nonresident on a guided hunt. No bears were reported to have been taken during the 1977 spring season. Hunting pressure is expected to increase in this Unit as hunters move to the west seeking areas for brown bear hunting. This increase will largely entail movement of guides into the better bear areas of Unit 18.

Management Summary and Recommendations

Present seasons are adequate for management needs.

PRESENTED BY:

Peter E.K. Shepherd
Game Biologist III

SUBMITTED BY:

Oliver E. Burris
Regional Management Coordinator

BROWN/GRIZZLY BEAR

SURVEY-INVENTORY PROGRESS REPORT - CY 1976

Game Management Unit 19 - McGrath

Period Covered: January 1 - December 31, 1976

Seasons and Bag Limits

Unit 19	Sept. 10-Oct. 10	One bear every four regulatory years, provided that the taking of cubs or females accompanied by cubs is prohibited

Harvest and Hunting Pressure

Hunting pressure during the fall of 1976 was perhaps heavier than any season on record; hunters took 54 grizzly bears, the largest harvest on record. Resident hunters killed only 10 bears. More guides hunted in Unit 19 during 1976 than in previous years, and in many cases, 1976 marked their first year of activity in the unit. This was largely the result of attempts to satisfy exclusive guide area criteria as established by the Guide Control Board.

Grizzly bear in the Nushagak Hills (Hoholitna, Holitna and Aniak River drainages) received considerable pressure from hunters during the 1976 fall season. Twenty-two bears were taken during fall in this general area; in addition, three bears were bagged there the previous spring. Because of their open nature and presence of smooth, gravel ridgetops, the Nushagak Hills are attractive to hunters using aircraft. During 1976, four guides, all of whom used aircraft, were in the area. Two of these guides were relatively new to the area but managed to take 10 bears during the fall of 1976. Continued harvests at the level recorded for 1976 in this area may ultimately result in severe overharvest.

Age and sex data from the 1976 fall harvest suggest that the female segment of the bear population sustained heavy harvest.

The average age of 47 bears taken during 1976 was 9.0 years. Females comprising the 1976 harvest averaged 10.2 years of age (n=22).

Management Summary and Recommendations

A trend toward increased exploitation of grizzly bear in Unit 19 has become apparent both from field observations and harvest reports. Much of this increased pressure can be related to the activities of

guides attempting to qualify for exclusive guide areas. More restrictive regulations may become necessary in the southwest portion of Unit 19 (Nushagak Hills). Here a few people, utilizing aircraft, took a large portion of the annual kill, and the imminent assignment of exclusive guide areas may not reduce this heavy harvest. If the present trend of harvest in the Nushagak Hills continues, regulatory closures may be required to protect the viability of the bear population.

PREPARED BY:

Peter E. K. Shepherd
Game Biologist III

SUBMITTED BY:

Oliver E. Burris
Regional Management Coordinator

BROWN/GRIZZLY BEAR

SURVEY-INVENTORY PROGRESS REPORT

Game Management Unit 20 - Fairbanks, Central Tanana

Period Covered: January 1, 1976 - June 30, 1977 (FY 1977)

Seasons and Bag Limits

Unit 20	Sept. 10 - Oct. 10 May 10 - May 25	One bear every four regulatory years, provided that the taking of cubs or females accompanied by cubs is prohibited

Harvest and Hunting Pressure

The reported sport harvest for Unit 20 during the period of January 1, 1976 to June 30, 1977 was 30 grizzly bears (Table 1). An additional two bears were reported to have been taken in defense of life and property. The spring harvests of 13 bears (1976) and 6 bears (1977) compare to an average spring take of 7 during the 13 year period 1961-69 and 1972-75. Reasons for the larger harvest during spring of 1976 were not apparent. The fall harvest of 13 bears was considerably lower than that of the 15 year (1961-1975) average of 25. Overall, the annual harvest has been slowly declining since 1972, despite comparable season lengths.

Table 1. Grizzly bear harvest for Unit 20.

Season	Total Sport Harvest	Number of Males	Number of Females	Unknown
Spring 1976	13	8	5	0
Fall 1976	13	6	6	1
Spring 1977	6	1	5	0

Hunting seasons remained unchanged from 1975 except for the addition of a 15-day spring season to subunit 20A during 1977. This addition had little effect on the harvest but greatly increased hunting opportunities.

Some incidental take of bears probably occurred during the fall 1976 season since 77 percent of the harvest occurred during the period in which the bear season overlapped the moose and sheep seasons.

For the first time in many years no bears were taken by nonresident hunters. In most years nonresidents accounted for 20-25 percent of the harvest. In some years nonresidents took 35 percent of the harvest. However, popularity of Unit 20 as an area for guided hunts has declined since the early 1970's; therefore, fewer nonresidents may have hunted the area in past years.

Sample sizes were too small to permit analysis of the annual harvest by sex. However, over the past 15 years the composition of the harvest has been 59 percent male and 41 percent female. Also, a review of the sealing certificates from this period showed that fall and spring harvests differed little in composition, although yearly tallies varied widely due to the small sample sizes involved.

Age data for bears killed in Unit 20 during this reporting period are presented in Table 2. Although a high proportion of the females taken were immature, the small sample size did not permit analysis of age data to reveal population trends.

Table 2. Age data for grizzly bears harvested from Unit 20:

Season	Mean Age Males	Sample Size	Range	Mean Age Females	Sample Size	Range
Spring 1976	6.5	8	2-14	2.8	5	3-4
Fall 1976	7.1	6	3-15	3.3	4	2-6
Spring 1977	-	-	-	3.1	3	2-4

* Based on cementum layering.

Analyses of kill locations obtained from sealing certificates indicated that the Alaska Range continued to furnish the majority of the bears in the harvest (Table 3).

Composition and Productivity

Grizzly bear surveys were not conducted in Unit 20. Except for information obtained from the harvest, little data were available regarding the status of the population. Fewer bears were observed on the caribou calving grounds in 1976 and 1977 than in previous years.

The age structure of the 1976 harvest (26 bears) indicated that 62 percent of the bears taken were 8 years of age or older and 31 percent were 4 years of age or younger. This distribution suggested that hunting pressure was probably not overexploiting the bear population and that sufficient numbers of young bears are being introduced into the huntable population. However, data obtained from hunter-killed bears may not have truly reflected the age structure of the population.

Management Summary

Annual harvests have continued to decline from the last recorded high in 1972 despite comparable season lengths in subunits 20A, B, and C, and the addition of a spring season in subunit 20A. The majority of the bears harvested came from traditional hunting areas in the Alaska Range, and resident hunters accounted for all of the reported sport kill. The decline in the harvest most likely reflected: 1) a reduction in the number of guided hunts in the area; and 2) the present restrictive fall seasons on moose and caribou which reduced the number of bears taken incidental to other types of hunting.

Although bear surveys were not conducted, it was felt that bear numbers remained high and were only lightly exploited. The preponderance of young and old cohorts in the harvest would seem to indicate a normal, healthy bear population. It is not known whether the harvest data truly reflect what actually exists within the bear population throughout lightly hunted portions of Unit 20.

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SUBMITTED BY:

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Regional Management Coordinator

Table: Unit 20 grizzly bear sport harvest by drainage.

Area	Spring 1976	Fall 1976	Spring 1977
20A			
Yanert River, Wood River		1	
Little Delta R., Delta R., Delta Cr.		1	2
20B			
Chatanika River	1		1
Chena River	1		
20C			
Tanana River		1	
Toklat River	4	3	1
Nenana River		2	
Yanert Fork	2	1	
Birch Creek	1	2	
Beaver Creek		2	
Yukon River	1		
Volkmar Creek			1
Salcha River			1
20D			
Johnson River	1		
Tanana River	1		
Gerstle River	1		
Total Harvest	13	13	6

BROWN/GRIZZLY BEAR

SURVEY-INVENTORY PROGRESS REPORT

Game Management Unit 21 - Middle Yukon

Period Covered: January 1, 1976 - June 30, 1977

Seasons and Bag Limits

Unit 21	May 10 - May 25 Sept. 10 - Oct. 10	One bear every four regulatory years; provided that the taking of cubs or females accompanied by cubs is prohibited

Harvest and Hunting Pressure

Three grizzly bears were taken during the 1976 season. Spring hunts in 1977 produced four additional bears, all taken by guided hunters. A gradual increase in hunting pressure for bear is anticipated for Unit 21 over the next few years. This assumption is based on the shifting of guide activities into Unit 21.

Management Summary and Recommendations

The grizzly bear harvest is beginning to increase in Unit 21. This is largely a result of guides moving into the area to establish exclusive guide areas. Continued expansion of guide activities in the unit is probable.

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BROWN/GRIZZLY BEAR

SURVEY-INVENTORY PROGRESS REPORT - CY 1976

Game Management Unit 22 - Seward Peninsula

Period Covered: January 1 - December 31, 1976

Seasons and Bag Limits

Unit 22	Sept. 1-Oct. 31 May 10-May 25	One bear every four regulatory years, provided that the taking of cubs or females accompanied by cubs is prohibited

Harvest and Hunting Pressure

Based on examination of sealing certificates, the reported harvest of brown bear during 1976 was 10 animals, only slightly more than 1 percent of the total statewide kill. With the exception of one male, all the bear were taken during the spring season. The composition of the harvest was five males, four females and one bear of unknown sex. One of the 10 bears was killed by a nonresident on a guided hunt, and the remainder were taken by residents of Unit 22. The distribution of the harvest was as follows:

Arctic River (Shishmaref)	4
Wales	1
Fish River (McCarthy's Marsh)	1
Kuzitrin River	1
Inglutalik River	1
Unalakleet River	2

Four of the bears were taken in defense of life and property by reindeer herders 5-10 days before the opening of the spring season. These incidents were not reported voluntarily; the events came to light only after an investigation by Fish and Wildlife Protection personnel. Unfortunately, it was common practice for reindeer herders to kill bears as nuisance predators, and often such events went undetected. Also, a considerable number of the bears taken by villagers were not reported. A report by the Joint Federal-State Land Use Planning Commission in 1974 listed the subsistence take from a number of Unit 22 village residents as 61 bear. Based on conversations with villagers and a number of complaints of illegal activity, the total harvest during 1976 was estimated to be 20-25 bears.

Composition and Productivity

Grizzly bear composition and productivity surveys were not conducted during 1976, but bear sightings were recorded in the course of other field work. Two distribution surveys were flown in the spring when tracking conditions were ideal.

On the Seward Peninsula, the first bears normally emerge from hibernation during mid-to-late April. Most bears, including sows and cubs, appear to be actively foraging by mid-May. Three single bears, probably boars, were sighted during a reconnaissance flight 27 April in a four township area of the northern Kuzitrin River drainage. During 60 minutes of survey time, tracks of at least four other bears were observed. Based on these observations, it is estimated that there were a minimum of 10 bears in the 144 square mile area, or approximately one bear per 15 square miles.

