ALASKA DEPARTMENT OF FISH AND GAME
JUNEAU, ALASKA

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

Edited and compiled by
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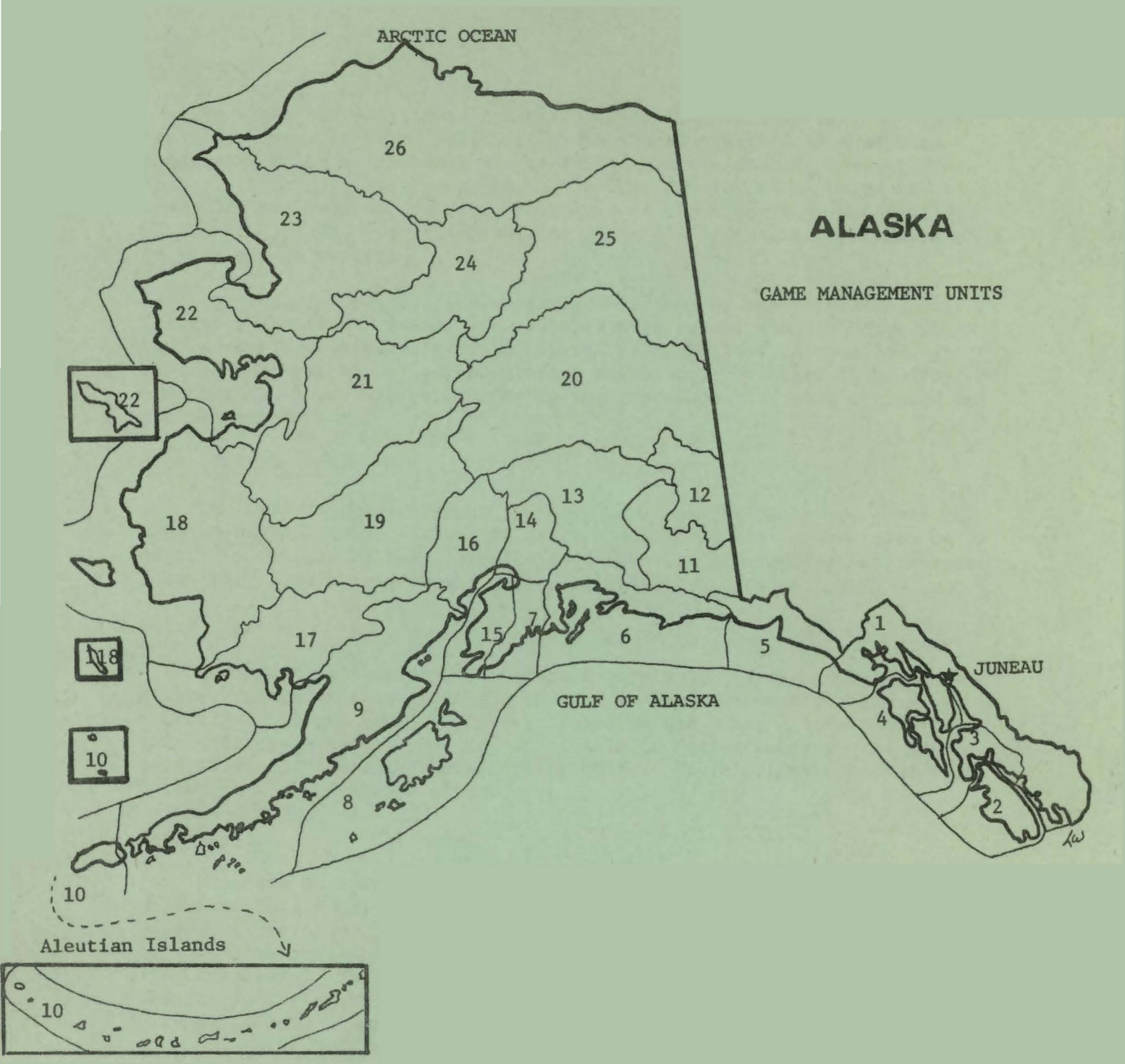
Volume IX
Federal Aid in Wildlife Restoration
Project W-17-10, Jobs No. 3.0, 4.0, 5.0, 17.0, and 22.0

(Printed June 1979)



(From new map valid July 1, 1978)

STATEWIDE HARVESTS AND POPULATION STATUS

Black Bear

An exact harvest figure cannot be determined for the take of black bears in Alaska, as the sealing of hides is not required in some Game Management Units where bears are taken. Bears are sealed, however, in Units 1 through 7, 11 through 16 and in Unit 20; for these Units we do have accurate harvest numbers. There are no black bears in Units 4, 8, 9, 10, 17, 18, 22, 23, 24 and 26. At least 934 bears are reported taken in this set of reports.

For some reason, perhaps weather conditions or bear distribution, harvest pressure has eased. Fewer bears were taken, even in Units which have normally been heavily hunted in the past (Units 7, 11 and 15). It is felt that the black bear population throughout the state is healthy and that the lower harvest number is not representative of a decrease in the number of bears.

Brown/Grizzly Bear

The 1977-78 sport harvest of brown bears was 865 animals. Over one hundred bears each were taken in Units 8 and 9; 66 bears were taken on Admiralty Island, Unit 4, 75 bears less than the previous set of seasons. Brown bear populations appear generally healthy statewide.

Polar Bears

The known harvest of Polar bears was only 59 for the 1977-78 season. However, the number of bears offered for sealing has been declining steadily in recent years, as it was ruled by the State Attorney General that state regulations were not applicable to Native hunters--the only hunters who may legally harvest Polar bears. It is highly probable that more than 100 bears were taken.

Caribou

Accurate harvest numbers are available for the Kenai, Nelchina and Macomb Herds (in Units 7 and 15, 13 and 14 and 20, respectively). Four hundred eighty two animals were taken from these herds. Approximate and conservative extrapolated numbers of caribou taken from other areas are also available. The total taken during the 1977-78 season was 2,629; the total, therefore, for the entire State of Alaska was 3,111. This harvest is only 81 animals less than the previous year's.

Status of caribou vary considerably between herds. Some herds, like the Forty-mile and Delta herds, have experienced poor calf production in recent years; analysis reveals no positive set of reasons. Most other herds seem stable, or even increasing in their numbers. Hunting regulations are adjusted, depending on herd status.

Information for the Western Arctic and Porcupine Herds will be available in separate reports published by Game Division.

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BLACK BEAR

SURVEY-INVENTORY PROGRESS REPORT
FOR CALENDAR YEAR 1977

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

Seasons and Bag Limits

Units 1A and 2	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

A total of 16 black bears from Unit 1A and 51 from Unit 2 were sealed during 1977 (Appendix I). These figures do not include three bears taken in defense of life or property.

The total kill in Unit 1A dropped 41 percent from the 27 bears taken in 1976, and the Unit 2 harvest declined 35 percent from the 79 bears reported in 1976.

During the spring season in Unit 1A, four bears were taken on the mainland and five came from Revilla Island; all were males. In Unit 2, 34 bears were killed during the spring season; 85 percent of these were males. For both Units, 88 percent of the spring harvest were males, which is very similar to the 90 percent average of the 1974-76 spring seasons.

The decline in the harvest from last year occurred in the spring portion of the season. The Unit 1A spring harvest dropped 59 percent from the 1976 harvest of 22 bears and most of this decline took place on the mainland. In Unit 2, the spring harvest dropped from 61 bears to 34 in 1977, a 44 percent decline.

The 1977 fall harvest for Units 1A and 2 remained at about the same level as the past two years. Seven bears were taken during the fall season in Unit 1A, of which 57 percent were males; in Unit 2, 65 percent of the 17 bears taken in the fall were males.

The chronology of the harvest is shown in Appendix II. In Unit 1A, 56 percent of the harvest occurred during the spring season, and 89 percent of the harvest occurred in the spring and 65 percent of these were taken in the May 11-31 period. The peak kill for the spring season in both units appears to be about the same as in 1976.

The road system of Prince of Wales is often used by bear hunters, and 43 percent of all bears taken in Unit 2 in 1977 were taken by hunters using road vehicles as transportation. In Unit 1A, the Ketchikan area, only one of the 16 successful bear hunters used a road vehicle, while seven used air transport and eight used boats.

Nonresidents accounted for 19 percent of the bears taken in Unit 1A this year and 24 percent of the bears taken in Unit 2. Fifty-six percent of the 15 bears taken by nonresidents were taken during the spring season.

No black bears have been taken in Units 1A and 2 on guided hunts during the past four years.

Tabulation of data on incidental take of black bears shows none of the bears taken in the spring were considered "incidental" , while 19 percent of the bears shot during the fall season were indicated as taken incidental to other activities.

Fifty-eight percent of the successful spring bear hunters and fifty-seven percent of the successful fall bear hunters saved part or all of the meat from their bears. Utilization of bear meat from both seasons was up considerably from 1976, indicating more interest in bears for meat, in addition to desire for bear hides.

Skull measurements again showed larger bears in Unit 2 than in 1A. In Unit 1A, 10 males averaged 17.3 inches while in Unit 2, 33 males averaged 19.1 inches. Last year, comparable figures were 17.8 inches for Unit 1A and 19.1 inches for Unit 2. Male skull sizes have remained fairly constant for the past four years. Appendix I shows skull sizes by area, sex and season.

Ages have been assigned to all bears from which teeth were collected over the past four years (Appendix III). Insufficient age data were obtained for males taken in the spring in Unit 1A. In Unit 2, the age data show a drop in the average age from 10.0 years in 1976 to 7.0 in 1977. The average age of this group of bears for 1974-76 was 9.5 years.

Sixty-one different hunters took the 67 bears reported from Units 1A and 2 in 1977; six hunters took two bears each.

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

Composition and Productivity

No data available.

Management Summary and Conclusions

This year's spring bear harvest dropped well below that of 1976 (both Units down about 60%) for undetermined reasons. The decline in harvest apparently took place over most or all of Southeast but did not extend to the fall harvest, which remained the same as in 1976. The winter preceding the spring season was exceptionally mild with little or no snow accumulating at low to moderate elevations. Onset of plant growth appeared to be early and over much greater areas than along the beaches; it is possible bears did not concentrate along the beaches as in normal springs, as new vegetation was available in inland areas. No changes in season or bag limit are recommended.

PREPARED BY:

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Game Biologist III

SUBMITTED BY:

N. P. Johnson
Regional Research/Management Coordinator

APPENDIX I. 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 1977 .

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 - percent		
										Air	Road Boat	Road Vehicle
1-A Mainland	Spring	4	4	0	0	0	17.5 (4)	-	50	75	25	0
	Fall	3	2	1	0	0	13.7 (1)	15.5 (1)	0	33	67	0
	Total	7	6	1	0	0	16.7 (5)	15.5 (1)	29	57	43	0
1-A Revilla	Spring	5	5	0	0	1 (20%)	17.9 (5)	-	--	20	80	0
	Fall	4	2	2	0	2 (50%)	-	15.3 (2)	--	50	25	25
	Total	9	7	2	0	3 (33%)	17.9 (5)	15.3 (2)	--	33	56	11
Total 1-A	Spring	9	9	0	0	1 (11%)	17.7 (9)	-	--	44	56	0
	Fall	7	4	3	0	2 (29%)	13.7 (1)	15.4 (3)	--	43	43	14
	Total	16	13	3	0	3 (19%)	17.3 (10)	15.4 (3)	--	44	50	6
2	Spring	34	29	5	0	8 (24%)	19.0 (28)	17.2 (4)	--	18	35	47
	Fall	17	11	6	0	4 (24%)	19.5 (5)	15.9 (4)	--	35	29	35
	Total	51	40	11	0	12 (24%)	19.1 (33)	16.5 (8)	--	24	33	43

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

APPENDIX II

Chronology of 1977 Black Bear Hunting Harvest

Units 1A and 2

	Unit 1A	Unit 2
April 21-30		2
May 1-10		3
May 11-20	1	15
May 21-31	8	7
June 1-10		1
June 11-20		3
June 21-30		3
Sept. 1-10	3	4
Sept. 11-20	3	2
Sept. 21-30		2
Oct. 1-10		2
Oct. 11-20	1	
Oct. 21-31		4
Nov. 1-10		1
Nov. 11-20		1
Dec. 1-10		1