Bear tracks were common in all habitat types regardless of elevation; however, bear sign was most abundant in the mountainous areas. This may have resulted in part from a preference for denning sites at higher elevations, but the availability of food may also have been involved. Three fresh moose carcasses were located in association with bear trails in the snow; apparently these animals had been killed by bears. Moose had recently moved into the upper drainages from their wintering grounds. Hampered by deep snow and lack of suitable cover, they appeared to be easy prey for bears. Since there is a limited quantity of food available when bear first emerge from dens, they may take a number of moose during early spring. On May 2 a second survey was flown on the upper Fish River (McCarthy's Marsh) in an area of approximately four townships. Two single bears were sighted and tracks indicated there were at least three others in the vicinity. There probably were a total of seven bears in the area, or approximately one bear per 20 square miles.

The two spring reconnaissance surveys were conducted in areas of prime habitat where bear density was probably the highest; hence, results of these surveys are not applicable to all of Unit 22. Taking into account the number of bears seen during moose surveys, salmon stream surveys, and other activities, the density of grizzly bears in Unit 22 is estimated to be one bear per 80 square miles. During the last 10 years, the area in Unit 22 occupied by grizzly bears has slowly increased, and it now appears that bears occupy most of the suitable habitat in the unit.

Management Summary and Recommendations

Assuming a density of one bear per 80 square miles, there were approximately 300 bear in Game Management Unit 22 during 1976. Even though the unreported kill was sizable, the total harvest was less than

eight percent of the population. Therefore, the annual harvest is not considered excessive. Recently a few guides have begun to operate on the Seward Peninsula, and most offered both spring and fall hunts. Although their impact to date has been minimal, this situation should be monitored closely. Until there is evidence suggesting a substantial increase in annual harvests, no changes in season and bag limit are recommended.

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Regional Management Coordinator

BROWN/GRIZZLY BEAR

SURVEY-INVENTORY PROGRESS REPORT

Game Management Unit 23 - Kotzebue Sound

Period Covered: January 1, 1976 - June 30, 1977 (spring 76, FY 1977)

Seasons and Bag Limits

Unit 23	Sept. 10 - Oct. 10 May 10 - May 25	One bear every four regulatory years, provided that the taking of cubs or females accompanied by cubs is prohibited

Harvest and Hunting Pressure

The reported grizzly bear harvest in Unit 23 during this reporting period was as follows:

	Males	Females	Unid. Sex	Hunters	
				Resident	Nonresident
Spring 1976	6	1	-	5	2
Fall 1976	7	3	1	7	4
Spring 1977	14	1	-	4	11

Both spring and fall harvests were comprised primarily of males. This pattern has been noted in other years, and it probably reflects greater mobility among males plus a preference by hunters for larger animals.

During the spring 1977 season, a significantly greater number of bears were taken by nonresident hunters than during either of the 1976 seasons.

Management Summary and Recommendations

This was the third consecutive year of relatively low annual grizzly bear harvest in Unit 23. The increased spring harvest during 1977 was entirely attributable to nonresident hunters. This probably resulted from a shift in guiding activities from the Alaska Peninsula where the spring season was closed.

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SUBMITTED BY:

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Regional Management Coordinator

BROWN/GRIZZLY BEAR

SURVEY-INVENTORY PROGRESS REPORT - 1976

Game Management Units 24, 25 & 26 - Brooks Range and North Slope

Period Covered: January 1 - December 31, 1976

Seasons and Bag Limits

Units 24-26	Sept. 10-Oct. 10 May 10-May 25	One bear every four regulatory years, provided that the taking of cubs or females accompanied by cubs is prohibited

Harvest and Hunting Pressure

During 1976, hunters reported taking 50 grizzlies in Units 24-26. This represented an 11 percent decrease from the reported 1975 harvest of 56 bears. Sixty percent of the harvest (30 bears) occurred in the spring and 40 percent (20 bears) in the fall. The kill was comprised of 31 males (62%) and 19 females (38%). Among bears killed in the spring, 20 (67%) were males, 15 of which were taken in Unit 26. The mean ages of grizzlies killed in Units 24, 25 and 26 during 1976 were 9.9, 7.4 and 10.4 years, respectively.

During the last 16 years, the season has been shortened from 154 days (1961) to 47 days (1976). Despite shorter seasons, both hunting pressure and harvest have increased. Nonresident hunters took 40 percent (20 bears) of the harvest during 1976.

Management Summary and Recommendations

The most recent data regarding grizzly populations in this area were collected during 1973 and 1974 from a 5000 square mile area in the eastern portion of Unit 26 and the northern portion of Unit 25. These data indicate that during the period 1973-74, grizzly populations were decreasing (see the 1975 S&I Progress Report).

Since that time hunting pressure on grizzlies in Units 24-26 has continued to increase, and the present level of harvest is depressing grizzly numbers in this area. If data collected during 1973 and 1974 are indicative of the parameters of bear populations throughout Units 24-26, current harvest levels are excessive.

In 1975 it was recommended that the grizzly harvest in these units be held to no more than 30 bears per year (see 1975 S&I report), and that recommendation is still warranted. A permit system would offer the greatest control over harvest.

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POLAR BEAR

SURVEY-INVENTORY PROGRESS REPORT

Game Management Units 18, 22, 23 and 26 - Western and Northwestern Alaska*

Period Covered:
Units 18, 22 and 23 - July 1, 1976 - June 30, 1977
Unit 26 - January 1, 1976 - June 30, 1977

Seasons and Bag Limits

Closed; except that Alaskan Natives may harvest polar bears without restriction.

Harvest and Hunting Pressure

During the 1976-1977 harvest period the known statewide take of polar bear by native hunters was 107, although the actual kill may have exceeded 150. The known harvest was comprised of 60 males, 37 females and 10 bears of unknown sex (Table 1). Although Department personnel attempted to seal all hides, the State Attorney General ruled that, under current regulations and as a result of the Marine Mammal Act, it was not mandatory for natives to have their polar bears sealed. Consequently, lower than average harvests were reported from villages such as Shismaref where many bears traditionally have been taken.

The take was distributed among 12 villages (Table 1), and the bulk of the harvest (44%) occurred during the months of November and December 1976 (Table 2). Gambell, Wainwright and Barrow were the only villages where hunters took a large number of bears during spring. Bears occurred farther south than recorded during recent years. One male was taken near Hazen Bay on the Yukon Delta.

Prior to 1972, it was unusual for the harvest by village residents to exceed 30 per season, but since then the harvests have increased steadily. During the past three years years there has been a steady increase in the harvest of polar bears by natives using motorized land transportation. Weather and ice conditions affected the availability of bears near the coast. The large number of marine mammal carcasses along the beaches in Units 22 and 23 may have contributed to increased harvests by concentrating bears near the coast.

Distribution and Abundance

Although the absence of aircraft hunting has certainly made more bears available to coastal hunters south of the Bering Straits, weather and ice conditions apparently contributed to the high harvest by dispersing animals into areas of greater hunter density. The one animal taken at

*After review of data in September 1978, the actual total number of bears killed was 160.

Hazen Bay indicated that bears may be expanding their range into areas occupied prior to intensive aerial hunting. Prevalent north winds and the heavy pack ice in the Chukchi Sea may have made foraging more favorable for bears in the Bering Sea.

Initiation of the southern movement was closely associated with the formation of young ice. Hunters from Wales took 12 of 13 bears between November 24 and December 7, about the time that the sea ice was first capable of supporting a man on a snow machine. Likewise, Diomede residents took the majority of their bears during this same period. Northward movements during spring are associated with the retreating ice pack and vary from year to year. All 10 bears taken at Gambell in May and June were northbound on the ice.

Another factor which might affect annual movements is the availability of denning sites. Denning activity in Alaska is poorly documented, but male polar bear do not normally utilize dens. The composition of the harvest (Table 1) indicates that denning was probably a very minor factor affecting annual movements since a large number of bears taken in the southern areas were males.

Management Summary and Recommendations

With the Marine Mammal Protection Act of 1972 restricting polar bear hunting to Alaskan natives, the current annual kill is not expected to increase markedly over the present level. Present Federal regulations, however, do not prohibit the killing of cubs or sows with cubs. Taking of cubs and females is not only aesthetically undesirable, but also biologically undesirable. Federal laws further prohibit the sale of hides and skulls in the raw state to non-natives. The absence of an incentive to salvage hides has led to waste in some instances.

Continued efforts should be made to return management to the State so that these deficiencies can be rectified. Under State management, both natives and non-natives can derive benefit from the use of a controlled harvest of 150-250 bears per year.

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Regional Management Coordinator

Table 1. Polar bear harvest by village, 1976-1977*.

Village	Male	Female	Cub*	Unknown	Total
Hooper Bay	1	-	-	-	1
Nome	2	1	1	-	3
Savoonga	7	14	7	-	21
Gambell	8	9	6	2	19
Diomede	1	5	3	1	7
Wales	12	1	-	-	13
Shishmaref	6	1	1	-	7
Kotzebue	1	-	-	-	1
Kivalina	2	1	-	-	3
Point Hope	5	3	-	-	8
Wainwright	8	1	-	-	9
Barrow	7	1	-	7	15
Total	60	37	18	10	107

* Cubs are included in the male, female or unknown class, in addition to being listed in the cub column.

Table 2. Polar bear harvest chronology by month, 1976-1977.

January	1976	0	July	1976	2	January	1977	7
February	1976	0	August	1976	0	February	1977	3
March	1976	0	September	1976	0	March	1977	2
April	1976	3	October	1976	7	April	1977	8
May	1976	6	November	1976	19	May	1977	13
June	1976	1	December	1976	28	June	1977	8

ADDENDUM

POLAR BEAR

SURVEY-INVENTORY PROGRESS REPORT 1975-76

Game Management Units 22 and 23

Seasons and Bag Limits

The passage of the Marine Mammal Protection Act on October 21, 1972, prohibited the killing of all marine mammals (including polar bears), with the exception that Alaskan Natives could utilize such animals for subsistence (including parts of marine mammals for arts and crafts) provided the take was not wasteful. During the 1975-76 season, Alaskan Natives continued to take polar bears with no restrictions on seasons or bag limits.

Harvest and Hunting Pressure

During the last two years there was a dramatic increase in the harvest of polar bears by Natives using motorized land transportation. Prior to 1972, harvests averaged 20 bears, but the annual kill nearly doubled in the 1974-75 season and more than doubled the following year. Weather and ice conditions were responsible in part for the availability of bears near the coast; however, the cessation of aerial hunting probably was an important factor in the substantial increase in the success of Native hunters.