APPENDIX III

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

1974 though 1977

		1974	1975	1976	1977
1A Mainland	Males (Spring)	10.5(18)*	12.1(12)	9.3 (12)	11.8 (2)
	Males (Fall)	9.6 (2)	3.6 (1)	10.1 (2)	6.8 (2)
	Females (Spring)	-	-	5.3 (1)	-
	Females (Fall)	11.3 (3)	-	7.6 (1)	3.8 (1)
1A Revilla	Males (Spring)	7.6(13)	7.4 (9)	8.5 (9)	8.0 (3)
	Males (Fall)	8.0 (5)	6.1 (5)	5.1 (2)	5.8 (2)
	Females (Spring)	6.8 (2)	11.0 (3)	-	-
	Females (Fall)	1.6 (1)	13.6 (1)	-	5.3 (2)
Total 1A	Males (Spring)	9.3(31)	10.1(21)	9.0 (21)	9.5 (5)
	Males (Fall)	8.5 (7)	5.3 (3)	7.6 (4)	6.3 (4)
	Females (Spring)	6.8 (2)	11.0 (3)	5.3 (1)	-
	Females (Fall)	8.9 (4)	13.6 (1)	7.6 (1)	4.8 (3)
Unit 2	Males (Spring)	7.9(15)	9.8 (24)	10.0 (28)	7.0(29)
	Males (Fall)	6.9 (3)	7.4 (6)	5.4 (10)	6.1(10)
	Females (Spring)	5.6 (3)	9.3 (2)	8.6 (4)	8.1 (4)
	Females (Fall)	-	4.8 (5)	7.2 (7)	10.2 (5)

* Sample size in parenthesis.

BLACK BEAR

SURVEY-INVENTORY PROGRESS REPORT
FOR CALENDAR YEAR 1977

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

Seasons and Bag Limits

Sept. 1 - June 30	Two bears; provided that no 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 data) in Unit 1B for 1977 was three males compared to 14 bears reported in 1976.

The mean skull size and age of males were 19.4 inches and 5.3 years, respectively.

Successful hunters spent an average of 3.0 days pursuing black bears in Unit 1B in 1977, which compares closely with the 3.3 days spent in 1976. All three successful hunters were residents, and one was guided.

Chronology and distribution of the harvest showed that two bears were taken in May at LeConte Bay and Crittenden Creek and one was taken during October at DeBore Lake.

Composition and Productivity

No data collected in 1977.

Management Summary and Conclusions

The 1977 harvest was 79 percent lower than the 14 bears taken in 1976. Reasons for this decline are unknown. Since total hunting effort is not known, it is difficult to assess the effects of hunting pressure on harvest levels. Successful hunters in 1977 spent nearly the same amount of time hunting black bears as did those in 1976.

Mean skull sizes and ages were not comparable to other years because of the small samples.

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

Recommendations

No change in season or bag limit recommended.

PREPARED BY:	SUBMITTED BY:
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Game Biologist II	Regional Research/Management Coordinator

BLACK BEAR

SURVEY-INVENTORY PROGRESS REPORT
FOR CALENDAR YEAR 1977

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

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 1977 black bear hunting season in subunit 1C accounted for a harvest of 35 bears (23 males, 10 females, 2 unknown), which represents a decrease of 46 percent from 1976 (Appendix I and II). The greatest hunting pressure was exerted during May and June when 32 bears (21 males, 9 females, 2 unknown) were taken as compared with the months of September and October when two males and one female were bagged. The chronology of the hunt is shown in Appendix III.

Bear hunters in 1977 were almost equally divided between residents (16 hunters, 17 bears) and nonresidents (15 hunters, 18 bears). Bears of the cinnamon color phase accounted for 13 percent of the take. Fifty-one percent of the hunters used professional guiding services including 13 of 15 nonresident hunters. Incidental kill accounted for 5 percent of the total harvest and 28 percent of the hunters utilized the meat.

The season in Unit 1D saw a decrease in kill of 42 percent from 1976 when 15 bears (12 males, 3 females) were harvested by 13 hunters. Twelve bears (9 males, 3 females) were taken in the spring and three males were bagged in the fall. Bears of the cinnamon color phase made up 53 percent of a harvest taken totally by resident hunters on unguided hunts. Two bears were shot incidentally. All of the Unit 1D hunters saved the meat.

In Unit 1D, 12 of the 13 hunters reached their hunting areas via the Haines road system. Good access made for easy hunting; only one hunter spent more than one day after a bear. In contrast, the hunters in 1C relied heavily on boat transportation (87%) and spent 2.2 days per bear.

Composition and Productivity

No data available.

Management Summary and Conclusions

The current hunting pressure being exerted on black bears in both Units 1C and 1D seems to be having no detrimental effects on the population. The decrease in harvest in Unit 1C is apparently due to reduced hunting pressure as many of the successful hunters remarked on seeing numerous bears. Skull sizes and age data indicate no great variation in the composition of the kill (Appendix I and VI). No changes in seasons or bag limits are recommended.

PREPARED BY:

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SUBMITTED BY:

N. P. Johnson
Regional Research/Management Supervisor

APPENDIX I. Black bear sport harvest statistics for GMU's 1C and 1D with color phase, kill by non-residents, mean skull size and methods of transportation used for calendar year 1977.

GMU	SEASON	TOTAL KILL	NO. MALES	NO. FEMALES	UNK. SEX	KILL BY NON-RES	MEAN SKULL SIZE-MALE*	MEAN SKULL SIZE-FEMALE*	% CINNAMON	TRANSPORTATION USED-%		
										AIR	BOAT	RD. VEHICLE
1C Juneau	SPRING	32	21	9	2	18	17.7 (20)	15.9 (9)	13	0	94	6
	FALL	3	2	1	-	-	16.7 (2)	0	0	0	33	67
	TOTAL	35	23	10	2	18	17.6 (22)	0	13	0	87	13
1D Haines	SPRING	12	9	3	-	0	17.8 (5)	-	66	0	8	92
	FALL	3	3	0	-	0	16.7 (2)	-	0	0	0	100
	TOTAL	15	12	3	0	0	17.5 (7)	-	53	0	7	93

* ( ) - Sample size

APPENDIX II

Male Black Bear Harvest Unit 1C - 1D

Spring Unit	1974 #	1974 %	1975 #	1975 %	1976 #	1976 %	1977 #	1977 %
1C	34	81	34	87	52	90	21	68
1D	9	75	7	58	15	88	9	75
Fall								
1C	4	67	2	29	4	67	2	66
1D	1	100	4	80	6	67	3	100

APPENDIX III

Chronology of 1977 Black Bear Harvest

Date	Unit 1C	Unit 1D
May 1 - 10	7	2
11 - 20	9	1
21 - 31	5	6
June 1 - 10	6	1
11 - 20	5	2
21 - 30		
Sept. 11 - 20		2
21 - 30	1	1
Oct. 1 - 10		
11 - 20	2	

PREPARED BY: David Beaudin, Game Biologist I

APPENDIX IV

Mean skull sizes of the black bears harvested in GMU 1-C, 1973-1977.