During the 1975-76 season, the known kill in Units 22 and 23 was 100 bears (47 males, 42 females and 11 of undetermined sex). Although Department personnel made a great effort to seal all hides, many hides remained unsealed. At Pt. Hope alone nearly half the winter harvest was unreported. The actual kill during the season was estimated at 120 polar bears. The reported harvest was distributed among 6 villages as follows:

Village	Males	Females	Unknown	Total
Savoonga	12	17	2	31
Gambell	4	3	-	7
Diomede	1	1	2	4
Wales	7	3	1	11
Shishmaref	17	12	2	31
Pt. Hope	6	6	4	16
Totals	47	42	11	100

December 10 was the earliest date that a bear was reported taken; the latest date was April 25. In past years, hunters expected to first encounter large numbers of bears in February, but in 1975-76, bears were available

in December. Polar bears appeared to be distributed much farther south than their "normal" range during the 1975-76 season. Shishmaref residents took 18 of 31 bears in December, and all of the harvest at Diomede occurred before January 1. The majority of the harvest at Pt. Hope, Gambell and Savoonga occurred during February and March.

Distribution and Abundance

Although the absence of aircraft hunting has certainly increased the number of bears available to coastal hunters, weather and ice conditions apparently contributed to the high harvest by distributing animals into previously "unhunted" areas. Residents of St. Lawrence Island killed 38 bears, the highest harvest there in over a decade.

Because the pack ice was relatively heavy in the Chukchi Sea, polar bears may have found hunting more favorable in more southerly areas. Some evidence suggested that food sources may have stimulated a southern movement. Most bears taken along the coast of the Seward Peninsula were found feeding upon beached walrus carcasses. Well-worn bear trails were common north of Wales and often converged on walrus carcasses lying along the beach. More than 10 bears were taken at one such site, approximately 30 miles south of Shishmaref. As far south as St. Lawrence Island, bears were observed feeding on beach carrion. Bears may also have moved to land in search of denning sites. A hunter from Shishmaref followed the tracks of a bear inland and reported killing a sow in a snowbank in which she had excavated a large chamber. We suspect that this was a "wintering den." Other hunters reported following tracks inland on the western Seward Peninsula and losing them in the drifting snow of the foothills.

Management Summary and Recommendations

With the Marine Mammal Act restricting polar bear hunting to Natives, and with Natives using ground transportation only, it is unlikely that the annual kill exceeded the productivity. However, the present Federal regulations have resulted in considerable waste of the resource; for example, Natives are allowed to kill cubs and sows with cubs. The killing of cubs less than 1-year of age is not only esthetically undesirable but is also wasteful because very little meat is obtained from them.

Federal law does not require that polar bear hides be salvaged. The sale of raw hides to non-Natives is illegal; consequently, considerable waste of hides has resulted.

Natives in all villages are rapidly developing a cash economy. Prior to 1972, a considerable amount of money went into the village economies as a result of guided polar bear hunts. The prohibition of taking of bear by non-Natives has eliminated that source of income. Efforts should be continued to return polar bear management to the State, and the controlled taking by all citizens should be restored.

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CARIBOU

SURVEY-INVENTORY PROGRESS REPORT - 1976

Game Management Units 7 & 15 - Kenai Peninsula (Kenai Herds)

Seasons and Bag Limits

Unit 7	Aug. 10 - March 31	One caribou; a limited number of caribou may be taken by permit only, provided that only antlered caribou may be taken from Jan.1 - March 31. Conditions and numbers of permits will be described by Commissioner's announcement.
Unit 15	No open season	

Harvest and Hunting Pressure

Four hundred and fifty-seven persons obtained permits to hunt caribou in Unit 7 during the 1976-77 season. Permits were available throughout the season on an unlimited basis. The season was closed by emergency order on August 29 when the quota of 50 caribou had been approached. Forty-nine caribou were taken comprised of 22 males and 27 females (Appendix I).

Of 457 persons holding permits 149 reported hunting for a success rate of 33 percent (Appendix II). Harvest reports were received from 95 percent of those who obtained permits. This high rate of return resulted from citing hunters who failed to return their reports and converting citations to warnings when reports were submitted. Twenty-one hunters could not be contacted because they were nonresidents or had moved from the address given on the permit.

Composition and Productivity

A census of the Unit 7 caribou population was made on December 8, 1976 utilizing direct counts on small groups and photo counts on larger aggregations. Two hundred forty-nine caribou were tallied, compared to 252 in 1975, indicating that the harvest rate is approximately equal to the rate of recruitment.

Based on a recruitment rate of 20 percent (which prevailed from 1971-75), the 1977 pre-hunting season population should be about 300 caribou.

In Unit 15 no census was conducted during the winter of 1976-77. Snow cover was sporadic and the animlas remained scattered. This herd is now estimated to number 80-100 animals.

Management Summary and Conclusions

The desired harvest of approximately 50 caribou was obtained in only 20 days by 149 hunters. Many hunters indicated that they would have hunted earlier if they had known the season was going to be closed early. Some anticipated hunting both caribou and moose during the moose season.

The cause of the decline in recruitment is not known. Predation does not appear to be a factor although black bears and wolves are numerous in the area. To date, we have found no evidence of caribou being taken by wolves although both species' tracks are seen in the same area during the winter time. Wolves could take calves during the summer without it being noticed. Telemetry studies of wolves in the adjacent area should provide us with such information in the near future.

Recruitment should again be about 20 percent, providing a harvestable surplus of about 50 caribou in 1977. To prevent overharvesting, a limited number of permits should be issued.

Recommendations

It is recommended that permits be limited to 100 for the 1977 season and that the season be shortened to end October 31.

It is recommended that not more than 50 caribou be harvested during the 1977 season.

PREPARED BY:

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SUBMITTED BY:

John S. Vania
Regional Management Coordinator

Appendix I. Caribou seasons, permits issued, harvest by sex and hunter success in Game Management Unit 7.

Year	Season	Permits Issued	Harvest ♂	Harvest ♀	Total	Percent Successful
1972-73	Aug. 10-Nov. 30	20	6	0	6	30.0
1973-74	Aug. 10-Mar. 31	250	11	1	12	4.8
1974-75	Aug. 10-Nov. 30 Jan. 1-Mar. 31	573[1]	30	14	44	7.7[2]
1975-76	Aug. 10-Nov. 30 Jan. 1-Mar. 31[3]	869[1]	38	49	87	10.0
1976-77	Aug. 10-Mar. 31[4]	457[1]	22	27	49	33.0[5]

1 Unlimited permits
2 Unknown number of hunters did not hunt
3 Closed by emergency order 1/12/76
4 Closed by emergency order 8/29/76
5 Based on 149 hunters who actually hunted

PREPARED BY: Paul A. LeRoux, Game Biologist III

Appendix II. Caribou seasons and permit data Game Management Unit 7.

Year	Season	Harvest	Permits Issued	Hunted	Hunted Successful	Did Not Hunt	Did not Report	Percent Successful
76-77[1]	Aug. 10-Mar. 31	49	457	149	49	287	21	33

1 Season closed on 8/29/76 by emergency order.

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CARIBOU

SURVEY-INVENTORY PROGRESS REPORT - 1976

Game Management Unit 9 - Alaska Peninsula (Alaska Peninsula and Mulchatna Herds)

Seasons and Bag Limits

Aug.10-Oct.15	Three antlered caribou, provided that not more than one caribou may be taken from Aug.10-Oct.15.
Dec.1-Mar.31	

Harvest and Hunting Pressure

Field observations and discussions with residents indicated that hunting pressure and harvest of caribou on the Alaska Peninsula declined significantly during the 1976-1977 season. Harvest reports were not required for Unit 9; therefore, specific harvest figures are not available. The estimated season harvest was less than 1,000 caribou, believed to be evenly distributed between the two portions of the season. The majority of the harvest came from the Alaska Peninsula herd, with probably less than 25 Mulchatna herd caribou harvested in GMU 9.

Composition and Productivity

An aerial photocensus using hand-held 35 mm cameras was conducted on post-calving concentrations south of the Cinder River. Photographs identified 11,368 animals. Composition counts were not done; therefore, a population estimate is not available. Biologists participating in the census estimated that calving success exceeded 60 calves per 100 cows.

Photographs of post-calving concentrations in the Black Hills south of Port Moller identified 2,006 animals. Again, no composition count was conducted.

Management Summary and Conclusions

The reduction in the fall hunting pressure and harvest probably results from restrictive big game hunting regulations initiated in fall 1976. The early season caribou bag limit was reduced from three caribou to one antlered caribou; the moose bag limit was restricted to bulls with 50-inch or larger antlers throughout much of the caribou range; and there was no brown bear season. These regulations discouraged hunting and made it difficult for hunters to obtain quantities of meat from an Alaska Peninsula hunt. Thus, many hunters sought game in other areas. Guides booking brown bear hunters also had to hunt in other areas. In many instances, guides found it more economical to conduct multi-species hunts in an area in which they hunted bears, further reducing the GMU 9 fall hunting pressure.

Unseasonably warm weather, December through February, eliminated earlier accumulated snow cover needed by hunters using ski-equipped aircraft and snow machines for access to wintering caribou. This greatly reduced the winter hunting pressure and harvest. Snow needed for access fell in early March, but the southern migration had placed the animals out of reach of most hunters.

Regulations reducing the fall caribou bag limit and limiting the take to antlered caribou were implemented this past season to reduce the bull harvest and stop the declining bull:cow ratio. In 1970 that ratio was 48.3 bulls:100 cows; by 1975 it had declined to 33 bulls:100 cows. The present regulation has not been in effect long enough to permit evaluation of its impact on the bull:cow ratio. Additional years of study are necessary.

The 11,368 caribou photographed in the vicinity of Port Heiden indicated an increase of 990 from the 1975 census. The 44.6 calves per 100 cows reported in 1975 and the abundant amount of calves in 1976 indicated a herd experiencing excellent reproduction and possibly increasing.

The results of the photocensus of the caribou south of Port Moller showed a decline of 621 caribou from the 1975 census. This decline was attributed to survey inaccuracies because weather conditions were marginal during the survey and the caribou herd had begun to disperse. Hunting pressure is very light on this segment of the Alaska Peninsula caribou herd, and we doubt that the herd declined.

Recommendations

1. The present hunting seasons, bag limit and antler regulation have not been in effect long enough to be assessed for effectiveness. No changes in regulations are recommended at this time.
2. A photocensus, with accompanying composition count, of the caribou ranging between the Naknek River and Port Moller should be suspended for 1977 but should be conducted in 1978. The effects of the present regulations on the bull:cow ratio will not be evident until 1978.
3. A photocensus, with accompanying composition count, should be conducted in 1977 on caribou ranging south of Port Moller. This survey should help determine the validity of the 1976 data and establish the status of that segment of the Alaska Peninsula herd.
4. A harvest report program should be initiated for Game Management Unit 9 to obtain harvest data needed for management.

PREPARED BY:

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SUBMITTED BY:

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Regional Management Coordinator

CARIBOU

SURVEY-INVENTORY PROGRESS REPORT - 1976

Game Management Unit 10 - Aleutian Islands (Adak Island Herd)

Seasons and Bag Limits

Unit 10, Adak Island Only	Aug. 10-Mar. 31*	Two caribou

* Season may be closed by field announcement.

Harvest and Hunting Pressures

One hundred and six caribou were killed on Adak Island during the 1976-77 season (Appendix I). The confirmed sport harvest consisted of 70 males, 34 females and two sex unknown.

Composition and Productivity

No data are available.

Management Summary and Conclusions

Hunting on Adak Island is almost entirely the result of recreational efforts by military and civilian personnel stationed there. The management goal is to keep the herd at approximately 240 animals.

On April 21, 1976, U.S. Navy conservation agents conducted a caribou census using two UH-46 Delta helicopters. The survey maintained a flight level of 400 feet because of weather conditions, but also to reduce disturbance of pregnant cows. To avoid duplication of counts, photographs were taken of groups of caribou; there was also coordination via radio and survey sector maps. The total number of caribou observed was 203. One hundred-four caribou were reported harvested prior to the April survey.

During September 16, 1976, U.S. Navy conservation agents and U.S. Fish and Wildlife agents conducted another caribou using UH-46 Delta helicopters. Although only approximately two-thirds of the total caribou range was surveyed, 233 caribou were tallied. According to U.S. Navy conservation agents, 52 caribou were harvested prior to the survey of September 16, 1976. After the 54 caribou taken after the September census were subtracted from these data, a minimum population of 179 caribou on Adak Island was indicated subsequent to the 1976-77 hunting season (precalving 1977). It is difficult to obtain a total population count on Adak, but it is estimated that the 1977 (precalving) population was approximately 250. Other census attempts during 1976 were not completed because of mechanical problems with U.S. Navy helicopters, lack of available fixed wing aircraft and inclement weather.

Recommendations

A caribou sex and age composition count should be conducted on Adak Island during the peak of the rut.

It is recommended that the caribou management policy for Adak Island be changed to reduce the goal for population size from approximately 240 animals to about 150 for the following reasons:

Increases in nonresident hunting license and big game tag fees may reduce hunting pressure.

The possibility of removal of tug boat and horse use for hunters may reduce the potential for harvest capability.

The possibility of removal of all U.S. Navy helicopters from Adak. Since fixed-wing air craft use on the island for game census is so limited, it would be extremely difficult to complete a caribou population estimate without helicopters. Without accurate population estimates, more conservative management is prudent.

Using the minimum population of 250 caribou on Adak Island prior to 1977 calving, approximately 150 caribou should be taken during the 1977-78 hunting season.

PREPARED BY:

J.J. Sexton
Game Biologist II

SUBMITTED BY:

John S. Vania
Regional Management Coordinator

APPENDIX I

Adak Caribou Herd, Population and Mortality 1962-1976

Year	Winter Population	Natural Mortality*	Hunting Mortality
1962	36	0	0
1963	43	0	0
1964**	65	1	4
1965**	87	8	2
1966**	106	3	18
1967**	126	1	24
1968**	163	3	55
1969**	167	0	51
1970**	214	0	53
1971**	230	3	45
1972**	347	1	98
1973**	230(est. post-hunting pop.)	0	108
1974**	264(est. post-hunting pop.)	0	93
1975**	270(est. post-hunting pop.)	0	104
1976**	250(est. post-hunting pop.)	0	106

* Essentially, all natural mortality was due to entanglement in wire prior to 1969.

** Allowable harvest: 1964 - 10; 1965 - 30; 1967 - 50; 1968 - 50; 1969 - 50; 1970 - 50; 1971 - 50 plus 20 more; 1972 - 50 plus 97 more; 1973 - 140; 1974 - 70 plus 48 more; 1975 - 90 plus 47 more; 1976 - 100 plus 40 more.

Prepared by: Jerome J. Sexton, Game Biologist II

CARIBOU
SURVEY-INVENTORY PROGRESS REPORT - 1976

Game Management Unit 10 - Unimak Island Only

Seasons and Bag Limits

August 10-March 31 — Four caribou

Harvest and Hunting Pressure

Because of limited access, harvest and hunting pressure on Unimak Island caribou is very light. Residents of Cold Bay, False Pass, and the Cape Sarachef radar site are responsible for the majority of the harvest. Discussions with residents of Cold Bay indicate the total harvest is less than 100 caribou per year.

Composition and Productivity

No work accomplished during this reporting period.

Management Summary and Conclusions

Unimak Island is a portion of the Aleutian Islands National Wildlife Refuge and access is controlled by the U.S. Fish and Wildlife Service. Aircraft landings are restricted to water surfaces and beaches; use of mechanized equipment is not authorized. This restricted access makes it it difficult and costly for all but local residents to hunt the island. It is doubtful if hunting has any effect upon the caribou population.

Recommendations

No changes in seasons or bag limits recommended at this time.

PREPARED BY:

Nick Steen
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CARIBOU

SURVEY-INVENTORY PROGRESS REPORT FOR REGULATORY YEAR 1976-77

Game Management Unit 11 - Wrangell Mountains and Chitina Valley (Mentasta Herd)

Season and Bag Limit

Unit 11	Aug. 10 - Sept. 30	One caribou

Two hundred thirty-six caribou were reported harvested in the 1976 season. Seasons, bag limits and harvests from 1968 until 1976 are listed in Appendix I. Seasons and bag limits earlier then 1968 corresponded with those listed for the Nelchina caribou herd (Game Management Unit 13).

Seasonal Movements

From November 1975 until early March 1976 most of the Mentasta caribou and an unknown number of Nelchina caribou utilized the area northeast of Tanada Lake to the foothills of the Mentasta Mountains. During late March and April, Mentasta caribou moved west to their calving grounds while the Nelchina caribou that wintered in this area moved down Boulder Creek and out of Unit 11. During 1976, the majority of the Mentasta herd calved on the western slopes of Mount Sanford, north of the Sanford River. Several surveys were conducted to locate calving groups in Drop Creek, a previously known calving area, but only a few small groups were found.

Post-calving aggregations of mostly cows, calves and small bulls were located between the Sanford River and Boulder Creek during June. Also during June, small groups, primarily large bulls, were scattered from the south bank of the Sanford to the north bank of the Cheshnina River, above timberline. Caribou remained in these areas from July to mid-August. During the fall breeding period, caribou concentrated in the upper portions of the Klawasi and Nadina Rivers. Following breeding period until January of 1977, most of the Mentasta caribou, plus an estimated 500 Nelchina caribou, were found in the foothills of the Mentasta Mountains.

Abundance and Mortality

A photocensus of this herd in post-calving aggregations was obtained during June 14, 1976. Several all-bull bands were counted in addition to groups of primarily cows and calves. A total count of 1,226 adults and 526 calves (1,752 combined total) was obtained. Calves constituted 30 percent of the herd, a 35 percent increase over 1975 (19.5%).

The estimated harvest of 250 caribou during 1976 was relatively large. Reported harvests have varied widely, but it is believed that larger harvests were mostly from bands of Nelchina caribou that wintered

in Unit 11. Harvests from this herd during the past five years probably more closely reflect actual harvests during earlier years. If the average harvest over the past four years has been 150 caribou, and the estimated herd size has been 2,000 caribou, average harvests of about 7.5 percent of the total herd have apparently stabilized herd growth. However, hunters have been selecting bulls (Appendix I), so natural mortality on this herd may have approximated annual productivity. Therefore, a continuation of larger harvests, such as occurred during 1976, will be cause for concern.

Most hunters of Mentasta caribou have been Alaskan residents (Appendix II). Hunter success and transportation means of successful hunters have changed with the reduction in season length and bag limit. The harvests have shifted from the Nabesna Road vicinity to the Mt. Drum vicinity where aircraft transportation to dirt strips is the preferred transportation means.

Management Summary

The Mentasta caribou herd has apparently been stabilized with relatively low harvests, primarily of bulls. The causes of the stabilized status of the herd should be investigated.

Recommendations

1) The Mentasta caribou herd should be hunted by permit to prevent increased harvests which probably were primarily by unsuccessful caribou permit applicants from Units 13 and 14.

2) Season length and bag limit should remain the same.

PREPARED BY:

Ted Spraker
Game Biologist II

SUBMITTED BY:

John S. Vania
Regional Management Coordinator

APPENDIX I

Seasons, bag limits, harvests, sex composition of the harvests, and abundance estimates, Mentasta herd, 1968-69 to 1976.

Year	Season	Bag Limit	Harvest Known	Harvest Estimated[a]	Males Reported in Harvest Number (%)[b]	Estimated Total Adult Caribou Population
1968-69	Aug. 10 - Mar. 31	3 Caribou	304	----	122 (74%)	----
1969-70	Aug. 10 - Mar. 31	3 Caribou	288	414	203 (71%)	1,892
1970-71	Aug. 10 - Sept. 30 Nov. 1 - Mar. 31	3 Caribou	846	1,317	519 (62%)	2,047
1971-72	Aug. 10 - Mar. 31	3 Caribou	1,693	2,006	742 (45%)	----
1972	Aug. 10 - Sept. 20	1 Caribou	89	----	60 (69%)	----
1973	Aug. 10 - Sept. 30	1 Caribou	81	99	65 (82%)	2,202
1974	Aug. 10 - Sept. 30	1 Caribou	90	105	66 (76%)	----
1975	Aug. 10 - Sept. 30	1 Caribou	143	162	101 (72%)	1,978
1976	Aug. 10 - Sept. 30	1 Caribou	236	250	175 (76%)	1,226

a. Estimated harvests were based on extrapolation formulas.

b. Male percentage in the harvest during 1968-69 was based on a sample size of 164. Percentages are based only on reports where sex of kill was specified.

c. Skoog tallied 2,305 caribou in the Mentasta herd during February 1962 (Bos, 1974). Maximum total estimates made during post calving aggregations of subsequent years are listed. Abundance estimates during 1970 and 1971 were accumulat estimates of group sizes made from a fixed wing aircraft. The 1973 value of 2,202 was a corrected census estimate obtained from direct summer counts corrected for fall composition values. The 1975 and 1976 values were photocensus counts of all adults found during June.

PREPARED BY: Ted Spraker, Game Biologist II

APPENDIX II. A comparison of percentage of resident hunters, hunter success and transportation means for the Mentasta herd, 1969-70 through 1976.

Year	Resident Hunters, Number (%)[a]	Caribou Kill per Hunter, Number (%) 0	1	2+	Average Kill Per Hunter	Transportation Means of Successful Hunters, Percent[b] A	H	B	S	O	F	Sample
1969-70	114 (68%)	102 (35%)	122 (42%)	67 (23%)	0.99	--------Not Available----------						
1970-71	389 (85%)	118 (19%)	250 (41%)	241 (40%)	1.39	--------Not Available----------						
1971-72	827 (89%)	457 (32%)	474 (33%)	492 (35%)	1.19	--------Not Available----------						
1972	50 (69%)	342 (82%)	63 (15%)	11 (3%)	0.22	31%	7%	2%	17%	25%	18%	84
1973	53 (66%)	172 (68%)	81 (32%)	-- --	0.32	75%	12%	--	--	5%	7%	73
1974	51 (59%)	107 (54%)	90 (46%)	-- --	0.46	64%	18%	1%	--	10%	7%	84
1975	83 (61%)	110 (43%)	143 (57%)	-- --	0.57	80%	10%	2%	--	6%	2%	133
1976	167 (72%)	186 (44%)	236 (56%)	-- --	0.56	63%	8%	.4%	--	11%	17%	230

a. Percentages calculated by: (residents/residents & nonresidents) x 100.

b. Symbols for transportation means: A = Airplane, H = Horse, B = Boat, S = Snowmachine, O = Off-road vehicles (including trail bikes) and F = Afoot and/or highway vehicle, Sample = Sample size. Because some hunters do not report the type of transportation used and other hunters report several types, the sample size does not represent all hunters, but these data are useful for trend comparisons.