	Spring		Fall	
	Male	Female	Male	Female
	Mean skull size*	Mean skull size*	Mean skull size*	Mean skull size*
1973	0	0	16.4 (5)	15.3 (8)
1974	17.2 (32)	15.9 (8)	15.8 (2)	15.3 (2)
1975	17.8 (33)	16.5 (5)	18.7 (2)	15.0 (4)
1976	17.4 (48)	16.1 (6)	16.9 (4)	14.6 (2)
1977	17.7 (21)	15.9 (9)	16.7 (2)	0 (0)

* ( ) Sample size

APPENDIX V

Mean skull sizes of the black bears harvested in GMU 1-D, 1973-1977.

	Spring		Fall	
	Male	Female	Male	Female
	Mean skull size*	Mean skull size*	Mean skull size*	Mean skull size*
1973	0	0	13.8 (3)	15.3 (1)
1974	16.7 (10)	14.7 (3)	0	0
1975	17.0 (6)	15.4 (5)	16.2 (3)	15.0 (1)
1976	16.5 (13)	14.7 (2)	16.5 (5)	15.5 (2)
1977	17.8 (5)	0	16.7 (2)	0

APPENDIX VI

Average ages of the black bears harvested 1973-1977, 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
1977	20	8.97	7	8.38	2	5.8	1	6.8

Average ages of the black bears harvested 1973-1977, 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
1977	9	8.67	2	8.8	0	0.00	0	0.00

BLACK BEAR

SURVEY-INVENTORY PROGRESS REPORT

FOR SPRING 1978

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

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

Thirty-three bears were sealed in Subunit 1C in the 1978 season. Thirty males and three females were taken by 16 residents and 15 non-residents, averaging 3.4 hunter days per kill. Three bears were in the cinnamon color phase and two hunters took two bears each.

Thirteen of the non-residents utilized guiding services and 88 percent of all hunters gained access by boat. Forty-two percent of the hunters used some of the meat and two bears were shot incidentally. Twenty-three bears were taken in May and ten in June. Average male skull size for 27 bears was 17.0 inches, while three females averaged 15.9 inches.

Hunters in Subunit 1D accounted for 17 bears in the spring, 13 males and four females. Residents took all but one of the bears on unguided day hunts into areas reached by boat or via the road system. The chronology of the kill was one in April, ten in May, five in June, and one unknown. Seven of the bears were in the cinnamon color phase. Four bears were shot incidentally and 93 percent of the hunters utilized the meat. Average skull size for nine male bears was 16.0 inches and 15.6 inches for two females.

Harvest statistics for the spring hunt show some interesting differences between Subunit 1C and 1D hunters. Haines hunters in 1D are usually all local residents who gain ready access to bears close to town by boat or the road system and meat hunting predominates. In 1C, however, the majority of the hunters are after the trophy only. Half of the hunters are non-residents on one to two week guided, combination black/brown bear hunts. Many local hunters also spend a week or more hunting solely for the trophy.

Composition and Productivity

No data available.

Management Summary and Conclusions

Present bear hunting pressure in both subunits is light and well within acceptable limits. Hunters report numerous sightings and bears are generally taken with relative ease. Average skull sizes for males in both subunits are the lowest in five years and indicate an increasing population. No changes in seasons and bag limits are recommended.

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BLACK BEAR

SURVEY-INVENTORY PROGRESS REPORT
FOR CALENDAR YEAR 1977

Game Management Unit 3 - Petersburg and Wrangell Area

Seasons and Bag Limits

Unit 3	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 1977 was 26 (19 males, 7 females), a decrease of 57 percent from 1976.

The average skull size was 18.5 inches (n=16) for males and 16.1 inches (n=7) for females. The average age was 10.2 years for spring-killed males (n=14) and 5.6 years for females (n=3). Ages for fall-killed bears were not available.

Chronology of the harvest showed that 62 percent of the 1977 harvest occured in May, 8 percent in June, 19 percent in September, and 11 percent in October. The 70 percent taken in May and June is comparable to the 80 percent harvested during the same period in 1976.

Successful hunters in 1977 spent 120 days (as indicated on sealing forms) pursuing black bears in GMU 3 compared to 258 days in 1976. Of these 120 days, 109 were spent on Kuiu Island. (Appendix I).

Of the 21 successful hunters reporting, 10 (48%) were residents and 11 (52%) were nonresidents. Bears killed by nonresident hunters accounted for 50 percent of the total harvest in 1977.

Five hunters (three resident and two nonresidents) or 24 percent of 21 successful hunters in 1977 took two bears each. The second bears taken comprised 19 percent of the total harvest in 1977 compared to 12 percent in 1976 and 21 percent in 1975.

Transportation methods used by successful hunters were: boats - 73 percent, aircraft - 19 percent, and foot - 8 percent.

Five guides were active in GMU 3 in 1977 compared to nine in 1976. Of 21 successful hunters, 12 (57%) were guided (one resident and 11 nonresidents). Guided hunts accounted for 54 percent of the 1977 harvest, similar to the 55 percent in 1976.

Composition and Productivity

No data collected in 1977.

Management Sumary and Conclusions

The 1977 harvest of 26 black bears in GMU 3 was 57 percent below the 60 bears taken in 1976. The most significant drop in the kill occurred during the spring season when 18 bears were taken in 1977 compared to 48 reported in 1976. Factors causing the decline were not known. The mild winter, and early spring green-up of feeding areas away from beaches could have contributed to fewer bears available to hunters.