Submitted by: Ted Spraker, Game Biologist II

CARIBOU

SURVEY-INVENTORY PROGRESS REPORT

Game Management Unit 12 - Upper Tanana, White River (Chisana Herd)

Period Covered: January 1, 1976 - June 30, 1977

Seasons and Bag Limits

Unit 12	Aug. 10 - Sept. 30	One caribou

Harvest and Hunting Pressure

According to information obtained from harvest tickets, 56 caribou (45 males, 8 females and 3 of unspecified sex) were harvested from the Chisana herd. This harvest was about the same as annual harvests for the past several years. A total of 76 hunters reported hunting the Chisana herd, and 74 percent of the hunters were successful. Sixty percent of the harvest was taken by residents.

The Chisana herd is not accessible by road, and the primary transport means within the area were aircraft, horses and off-road vehicles. No breakdown is available for the number of hunters using various modes of transportation. Caribou were normally taken in conjunction with hunts for other species, primarily sheep.

Composition and Productivity

Sex and age composition surveys have not been conducted on the Chisana herd in the past. However, a productivity survey was conducted on June 16, 1976 using a Helio Courier 295 after several post-calving aggregations had been located in the Flat Creek Flats. This survey disclosed 25 calves per 100 adults (primarily cows). A total of 208 caribou were observed during this survey. No spring counts were done during 1977.

Management Summary and Recommendations

Little is known regarding the current status of the Chisana herd. The harvest has been little changed for the past several years and it is assumed that the herd is capable of sustaining such harvests.

To prevent a possible increase in hunting pressure, it is recommended that the hunting season be reduced by 10 days to conform with that of the Fortymile herd.

PREPARED BY:

Larry B. Jennings
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SUBMITTED BY:

Oliver E. Burris
Regional Management Coordinator

CARIBOU

SURVEY-INVENTORY PROGRESS REPORT

Game Management Units 12, 20 and 25 - Fortymile Herd

Period Covered: January 1, 1976 - June 30, 1977

Seasons and Bag Limits

Units 12, 20 and 25	Aug. 10 - Sept. 20	One caribou

Harvest and Hunting Pressure

Information derived from harvest tickets indicated that 33 caribou (26 males, 5 females and 2 of unspecified sex) were harvested from the Fortymile herd during 1976. This harvest was about the same as annual harvests since 1973, but was considerably below those recorded for the late 1960's and early 1970's when up to 2,300 animals were taken annually. According to harvest ticket data, 236 individuals (79% residents) hunted the Fortymile herd during the 1977 season.

Field observations made during the hunting season indicated that nearly the entire harvest came from the Molly and Tibbs Creek drainages. These areas are accessible only by aircraft. Caribou were generally unavailable along the road system, although a few animals were taken along the Taylor Highway.

Composition and Productivity

Post-calving concentrations consisting of approximately 1,100 cows and calves were located in the upper Salcha River drainage on June 3, 1976. The following day, under nearly ideal conditions, an aerial composition survey (using a Helio Courier 295) was conducted. This survey indicated a low rate of initial calf survival (approximately 19 calves per 100 adults). Most of the adults were females. Calving took place during late May near Dexter Creek in the upper Birch Creek drainage, and caribou commenced an eastward movement immediately after calving. The stresses on newborn calves caused by such a migration may have been responsible for the high initial calf loss.

Post-calving counts were conducted again on June 13, 1977 using a Helio Courier 295. Counting conditions were ideal. The survey in which 2,252 caribou were classified indicated 39 calves per 100 adults. Results of the 1977 survey demonstrated a marked increase in calf production and survival over that of 1976.

During late September, an age-sex composition survey was conducted in the highlands of the upper Charley, North Fork, Fortymile and Seventymile drainages using a Bell 206B. Observations were accomplished using standard on-the-ground techniques and a Bausch and Lomb 15-60 variable power spotting scope. Genital characteristics were used to determine sex. Composition of the 896 caribou classified are summarized below:

M/100 F	Yr1/100 F	Calves/100 F	M%	F%	Yr1%	Calf%
42.0	11.3	34.5	22.5	53.0	6.0	18.0

The proportion of yearlings and calves among caribou observed were about double those recorded annually since 1972 when annual fall sex and age composition surveys were begun.

The composition data indicated that although calves suffered high initial losses, subsequent survival through the summer was excellent. Assuming good overwinter calf survival, there is a possibility that a slight population increase may occur. If so, this would terminate the population decline that has prevailed during the last few years.

Management Summary and Recommendations

There may have been a slight, but insignificant, increase to the Fortymile population during 1976. Heavy losses occurred among newborn calves, but subsequent survival through the summer appeared high. Initial calf production appeared good during 1977.

While predation may have been the primary factor responsible for low calf survival in the past, this was not thought to have been the case during 1976. The high initial losses may have resulted from long movements undertaken by the caribou immediately after calving. Whatever the cause of high initial calf mortality, it seems unlikely that it can be manipulated to minimize such losses.

To enhance the chances for recovery of the Fortymile herd a bulls-only season is recommended.

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Oliver E. Burris
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CARIBOU

SURVEY-INVENTORY PROGRESS REPORT - 1976

Game Management Unit 13 - Nelchina Herd

Seasons and Bag Limits

Unit 13	Sept. 5 - Sept. 20*	One caribou

* Closed by emergency order effective midnight, Sept. 10, 1976.

Harvest and Hunting Pressure

The 1976 estimated caribou harvest from the Nelchina herd was 822 caribou. The reported harvest was 776 and consisted of 74 percent males. Approximately 85 percent of the successful hunters were Alaska residents (Appendix I). Appendix II shows that successful caribou hunters used aircraft more than any other method of transportation. Check station personnel located on the Glennallen and Denali Highways recorded a kill of approximately 250 caribou by September 8 and the season was closed effective September 10 in an attempt to limit the take to 500 caribou.

Productivity and Calf Survival

Sex and age composition counts were conducted in June 1976, October 1976 and April 1977. Productivity and calf survival appeared to be normal when compared with other recent data (Appendix III). Calf survival from November through April was high.

Seasonal Movements

By late March 1976 the major portion of the Nelchina caribou herd was located between Lake Louise and the Oshetna River.

During April and May, caribou moved into the traditional calving grounds located between the Oshetna River and Fog Lakes. Most caribou remained in the Talkeetna Mountains and Watana Mountains throughout the summer and early fall. By November caribou from the Talkeetna Mountains had dispersed throughout the Lake Louise flats. Portions of the herd crossed the Susitna River into Butte Lake, Coal Creek and the upper Susitna drainages. Others migrated eastward into the Wrangell Mountains near Copper Lake. A few hundred were present in the Talkeetna River and Chunilna Creek Drainages. Although there were some shifts within areas as snow accumulated, caribou remained on these wintering areas until late April 1977.

Figure 1 shows the location of Nelchina caribou from April 1976 through April 1977.

Population Estimates

A post-calving census conducted in June 1976 tallied 8,832 caribou. Information gathered during sex and age composition counts resulted in a fall 1976 population estimate of 8,081. Table IV shows population estimates since 1972.

Management Summary

Legal reported hunter kill since 1972 has exceeded management goals of 5 percent of the Nelchina herd. Population estimates indicate that the Nelchina caribou population has not substantially increased over 1972 levels. Calf ratios and yearling survival rates are within levels reported for the Nelchina herd during population increase.

Recommendations

1. Limit harvest to 5 percent of the Nelchina caribou herd or less by allowing caribou hunting only by permit.

2. Continue monitoring caribou populations by gathering sex and age composition information and conducting a total census on an annual basis.

3. Evaluate range trends by conducting range studies on existing caribou exclosures.

4. Determine caribou mortality factors by initiating a radio-telemetry study.

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SUBMITTED BY:

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NELCHINA HERD

Appendix I. Reported Unit 13 caribou harvest by sex, residency of hunter, success ratios, and total extrapolated harvest, 1972-1976.

Year	Total Reported Harvest	Total Extr. Harvest	Number Reported Hunters	Success Ratio	No. Males (Percent)		No. Females (Percent)		Resident Harvest		Nonresident Harvest	
									No.	%	No.	%
1972	555	N/A	1,586	34%	388	(72%)	153	(28%)	301	(56%)	237	(44%)
1973	629	810	1,982	32%	411	(67%)	203	(33%)	401	(68%)	187	(32%)
1974	1,036	1,192	2,550	41%	656	(66%)	343	(34%)	820	(82%)	181	(18%)
1975	669	806	1,991	34%	441	(69%)	201	(31%)	515	(80%)	126	(20%)
1976	776	822	1,807	43%	560	(74%)	201	(26%)	642	(85%)	117	(15%)

PREPARED BY: Sterling Eide, Game Biologist III

Appendix II. Transportation means reported by successful Unit 13 caribou hunters, 1972-1976.

	Aircraft		Horse		Boat		Motorbike		Snowmachine		Off-Road Vehicle		Highway Vehicle		None Reported		Total
	No.	(%)	No.	(%)	No.	(%)	No.	(%)	No.	(%)	No.	(%)	No.	(%)	No.	(%)	
1972	255	(42%)	17	(3%)	30	(5%)	11	(2%)	5	(1%)	179	(30%)	79	(13%)	27	(4%)	603
1973	314	(50%)	17	(3%)	28	(4%)	3	(<1%)	0	(0)	183	(29%)	40	(6%)	44	(7%)	629
1974	463	(45%)	29	(3%)	26	(3%)	14	(1%)	0	(0)	364	(35%)	99	(10%)	41	(4%)	1,036
1975	269	(40%)	20	(3%)	70	(10%)	4	(<1%)	0	(0)	258	(39%)	29	(4%)	19	(3%)	669
1976	344	(44%)	21	(3%)	40	(5%)	4	(<1%)	0	(0)	295	(38%)	58	(7%)	14	(2%)	776

PREPARED BY: Sterling Eide, Game Biologist III

NELCHINA HERD

Appendix III. Survival of calves from birth to following year. Sex and age composition data, 1972-1976 - Nelchina caribou.