Overall, resident and nonresident successful hunters hunted an average of 1.2 days and 0.4 days per bear, respectively, longer than in 1976. Distribution of the harvest showed that Kuiu and Kupreanof Islands accounted for most of the harvest in Unit 3 as they have for the past three years. In 1977 these islands accounted for 92 percent of the annual harvest.

Mean skull sizes and ages (spring only) of males remained nearly the same as in 1976.

Recommendations

No change in season or bag limit recommended.

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APPENDIX I.

Distribution of Black Bear Harvest and Hunting Effort by Resident and Nonresident Successful Hunters in Game Management Unit 3.

Area	No. of Bear Taken		No. of Days Hunted		Aver. Days Hunted Per Bear	
	Res.	Nonres.	Res.	Nonres.	Res.	Nonres.
Kupreanof Is.						
1973*	0*	0*	0*	0*	0.0*	0.0*
1974	1	3	3	40	3.0	13.3
1975	7	5	14	57	2.0	11.4
1976	9	11	12	88	1.3	8.0
1977	4	0	6	0	1.5	0.0
Kuiu Is.						
1973*	3*	6*	3*	68*	1.0*	11.3*
1974	2	15	4	99	2.0	6.6
1975	7	24	24	184	3.4	7.7
1976	7	27	24	126	3.4	4.7
1977	7	13	31	78	4.4	6.0
Mitkof Is.						
1973*	0*	0*	0*	0*	0.0*	0.0*
1974	1	0	1	0	1.0	0.0
1975	2	0	2	0	1.0	0.0
1976**	3**	0**	3**	0**	1.0**	0.0**
1977	1	0	2	0	2.0	0.0
Etolin Is.						
1973*	0*	0*	0*	0*	0.0*	0.0*
1974	2	0	2	0	1.0	0.0
1975	2	0	9	0	4.5	0.0
1976	2	0	2	0	1.0	0.0
1977***	1***	0***	3***	0***	3.0***	0.0***
Wrangell Is.						
1973*	0*	0*	0*	0*	0.0*	0.0*
1974	3	0	12	0	4.0	0.0
1975	0	1	0	1	0.0	1.0
1976	1	0	3	0	3.0	0.0
1977	0	0	0	0	0.0	0.0
GMU 3 TOTALS						
1973*	3*	6*	3*	68*	1.0*	11.3*
1974	9	18	22	139	2.4	7.7
1975	18	30	49	242	2.7	8.1
1976	22	38	44	214	2.0	5.6
1977	13	13	42	78	3.2	6.0

* Harvest and Hunting effort during the period from Sept. 1 through Dec. 31, 1973 only.

** One bear taken on Woewodski Island included.

*** One bear taken on Brownson Island included.

PREPARED BY: David Zimmerman, Game Biologist II

BLACK BEAR

SURVEY-INVENTORY PROGRESS REPORT

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

Black bear harvest for Unit 5 was down slightly with only 13 bears taken, all in the spring, as opposed to 19 killed during the 1976 season. Residents accounted for 85 percent of the harvest (11 bears) and nonresidents harvested the remaining 15 percent (2 bears).

Hunting pressure, or at least hunting success, shifted eastward from the Yakutat Bay, Russell and Nunatak Fjords area to the Alsek River basin and Deception Hills area with only three black bears (23%) killed in the former.

All but one (93%) of the bears harvested were of the black color phase. The single blue/glacier bear killed was taken by a nonresident hunting with a guide. The kill composition was 11 males (85%) and 2 females (15%). The average age of the harvest was 6.8 years old with a range of 2 to 11 years. Both of the females were seven years old.

Composition and Productivity

No aerial black bear surveys were conducted during 1977.

Management Summary and Conclusions

Black bear populations seem to be stable in Unit 5. Hunting pressure and harvest have been low with the exception of the mountain slopes adjacent to Yakutat Bay, Russell and Nunatak Fjords. There does seem to be a recent shift eastward of hunting pressure to the Alsek River basin

area. This area will be closely monitored in the future to determine localized heavy hunting pressure areas. The population age structure of this relatively unhunted population should be compared with that of the more traditionally hunted areas to help evaluate the effects of heavy hunting pressure on easily accessible populations.

Recommendations

No changes in seasons or bag limits are recommended.

PREPARED BY:

Ronald E. Ball
Game Biologist III

SUBMITTED BY:

N. P. Johnson
Regional Research/Management Coordinator

BLACK BEAR

SURVEY-INVENTORY PROGRESS REPORT - FOR REGULATORY YEAR 1977-78

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

Seasons and Bag Limits

Jan. 1 - June 30	One bear; provided that the taking of cubs or females accompanied by cubs is prohibited.

Harvest and Hunting Pressure

The 1977 black bear sport harvest was 107 animals: 58 males, 37 females and 12 of unknown sex. This harvest is 40 bears less than in the two preceding years, but is of the same magnitude as the 1974 harvest (Appendix I). In addition to the sport harvest, one black bear was taken in defense of life and property.

The spring season accounted for 103 bears or 96 percent of the total harvest. Only four bears were taken in the fall. The percentage of the harvest taken in the spring and fall of 1977 is similar to the 1975 harvest, whereas the number of bears taken in the spring of 1977 is similar to last year's harvest (Appendix I). During the spring season, 77 bears were taken in May (73 percent of the annual harvest) and 25 in June (Appendix II). The bulk of the 1977 harvest occurred from May 10 through June 10, (Appendix III); this is about one week earlier than normal. Between 1974 and 1976, the bulk of the harvest occurred from mid-May to mid-June.

Data on skull size were obtained from 97 bears. The average skull size was 16.2" (length plus width). Male skulls averaged 16.4" while those from females averaged 15.7". Both male and female skull sizes have remained fairly constant since 1974 (Appendix IV).

The average age of 102 black bears was 6.9 years. The males averaged younger (6.3 years) than the females (719 years) (Appendix V).

The 1977 harvest was well dispersed geographically; the largest proportion (22 percent) occurred in the Esther Island to Valdez Arm portion of Prince William Sound (Appendix VI).

Management Summary and Conclusions

The 1977 black bear harvest of 107 bears was 27 percent smaller than in the preceding two years. The geographical distribution of the harvest was wide with the northern portion of Prince William Sound producing the largest harvest. The chronology of the harvest reflects an extremely mild winter (1976-77) and an early spring. The bulk of the

spring harvest occurred in May and was one week advanced over preceding years. The extremely small fall harvest of four bears is probably a reflection of advanced phenology; black bears may prefer to feed on berries rather than salmon and a good berry crop may have made them less vulnerable to fall hunting.

Except for two bears, the entire black bear harvest in subunits 6-1, 6-2 and 6-3 occurred in May (Appendix VII). Brown bears are present in these subunits and the timing of the black bear harvest basically coincides with the May 10-25 brown bear season. The area east of the Copper River (subunit 6-1) is a prime example of the influence of overlapping black and brown bear hunts. In 1977 all black bears taken in this area were taken May 11-22. Hunters strictly after black bears tend to hunt the northern and western portion of Prince William Sound unless they live in Cordova.

The concern over a decrease in the average size of male bear skulls, expressed in the 1976 Survey-Inventory Progress Report, resulted from a miscalculation of the 1974 data. The average male skull sizes from 1974-1977 (Appendix IV) reflect annual fluctuations, not a downward trend.

Recommendations

Retain the current seasons and bag limits.

PREPARED BY:

Julius Reynolds
Game Biologist III

SUBMITTED BY:

James B. Faro
Regional Management Coordinator

APPENDIX I

Unit 6 Black Bear Harvest by Year and Sex

Year	Males		Females		Unknown		Total	
1974	71	(6)*	28	(26)	9	(8)	108	(100)
1975	104	(70)	34	(23)	10	(7)	148	(100)
1976	79	(54)	61	(42)	7	(5)	147	(100)
1977	58	(54)	37	(35)	12	(11)	107	(100)

Unit 6 Black Harvest by Year and Season

Year	Spring		Fall		Unknown		Total	
1974	81	(75)*	23	(21)	4	(4)	108	(100)
1975	135	(91)	13	(9)	0	(0)	148	(100)
1976	108	(74)	39	(27)	0	(0)	147	(100)
1977	103	(96)	4	(4)	0	(0)	107	(100)

* Percent in parenthesis.

Prepared by: Julius Reynolds, Game Biologist III

APPENDIX II

1977 Black Bear Harvest by Season & Sex - Unit 6

SPRING HARVEST

Month	Male	Female	Unknown	Total	(Percent)
May	43	24	10	77	(3)
June	11	12	2	25	(4)
Number	54	36	12	102	(96)
(Percent)	(53)	(35)	(12)	(100)	

FALL HARVEST

Month	Male	Female	Unknown	Total	(Percent)
September	2	1	0	3	(3)
October	1	0	0	1	(1)
Number	3	1	0	1	(4)
(Percent)	(75)	(25)	(0)	(100)	

SPRING & FALL*

	Male	Female	Unknown	Total	(Percent)
Number	57	37	12	106	(100)
(Percent)	(54)	(35)	(11)	(100)	

* A male bear taken in January 1979 is not included in the above calculation.

Prepared by: Julius Reynolds, Game Biologist III

APPENDIX III

1977 Black Bear Harvest Chronology by Month & Day

Date	May	June
1		1
2		3
3		1
4		4
5		2
6	1	1
7		3
8	1	1
9		
10	3	2
11	5	2
12	3	1
13	4	
14	2	
15	6	
16	2	
17	4	
18		
19	3	
20	2	
21	5	
22	5	
23	3	2
24	2	
25	2	
26	3	2
27	4	
28	5	
29	5	
30	3	
31	4	
Total	77	25

Month	Day	Number
January	19	1
September	6	1
	14	1
	15	1
October	7	1

Prepared by: Julius Reynolds, Game Biologist III

APPENDIX IV

1977 Black Bear Skull Data by Area & Sex - Unit 6

Subunit	Area		MALE Size	MALE No.	FEMALE Size	FEMALE No.	UNKNOWN Size	UNKNOWN No.	Total size	Total No.
1	East of Copper River to Icy Bay		16.7	10	16.6	4	18.3	2	16.9	16
2	Cordova to Copper River		16.7	5	-	0	15.7	1	16.5	6
3	Tatitlek to Cordova		17.1	6	15.4	2	15.9	2	16.5	10
4	Valdez Arm		16.1	8	14.4	4	17.1	1	15.7	13
5	Esther Island to Valdez Arm		15.8	10	15.5	8	16.9	3	15.8	21
6	Port Wells		16.5	3	16.0	5	-	0	16.2	8
7	Passage Canal to Port Nellie Juan		16.3	4	15.8	4	15.7	1	16.0	9
8	Port Nellie Juan to Cape Fairfield		15.7	7	16.2	4	13.7	1	15.7	12
Unit 6	Spring		16.3	53	15.7	31	16.5	11	16.1	95
	Fall		17.5	2					17.5	2
	Spring & Fall		16.4	55	15.7	31	16.5	11	16.2	97
	Spring Season:	1974	16.7	49	15.5	17	15.2	4	16.3	70
		1975	17.3	88	15.5	29	16.6	10	16.8	127
		1976	16.7	55	15.6	45	-	-	16.2	100
		1977	16.4	55	15.7	31	16.5	11	16.2	97
	Spring & Fall:	1974	16.5	61	15.6	26	15.0	5	16.2	92
		1975	17.2	97	15.6	32	16.6	10	16.8	139
		1976	16.6	77	15.6	57	16.3	7	16.2	141
		1977	16.4	55	15.7	31	16.5	11	16.2	97