*Birth Year	Summer Calves/100 females	(%)	Fall Calves/100 females	(%)	Fall Bulls/100 females	(%)	Spring Calves/100 females	(%)
1972	38	(23%)	30	(18%)	34	(21%)	25	(17%)
1973	53	(30%)	38	(23%)	27	(16%)	42	(26%)
1974	34	(23%)	--	--	--	--	34	(21%)
1975	44	(31%)	--	--	--	--	31	(21%)
1976	47	(27%)	29	(18%)	33	(21%)	30	(21%)

* Spring sex and age composition counts are completed on subsequent calendar year.

PREPARED BY: Sterling Eide, Game Biologist III

Appendix IV. Nelchina herd population estimates, 1972-1976.

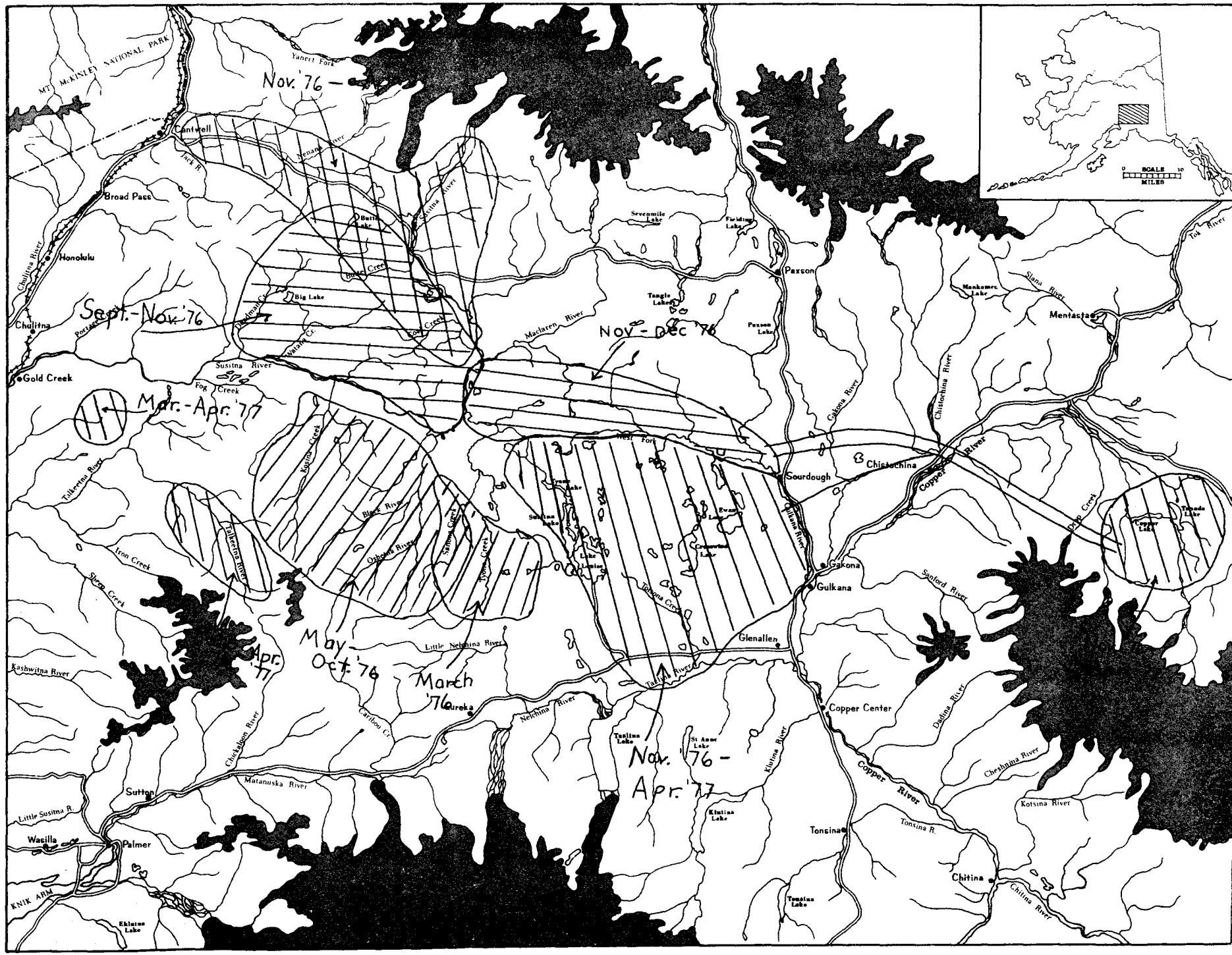
Year	No. Caribou in Post-Calving Census	Post-Calving Cow Base	No. Females in Harvest**	No. Females After Harvest	No. Calves	No. Bulls	Fall Population Estimate
1972	8,342	4,955*	155	4,800	1,420	1,622	7,842
1973	8,757	4,913	267	4,646	1,779	1,268	7,693
1974	10,245	---	405	---	---	---	---
1975	---	---	250	---	---	---	---
1976	8,832	5,193	214	4,979	1,439	1,663	8,081

* October 1972 cow base recalculated from 1973 Nelchina caribou report. (8,342 x 59.4% cows = 4,955).

** No. females in harvest is calculated by percent females reported x extrapolated harvest.

PREPARED BY: Sterling Eide, Game Biologist III

Figure 1. Map showing locations of major concentrations of the Nelchina caribou herd during specific time periods.



CARIBOU

SURVEY-INVENTORY PROGRESS REPORT

Game Management Units 13, 19 and 20 - McKinley Herd

Period Covered: January 1, 1976 - June 30, 1977

Seasons and Bag Limits

Units 13, 19 and 20	Aug. 10 - Sept. 20	One caribou

Harvest and Hunting Pressure

Reported harvest and hunting pressure remained at a relatively low level during the 42-day hunting season in 1976. Sixteen caribou (12 males, 3 females and 1 of unspecified sex) were harvested by 11 residents, 4 nonresidents and 1 hunter of unknown residency. An additional 47 hunters were unsuccessful.

The 1976 harvest showed little variation from the previous two seasons; the 1974 and 1975 reported kill from this herd totaled 10 and 13, respectively.

Composition and Productivity

Ground and aerial surveys conducted by McKinley Park personnel in 1976 during and immediately following calving in May and June indicated continued reproductive failure for this herd. Replicate counts revealed an average of 17 calves per 100 females but, because these counts included an unknown number of yearlings and bulls, the actual calf to cow ratio was somewhat higher. Ground composition counts during July 1-16 also reflected low initial production (16 calves:100 females) and yearling recruitment (4 yearlings:100 females). However, no substantial calf mortality occurred during the four months following calving, as September surveys indicated 16 calves per 100 females.

Comparable data documenting the decline of this herd were not as extensive as those recorded in 1976; however, low June calf crops of 17 percent in 1974 and 3 percent in 1975 correspond closely with the 14 percent observed during June 1976.

Management Summary and Conclusions

Various observers have noted the marked decline of the McKinley herd during the past 34 years, as numbers decreased from 20,000-30,000 in 1944 to the current estimate of 900-1200 animals.

Reasons for the decline and concurrent poor reproductive performance remain obscure. Westward emigration of caribou to the Big River, Tonsona River and Rainy Pass areas has been observed; failure of these animals to utilize traditional ranges within the Park may have accounted for part of the decline. Current movement studies involving radio collared caribou, plus observations made while monitoring distribution and movements, indicate that caribou do not utilize areas outside of the Park to any extent. Winter movement patterns result in a northward emigration of animals from the Park toward the Foraker River, Birch Creek, and Stampede-Sushana area from December through February; also a portion of the herd calves south of the boundary along the West Fork of the Chulitna River and Cantwell Creeks.

Based on the low levels of production and recruitment observed since 1974, further decline of the herd seems imminent. Reported losses to sport hunting, although not a significant factor in the decline, will further delay the herd's recovery. Losses to predation may be the most significant factor preventing a population increase. Wolves and grizzly bears are abundant within and immediately adjacent to the Park boundary, and predation alone will maintain the herd at a low level and probably will contribute to losses exceeding recruitment.

PREPARED BY:

Mel Buchholtz
Game Biologist III

SUBMITTED BY:

Oliver E. Burris
Regional Management Coordinator

CARIBOU

SURVEY-INVENTORY PROGRESS REPORT - 1976

Game Management Subunits 14A and 14B - Upper Cook Inlet

Seasons and Bag Limits

*Sept. 5-Sept.20	One caribou

Harvest and Hunting Pressure

Fourteen male and four female caribou were harvested in Unit 14 during 1976 (Appendix I). Eighteen of 44 hunters who obtained caribou harvest reports for this area were successful hunters; thirteen were residents and five were nonresidents (Appendix II). Past caribou harvests in Unit 14 have usually come from the Talkeetna Mountains, probably from scattered bands of the Nelchina Herd.

Composition and Productivity

Because caribou harvested in Unit 14 are peripheral bands of the Nelchina Herd, see Caribou Survey-Inventory Progress Report, Unit 13 for composition and productivity information.

Management Summary and Conclusions

Unit 14 caribou are peripheral bands of the Nelchina Herd. Harvest and sightings have been dependent upon hunting/observing pressure as well as seasonal distribution and abundance of the Nelchina caribou. Caribou observations in Unit 14 have generally been sporadic, and there has been little interest by the hunting public of Unit 14. Total harvests have ranged from a high of 55 during 1971-72 to a low of eight last year.

Recommendations

Season and bag limits in Unit 14 should coincide with those set for the Nelchina (Unit 13) Herd.

PREPARED BY:

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Game Biologist III and Game Biologist III

SUBMITTED BY:

John S. Vania
Regional Management Coordinator

* Season closed by Emergency Order effective midnight September 10, 1976.

CARIBOU

SURVEY-INVENTORY PROGRESS REPORT - 1976

Game Management Unit 16 - West Side of Cook Inlet

Seasons and Bag Limits

Unit 16	Aug. 10 - March 31	Two caribou

Harvest and Hunting Pressure

No data were gathered during this report period.

Composition and Productivity

No data were gathered during this report period.

Management Summary and Conclusions

To date, very little data has been gathered relating to caribou in Unit 16. Normally, it is believed a portion of the Mulchatna herd enters the Happy Valley-Rainy Pass area during the winter period and is available on occasion to hunters using aircraft to reach the area. The initiation of harvest reports for caribou in Unit 16 in 1977, as recommended in the 1975 S & I Report, will help to determine harvest levels of this herd.

Recommendations

An attempt should be made to ascertain composition and productivity data from the portion of the Mulchatna herd that occupies Unit 16.

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Appendix I. Reported Harvest of Caribou from Alaska's Game Management Subunits 14A and B, 1969-1970 through 1976-1977.

Year	Males	Percent	Females	Percent	Unspecified	Total
1969-70	Breakdown not available for Unit 14					14
1970-71	"	"	"	"	"	38
1971-72	"	"	"	"	"	55
1972	"	"	"	"	"	21
1973	11	85	2	15	0	13
1974	13	81	3	19	2	18
1975	8	100	0	0	0	8
1976	14	78	4	22	0	18

Appendix II. Residency* of Successful Caribou Hunters in Alaska's Game Management Subunits 14A and B, 1969-70 through 1976-77.