Prepared by: Julius Reynolds, Game Biologist II

APPENDIX V

1977 Black Bear Age Data by Area and Sex* - Unit 6

Sub-Unit	Area	MALE Age	MALE (No.)	FEMALE Age	FEMALE (No.)	UNKNOWN Age	UNKNOWN (No.)	TOTAL Age	TOTAL (No.)
6-1	East of Copper River to Icy Bay	7.2	(10)	8.8	(4)	6.5	(2)	7.5	(16)
6-2	Cordova to Copper River	618	(5)	-	(0)	3.0	(1)	6.2	(6)
6-3	Tatitlek To Cordova	7.7	(6)	6.5	(2)	6 5	(2)	7.2	(10)
6-4	Valdez Arm	6.1	(8)	6.2	(5)	6.0	(1)	6.1	(14)
6-5	Esther Island to Valdez Arm	5.5	(11)	7.1	(10)	7.7	(3)	6.4	(24)
6-6	Port Wells	5.3	(3)	6.8	(6)	-	(0)	6.3	(9)
6-7	Passage Canal to Prot Nellie Juan	5.4	(5)	11.0	(5)	11.0	(1)	8.5	(11)
6-8	Port Nellie Juan to Cape Fairfield	6.1	(7)	9.8	(4)	2.0	(1)	7.0	(12)
	Unit 6	6.3	(55)	7.9	(36)	6 5	(11)	6.9	(102)

* This table is entirely spring data. Only one of the four bears taken in the fall was aged and found to be a three-year-old male taken in sub-unit 6-10 (area unknown). This bear is not included in the above calculations.

Prepared by: Julius Reynolds, Game Biologist III

APPENDIX VI

Unit 6 Black Bear Harvest

Percent of Harvest by Year and Area

Subunit	Area	1974	1975	1976	1977
6-1	East of Copper River to Icy Bay	5	15	7	15
6-2	Cordova to Copper River	11	3	14	6
6-3	Tatitlek to Cordova	34	8	13	9
6-4	Valdez Arm	5	19	15	14
6-5	Esther Island to Valdez Arm	13	22	18	22
6-6	Port Wells	8	12	10	8
6-7	Passage Canal to Port Nellie Juan	11	8	3	11
6-8	Port Nellie Juan to Cape Fairfield	10	10	15	13
6-10	Unit 6 - Unknown	3	4	5	1
Percent		100	100	100	100

Number of Animals Harvested by Year and Area

Subunit	Area	1974	1975	1976	1977
6-1	East of Copper River to Icy Bay	5	22	10	16
6-2	Cordova to Copper River	12	4	21	6
6-3	Tatitlek To Cordova	37	12	19	10
6-4	Valdez Arm	5	28	22	15
6-5	Esther Island to Valdez Arm	14	32	27	24
6-6	Port Wells	9	18	14	9
6-7	Passage Canal to Port Nellie Juan	12	12	5	12
6-8	Port Nellie Juan to Cape Fairfield	11	14	22	14
6-10	Unit 6 - Unknown	3	6	7	1
Total		108	148	147	107

Prepared by: Julius Reynolds, Game Biologist III

APPENDIX VII

1977 Black Bear Harvest by Area and Season - Unit 6

		SPRING							
		MAY				JUNE			
Subunit	Area	Male	Female	Unknown	Total	Male	Female	Unknown	Total
6-1	East of Copper River to Icy Bay	10	4	2	16	0	0	0	0
6-2	Cordova to Copper River	4	0	1	5	1	0	0	1
6-3	Tatitlek to Cordova	5	2	2	9	1	0	0	1
6-4	Valdez Arm	5	3	1	9	2	2	0	4
6-5	Esther Island to Valdez Arm	8	9	2	19	3	1	1	5
6-6	Port Wells	2	1	0	3	1	5	0	6
6-7	Passage Canal to Port Nellie Juan	3	2	1	6	2	3	1	6
6-8	Port Nellie Juan to Cape Fairfield	6	3	1	10	1	1	0	2
	Number	43	24	10	77	11	12	2	25
	Percent	42	24	10	76	11	12	2	25

FALL

6-4	One female - September
6-8	One male - September
6-8	One male - October
6-10	One male - September

NOTE: One male taken in subunit 6-4 in January is not included in the above data.

Prepared by: Julius Reynolds, Game Biologist III

BLACK BEAR

SURVEY-INVENTORY PROGRESS REPORT - 1977-78

Game Management Unit 7 - Seward

Seasons and Bag Limits

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

Fifty-six black bears were sealed for Unit 7 in 1977 (Appendix I). The harvest had decreased by 42 percent from the record high harvest of 99 in 1976. The spring harvest of 35 bears was composed of 23 males, 9 females and 3 of unknown sex. The fall harvest of 21 bears was composed of 12 males, 7 females and 2 of unknown sex. The annual harvest was made up of 69 percent male bears. The percent of males in the harvest was 19 percent higher than for 1976 (Appendix II). The percent of males in the harvest for the previous 5 years has ranged from 43 to 80 percent with a mean of 59 percent.

Nonresidents killed 7 bears in 1977; 12 percent of the total harvest. The percent of the harvest taken by nonresidents has remained relatively unchanged over the last 3 seasons.

The mean size of skulls from bears taken in 1977 was 15.8 inches for males and 15.6 for females (Appendix I). The mean size of skulls for males had declined 0.3 inches from 1976 and was 0.6 inches below the mean for the previous 4 years. The skull size for females was 0.1 inches below the average size for 1976 but was 0.2 inches larger than the average for the previous 5 years.

No black bears were taken by guided hunters in 1977 (Appendix III). This is the first year that guided hunters did not take any bears. In the previous 4 years, 19 of 34 successful nonresident hunters (56%) had utilized guides.

The use of aircraft and boats as transportation has declined greatly over the past 5 seasons, while the use of "other" means has increased (Appendix III).

Composition and Productivity

No data are available.

Management Summary and Conclusions

The 1977 harvest was 42 percent lower than the record harvest of 99 bears in 1976. The 1977 harvest of 57 bears was close to the average harvest (61 bears) for the previous 4 years. These data suggest that the large harvest in 1976 may have been due to the increased availability of bears rather than a large increase in hunting pressure.

While the mean skull size for male bears in the harvest has declined, the sample size is not large enough for such a slight change to be significant. If this continues to be the case, a significant trend may be established with several more years of data. As increasing harvest levels approach the sustained yield level, the skull size can be expected to decrease since older aged animals will decrease in number and are replaced by younger animals.

The fact that the harvest remains heavily skewed toward males and that female skull sizes are relatively unchanged indicates that the present level of harvest has not altered these population characteristics.

Recommendations

No regulatory changes are recommended.