	Resident		Non-resident		Residency	
Year	No.	Percent	No.	Percent	Not Given	Total
1969-70	8	80	1	10	1	10
1970-71	13	54	11	46	0	24
1971-72	21	54	17	44	1	39
1972	9	43	12	57	0	21
1973	4	31	9	69	0	13
1974	14	82	3	18	1	18
1975	5	62	3	38	0	8
1976	13	72	5	28	0	18

* Hunters who took more than one caribou only counted one time.

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CARIBOU

SURVEY-INVENTORY PROGRESS REPORT - 1976

Game Management Unit 17 - Bristol Bay (Mulchatna Herd)

Seasons and Bag Limits

Unit 17	Aug. 10 - Mar. 31	Two caribou, provided that not more than one caribou may be taken per day nor may more than one caribou be taken from Aug. 10-Oct. 31

Harvest and Hunting Pressure

Department of Public Safety personnel and local residents reported that hunting pressure and harvest of Mulchatna caribou were the lowest in four years. Harvest reports were not required for this Unit and specific harvest figures are not available. The estimated harvest for GMU 17 is less than 500 caribou with an additional 250 caribou believed harvested from the Mulchatna caribou herd during its movements in adjoining game management units. The total estimated harvest for the Mulchatna caribou herd is less than 750 caribou.

A jaw purchase program, initiated in January 1977 in the villages bordering the Mulchatna caribou range, produced 32 specimens. Individuals associated with those villages estimated that 300 caribou were harvested for local use.

Composition and Productivity

An aerial photo census, using hand-held 35 mm cameras, was conducted on the post-calving concentrations east of Bonanza Hills. Photographs identified 8,923 caribou. An additional 174 caribou were observed, but not photographed, for a total of 9,097 caribou. Composition counts were not conducted, therefore no population estimate is available.

Management Summary and Conclusions

The jaw purchase program was extensively advertised through the news media; notices were mailed to all villages and there was personal contact by ADF&G representatives. Despite the publicity and a purchase price of $5.00 per jaw, only 32 specimens were collected. No meaningful conclusions can be drawn from the limited sample.

Representatives from the Department of Fish and Game have had only limited contact with village residents. Historically, most contact involved enforcement, tending to generate an atmosphere of fear and distrust. This attitude was very evident during attempts at jaw purchasing. Success of any future programs will depend on gaining the trust and confidence of the villagers.

Unseasonably warm weather from December through February eliminated the use of snow machines and airplanes for access to wintering caribou. The implementation of a daily bag limit of one caribou discouraged some hunters who use ski-equipped aircraft. The bulk of the harvest reportedly occurred in late March when adequate snow was present to permit access with mechanized equipment.

The 1976 photo census recorded 9,097 caribou versus 13,079 caribou photographed during the 1974 census. Only two reconnaissance surveys were conducted prior to photographing, and budgetary restrictions limited the extent of those flights. Additional caribou may have been located in areas not covered by reconnaissance surveys.

The Mulchatna caribou herd also ranges through portions of Game Management Units 9, 16 and 19. Reports for these Units should be consulted for additional information.

Recommendations

1. A photo census, with accompanying composition count, needs to be conducted on the Mulchatna caribou herd in 1977. This census will help establish the herd size and reproductive status.

2. A harvest report program should be initiated for GMU 17 to obtain harvest data needed for management.

3. The jaw purchase program should be eliminated. Harvest data can be better gained by the proposed harvest report program.

4. No changes in regulations are recommended at this time.

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CARIBOU

SURVEY-INVENTORY PROGRESS REPORT

Game Management Units 18, 19, and 21 - Including the Mulchatna herd, the Beaver Mountains herd, and other groups found in the Kuskokwim Mountains and the north slope of the Alaska Range.

Period Covered: July 1, 1976 - June 30, 1977

Seasons and Bag Limits

Units 18 and 21 (only those portions south of the Yukon River)	Aug. 10 - Mar. 31	Three caribou
Unit 19, that portion north and west of the Kuskokwim River, to and including the North Fork of the Kuskokwim River	Aug. 10 - Mar. 31	One caribou
Remainder of Unit 19	Aug. 10 - Mar. 31	Two caribou, provided that not more than one caribou may be taken from Aug. 10-Sept. 30

Mulchatna

Reports of continued heavy spring hunting pressure on this herd were common in 1977. Violations of the same day airborne regulation were common on the wintering grounds in Unit 19, and several arrests and convictions were made by Wildlife Protection Officers. A period of inclement weather depressed harvest during the spring of 1977. Fall and spring harvests for 1976-77 were probably lower than during the preceding season when an estimated 1000 animals were taken.

Beaver Mountains Herd

Approximately 15 caribou were harvested from the Beaver Mountains herd during the fall of 1976. No surveys of this herd were made in 1976-77, but pilots reported seeing groups of caribou on the Innoko Flats west of the abandoned village of Dikeman. In addition, several small groups were seen in the vicinity of George River during the spring of 1977.

Kuskokwim Mountains Groups (Cloudy-Sunshine Mountains, Nixon Flats, Unit 19)

No animals were known to have been taken from this group during the 1976-77 season. No further information on caribou occupying the Kuskokwim Mountains is available.

Big River-Farewell-Telida Group

Winter and spring harvest of these caribou was estimated at approximately 20 animals during the 1976-77 season. Most were taken by residents of Nikolai Village. Beyond this no information is available for caribou comprising this group.

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CARIBOU

SURVEY-INVENTORY PROGRESS REPORT

Game Management Units 20A and 20C - Fairbanks, Central Tanana Valley (Delta Herd)

Period Covered: July 1, 1976 - June 30, 1977

Seasons and Bag Limits

No open season (closure of the Delta herd to sport hunting, effective on July 9, 1974, continued through the 1976-1977 season).

Composition and Productivity

Ground composition counts were conducted on October 29, 30 and November 1, 1976. Animals were widely scattered over winter range utilized the past several years (3000-4000 foot level between Dry and Gold King Creeks). Fresh trails on the Tanana Flats between Dry Creek and the Little Delta River indicated recent use of the spruce woodlands in this area.

A classification of 1,055 animals indicated excellent calf survival (45 calves per 100 females) to the age of five months. Post-calving surveys in June 1975 had revealed 56 calves per 100 females. Bull to cow ratios remained relatively high (38 males:100 females), an increase over the 1974 ratios of 28 males:100 females.

Composition surveys were conducted on post-calving aggregations of the Delta herd on June 16 and 19, 1977. Apparently in response to abnormally warm weather and resulting insect harassment, the calving segment (approximately 1500 animals) emigrated from traditional calving grounds at the headwaters of Delta Creek to the 4000-5000 foot level at the headwaters of the West Fork-Little Delta drainages.

Results of the survey indicate the herd may again be experiencing chronic reproductive problems. During a classification of 1,224 caribou, 76 bulls, 784 cows, 269 calves and 95 yearlings were observed. Cows were classified as to presence or absence of mammary development to determine initial calving success and extent of calf mortality during the three weeks following the peak of calving. This technique has one drawback in that atrophy of the mammary sac among females which may have aborted or lost calves shortly after birth results in an underestimation of natality. Two hundred thirty-six cows (30% of the adult females classified) had well-developed mammaries. The fact that 269 cows were accompanied by calves indicated very low calf mortality immediately prior to the surveys. There is no way to determine at what point reproductive failure occurred for the remaining 70 percent of the adult cows. Initial calf production of 34 calves per 100 cows represented a substantial decline from 1976 when mid-June surveys indicated 55 calves per 100

cows. Despite a reduction in wolf numbers and a relatively mild winter and spring, survival of the large 1976 calf crop was poor. This was evidenced by the fact that only eight percent of the caribou observed in June 1977 were yearlings. Overwinter calf mortality of 73 percent occurred from October 1976 to June 1977.

Management Summary and Conclusions

Two consecutive years of high initial calf production for this herd have failed to reverse the population decline which commenced in the late 1960's. The 1976 calf crop (exceeding 50 calves:100 females) experienced an overwinter (October-June) mortality rate that will, in conjunction with additional natural losses, exceed recruitment to the herd. The Delta herd is comprised of old animals, many of which are approaching maximum life expectancy. For example, adults comprised 75 percent of the herd in 1976 and there was virtually no recruitment. A substantial amount of natural mortality among the 1500 adults comprising the Delta herd appears imminent.

Reasons for the poor reproductive performance of the Delta herd prior to 1976, and the subsequent loss of 73 percent of the 1976 calf crop, remain obscure. Range and disease-related factors have not been evaluated. Predator-prey relationships remain complex, but wolf-ungulate studies initiated in spring 1976 in conjunction with the Department's moose rehabilitation program in Unit 20A have demonstrated the extent to which wolves can depress a moose population. Survival of moose calves has been lower in portions of the Alaska Range foothills characterized by relatively high wolf densities. If age specific losses to predation are also characteristic of this caribou herd, then wolf predation may be a major factor contributing to overwinter calf loss. Ranges of most of the remaining wolf packs, comprising 40-60 animals as of April 1977, include portions of the Alaska Range foothills frequented by the Delta herd. Disregarding the level of predation on moose, sheep and other species in this area, a conservative wolf to caribou ratio of 1:33-50 exists. Continued reduction of wolf numbers in this area (through public and Departmental harvests) may reveal the extent to which wolf predation is involved in controlling population trends of the Delta caribou herd.

Until the decline of the Delta herd is arrested, management plans for the herd cannot be implemented.

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CARIBOU

SURVEY-INVENTORY PROGRESS REPORT

Game Management Units 20C and 20D - South of the Alaska Highway (Macomb Herd)

Period Covered: January 1, 1976 - June 30, 1977

Seasons and Bag Limits

Units 20(C) and 20(D)	Aug. 10 - Sept. 20*	One caribou

*The Macomb Plateau Management Area was closed to all motorized vehicles (except float planes on Fish Lake) involving hunting from Aug. 10 - Sept. 20.

Harvest and Hunting Pressure

Restrictions eliminating motorized vehicles within the Macomb Plateau Management Area were initiated for the 1974 season in an effort to reduce hunting pressure and success. Vehicular restriction successfully reduced the kill yet provided for considerable recreational opportunity. In 1975 there was a marked increase in hunting pressure; 72 percent more hunters were afield in 1975 than in 1974.

In 1976 hunting pressure increased 70 percent over that of 1975. According to harvest ticket reports, 176 hunters took 40 caribou (22 bulls and 18 cows) from Macomb Plateau and 25 caribou (19 bulls and 6 cows) from the Alaska Range between the Delta River and the Robertson River. In total, 65 caribou (41 bulls and 24 cows) were harvested from this herd during the 1976 season.

Overall hunter success was 37 percent. A breakdown of hunters by transportation means is as follows: walk-in, 75 percent (49); ATV's, 8 percent (5); and horses, 17 percent (11). The marked increases in hunting pressure recorded for the last two years will likely continue and, if not reduced, could produce overharvest in the near future.

Composition and Productivity

Composition counts from the ground were made during mid-October 1976. Calves comprised 12 percent, yearlings 8 percent and bulls 23 percent of the 277 caribou observed. An attempt to classify caribou on the calving grounds with a fixed wing aircraft in early June 1977 proved unsuccessful. Only 63 adults and 16 calves (20%) were located.

Management Summary and Recommendations

The number of caribou in the Alaska Range east of the Delta River was estimated at 700 to 800 animals. This estimate included those on the Macomb Plateau. Production and survival (12% calves and 8% yearlings)

was relatively low. The reported harvest (65 caribou) was probably excessive in that it was nearly equal to the annual increment.

Data regarding caribou movement to and from Macomb Plateau are insufficient to allow an accurate assessment of population trends. Preliminary findings indicate the Macomb herd may be a nucleus herd of approximately 250 animals that remain on the Plateau year-round. An equal number of animals may return to the Plateau for the rut during October and November. Following the rut, these animals leave the Plateau to winter along the upper Robertson, Gerstle, Johnson and Delta Rivers. If this is true, the resident nucleus herd receives much more hunting pressure than the caribou utilizing the area only during the rut. Therefore, we may be collecting fall composition data from two separate populations, one that receives heavy hunting pressure and another that is lightly hunted.

One way to compensate for this situation would be to extend the season dates to include the time period when the large numbers of caribou occur on the Plateau. However, to do so without controls would invite overharvest. The actual 1976 harvest was thought to be 25 to 30 percent higher than that reported. A running tally augmented by field checks during the 1976 season indicated that 45 animals were harvested from the Macomb Plateau alone. The sex ratio of the reported harvest (60% bulls) is also seriously questioned. Field checks indicated that the harvest consisted of only 25-30 percent bulls which approximates their occurrence in the population; consequently, it is thought that considerably more cows were taken than indicated by harvest reports.

Poor hunter distribution presents a caribou management problem in the eastern Alaska Range. Eighty percent of the harvest was from two accessible areas, the Macomb Plateau and the Jarvis-Ober Creek areas. It appeared that 90 percent of the harvest came from the accessible areas occupied by 50 percent of the herd.

Low calf survival, low yearling survival, wolf predation, bear predation and continued harvests at the levels recorded during the period 1974-76 will likely result in a slow decline in the nucleus herd. Caribou in the surrounding area sustained less than 20 percent of the harvest and were possibly increasing in abundance.

A longer hunting season, restricted to bulls and administered under a permit system, would reduce harvests to an acceptable level and provide recreation opportunity. A higher take of predators from the area would result in increased calf and yearling survival and ultimately make more caribou available to hunters.

More information on caribou movements is needed to determine the location of the animals during the hunting season and post-calving period. In addition, range conditions should be evaluated.

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CARIBOU

SURVEY-INVENTORY PROGRESS REPORT -1976-77

Game Management Units 23, 24 and 26 - Arctic Herd

Survey and inventory data for the Arctic herd will be included in the Federal Aid to Wildlife Restoration Final Report entitled, Size, Composition and Productivity of the Arctic Caribou Herd (W-17-17-9, Study 111B, Jobs 3.19R-3.23R) by James L. Davis.

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CARIBOU

SURVEY-INVENTORY PROGRESS REPORT

Game Management Units 25 and 26C - Porcupine Herd

Period Covered: January 1, 1975 - June 30, 1977

Seasons and Bag Limits

Units 25 and 26C	1975 - No closed season	No limit
	1976 - No closed season	No limit, provided that no more than 5 caribou may be taken in any one day; and provided further that no more than 2 caribou may be transported south of the Yukon River per regulatory year

By Emergency Regulation the following was effective on September 25, 1976 for the remainder of the regulatory year ending June 30, 1977.

Unit 25	Aug. 1 - Mar. 31	10 caribou provided that not more than 5 caribou may be taken on any one day; and provided further that no more than 2 caribou may be transported from these units per regulatory year
Unit 26C	July 1 - Mar. 31	

Harvest and Hunting Pressure

The harvest of Porcupine herd caribou during this period occurred primarily in the Kaktovik and Arctic Village areas in Alaska and Old Crow, Aklavik, Ft. McPherson, and the Dempster Highway areas of Canada.

Annual harvests are dependent upon the distribution of caribou, the proximity and availability of caribou to village residents, and the length of time animals are available to villagers. In recent years annual harvests have ranged between 3000 and 5000 animals. From June 1975 to June 1976 the harvest was about normal; an estimated 1500 caribou were taken by residents of Alaska and 1500-4000 were taken in Canada. Residents of Kaktovik took 100-300 caribou during the summer of 1976. Alaskans harvested an additional 100-200 caribou from the Porcupine herd during the period July 1976 to June 1977. In Canada 1500-3000 were killed during that period.

Herd Size, Composition and Productivity

The size of the Porcupine herd has remained at about 110,000 animals since Hemming estimated its size in 1970. Composition observed during post-calving migration is presented in Table 1. Bulls and yearlings may follow the major migration or may be scattered in areas throughout the summer range. Consequently, representation of bulls and yearlings in post-calving composition counts is usually biased. Nevertheless, yearlings probably made up at least 9-10 percent of the post-calving population during the period 1972-1976. Variations in the proportion of yearlings probably reflected sampling bias rather than changes in yearling recruitment.

Table 1. Porcupine caribou herd composition observed during post-calving migration, 1972-1976.

		Cows		Calves		Calves/	Yearlings		Bulls		Total
Year	Source*	No.	%	No.	%	100 cows	No.	%	No.	%	No.
1972	ADF&G	6,157	53	3,052	26	50	1,079	9	1,433	12	11,721
1973	RRCS/ADF&G	11,037	58	5.144	27	47	1,070	6	1,830	10	19,101
1974	RRCS	7,818	55	5,176	37	66	437	3	696	5	14,127
1975	RRCS	9,823	52	4,986	27	51	1,711	9	2,294	12	18,814
1976	RRCS	7,579	55	4,456	32	59	1,428	10	299	2	13,762

* Alaska Department of Fish and Game
Renewable Resources Consulting Services

Management Summary and Recommendations

Assuming that yearlings comprised nine percent of the herd and that the herd numbered 110,000, the total annual recruitment was estimated to be 9,900 animals. With the present levels of calf production and the estimated rates of yearling recruitment, hunter harvest from the herd was well within acceptable limits.

No change in the season or bag limits is recommended.

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ADDENDUM

CARIBOU

SURVEY-INVENTORY PROGRESS REPORT - 1975-1976

Game Management Unit 20 - Fairbanks, Central Tanana Valley (Delta Herd)

Seasons and Bag Limits

No open season

Composition and Productivity

Ground composition surveys were conducted on post-calving aggregations of the Delta herd on June 11 and 12, 1975. Approximately 1,000 animals were located on traditional calving grounds at the 4,000-4,500 foot level at the headwaters of Delta Creek near Hayes and Trident Glaciers.

A sample of 976 caribou consisted of 26 bulls, 839 cows, 108 calves and 3 yearlings. Cows were classified on the basis of obvious mammary development; 315 females (or 38% of the adult cows classified) had well-developed mammaries. Ideally, calf:cow ratios should approach 38:100, instead of the observed 13:100. The relatively low proportion of calves indicated substantial pre- or post-natal mortality. It is suspected that most pregnant females did not give birth to viable calves, inasmuch as fixed wing reconnaissance over the calving grounds on May 28 and 30 failed to indicate large numbers of newborn calves characteristic of productive herds.

Despite a moderate increase in calf production (13 calves per 100 females compared to 4 calves per 100 females in 1974) a continued decline in herd size was evident based on 0.3 percent yearlings in the sample. This was expected, since fall 1974 surveys revealed only 1.5 percent calves.

Predation may have contributed significantly to calf loss in 1975; eight grizzly bears, four golden eagles and three wolves were observed in the vicinity of the calving grounds from May 28 through June 12. A sow grizzly with a cub of the year and two golden eagles were feeding on two newborn calves.

Distribution of the herd during fall 1975 precluded sex and age composition surveys. Animals were widely scattered in small bands occupying rough, timbered terrain from Mystic Mountain on the west to the Little Delta River on the east. Fixed wing reconnaissance in October over most of the known winter range revealed approximately 1,100 animals. The Delta herd commenced a decline in 1969, and results of the October survey suggested that the decline had continued through 1975.

June 1976 surveys of post-calving aggregations of caribou on traditional calving grounds revealed a reproductive resurgence of the

herd. A classification of 1,099 caribou consisted of 10 bulls, 699 cows and 390 calves; yearlings were not present in any of the groups observed. Cows were classified as to the presence or absence of mammary development to determine initial calving success and extent of calf mortality during the three weeks following the peak of calving. This technique has one drawback: atrophy of the mammaries among females having aborted or lost calves shortly after birth results in an underestimation of natality. Nevertheless, 432 cows (62% of the females classified) had well-developed mammaries and 56 percent of the females had viable calves, indicating that minimal loss had occurred. The dramatic reproductive success of this herd represents the highest level of calf production and survival to three weeks of age yet documented for the Delta herd. Previously, calf production had varied from 4 calves per 100 cows in 1974 to the "high" of 25 calves/100 per cows in 1973.

Reasons for the resurgence in productivity are not obvious. A relatively mild winter and spring, fewer predators observed on the calving grounds and removal of 35 wolves from areas occupied by caribou may have contributed to increased survival.

Management Summary and Recommendations

1975 marked the second consecutive year in which the season was closed within the current range of the Delta herd lying between the Delta and Nenana Rivers. Management goals for the Delta herd are aimed at maintaining a population of 5,000 animals, the estimated size of the herd in the late 1960's. For the first time since 1973, when calf production for the herd was first documented, the downward trend in herd size may have reversed. At least the 56 calves per 100 females observed in June 1976 resembles calf crops of productive herds. Nevertheless, calf mortality during the five month (June-October) period following calving has been 60 percent and 50 percent, respectively, in 1973 and 1974. At this rate of survival, recruitment will not be dramatic; reduction of the wolf population achieved through Department control efforts in the winter of 1975-76 will undoubtedly contribute toward increased survival.

The current favorable productive status of the herd does not preclude need for investigations into reasons for the past reproductive failures. Reproductive and nutritional status of the breeding segment of the herd should be monitored. These baseline data are required to understand future fluctuations in caribou numbers that may occur if wolf predation on the herd is minimized.

Distribution, movements and productivity of both the Yanert group of caribou and the Delta herd should be more closely monitored. Special attention should also be given to whether or not interchange between these two groups of caribou occurs.

Until the herd increases from the current size of approximately 1,500 animals to the optimum of 5,000, the caribou sport hunting season should remain closed and wolf control measures continued. Consequently, no changes in the current season or bag limit are recommended at this time.

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