PREPARED BY:

Paul A. LeRoux
Game Biologist III

SUBMITTED BY:

James B. Faro
Regional Management Coordinator

Appendix I. Black bear harvest and mean skull size of male and female bears in GMU 7.

Game Management Unit 7

Year	Total harvest	No. males	Percent[3] males	No. females	Percent females	No. sex unknown	Mean skull size(n) males[4]	Mean skull size(n) females[4]
1969[1]	32	17	57	13	43	2	-	-
1973[2]	38	16	43	21	57	1	16.1 (13)	15.4 (17)
1974	43	22	58	16	42	5	16.8 (19)	15.4 (11)
1975	62	43	80	11	20	8	16.7 (42)	15.1 (10)
1976	99	52	58	38	42	9	16.1 (49)	15.7 (34)
1977	57	36	69	16	31	5	15.8 (31)	15.6 (14)

1 Data from multiple species harvest questionnaire.
2 Harvest for July 1-Dec. only. Black bear sealing was initiated July 1, 1973.
3 Percent determined from bears of known sex.
4 Skull sample size in parenthesis.

PREPARED BY: Paul A. LeRoux, Game Biologist III

Appendix II. Chronology of number and sex of black bears harvested in game management unit 7 from July 1, 1973 through 1977.

	No. Bears					Percent of annual harvest				Percent males[1]			
	1973	1974	1975	1976	1977	1974	1975	1976	1977	1974	1975	1976	1977
Before April 21		0	0	0	1	0	0	0	2	0	0	0	100
April 21-30	-	0	0	0	0	0	0	0	0	-	-	-	-
May 1-10	-	1	0	0	0	3	0	0	0	0	-	-	-
May 11-20	-	6	4	2	6	18	6	2	11	100	100	100	100
May 21-31	-	9	13	15	20	26	21	15	36	67	75	57	75
June 1-10	-	7	8	9	4	20	13	9	7	67	100	44	25
June 11-20	-	3	11	9	3	9	18	9	5	33	89	50	67
June 21-30	-	2	4	6	1	6	6	6	2	50	75	33	0
Total Spring	-	28	40	41	35	65	65	42	63	64	85	54	71
Aug. 10-19	4	3	4	10	4	9	6	10	7	67	100	44	100
Aug. 20-31	9	3	7	10	1	9	11	10	2	67	43	67	0
Sept. 1-10	7	2	2	11	1	6	3	11	2	0	100	50	0
Sept. 11-20	6	1	3	9	7	3	5	9	13	100	67	67	42
Sept. 21-30	8	0	3	11	1	0	5	11	2	0	100	67	0
Oct. 1-10	2	2	1	3	5	6	2	3	9	50	100	100	100
Oct. 11-20	1	1	1	2	1	3	2	2	2	100	100	100	100
Oct. 21-31	1	0	1	1	1	0	2	1	2	-	100	100	100
Nov. 1-Dec. 31	0	0	0	0	0	0	0	0	0	-	-	-	-
Total Fall	38	12	22	57	21	35	35	58	38	58	75	67	63

1 Percent determined from bears of known sex for each interval.

PREPARED BY: Paul A. LeRoux, Game Biologist III

Appendix III. Residency, days hunted, number of guided hunts, and method of transportation for successful black bear hunters in game management unit 7, July 1, 1973-1977.

	Residency of successful hunters				Average No. days hunted		Guided hunts				Transportation used									
	Res.		Nonres				Res.		Nonres.		Aircraft		ORV[a]		Boat		Horse		Other	
Year	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	1.0	1	3	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
1977	49	88	7	12	2.7	2.6	0	0	0	0	7	13	5	9	10	18	0	0	33	60

a Off road vehicle

PREPARED BY: Paul A. LeRoux, Game Biologist III

BLACK BEAR

SURVEY-INVENTORY PROGRESS REPORT - FOR REGULATORY YEAR 1977-78

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

Information from sealing data indicates a harvest of 15 black bears during 1977; nine were males, three were females and three were of unknown sex. In 1977, the mean skull size for nine males was 16 7/8 inches and the mean skull size for three females was 15 6/8 inches (Appendix I).

Analysis of the harvest by location of kill suggests that at least seven black bears were killed in the Chitina Valley, four on the Copper River, one on the Bremner River and one on the Kuskulana River. Resident hunters accounted for 80 percent of the harvest (Appendix II). All successful nonresidents were on guided hunts, whereas none of the successful residents were guided. The data indicate that hunters using aircraft were far more successful than hunters using other means of transportation. The average number of days required to harvest a black bear was 5.8.

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 presented in Appendix III indicate that most black bears are taken when seasons are also open for other big game species. Five black bears were harvested in the spring whereas ten were taken during the fall.

Only five of 79 black bears killed in Game Management Unit 11 since 1973 were not black; four were a cinnamon phase and one was probably a black mistaken for a blue phase.

Composition and Productivity

Mean skull sizes of bears harvested over the five year period suggest that most bears were six 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 five years indicates that in Game Management Unit 11, hunters

are harvesting from a lightly hunted population of black bears. The reported harvest declined steadily from 1973 to 1975 and then increased slightly in 1976 and 1977; however, the harvest level is probably more influenced by chance than directly correlated to the status of the 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:

James Faro
Regional Management Coordinator

Appendix I. Sex and skull size (inches) of black bears harvested in Game Management Unit 11, 1973-1977.

Year	Total harvest	No. males	Percent males	No. females	Percent females	No. unknown sex	Percent unknown sex	Mean skull size (n) Males	Mean skull size (n) Females
1973*	31	20	65	11	35	0	0	17.0(20)	15.9(8)
1974	16	10	63	5	31	1	6	16 6/8(10)	15 1/8(5)
1975	7	2	29	5	71	0	0	16 6/8(2)	16 4/8(3)
1976	10	8	80	1	10	1	10	17 1/8(8)	16 2/8(1)
1977	15	9	60	3	20	3	20	16 7/8(9)	15 6/8(3)

* 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, 1973-1977.

	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
1977	3	20	12	80	5.8	3	100	0	0	9	64	0	0	2	14	0	0	3	21

* 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 dates of other big game seasons in Game Management Unit 11, 1974-1977.

	Year			
	1974	1975	1976	1977
January 1-May 9	0	0	0	0
May 10-20	1	1	2	4
May 21-31	0	0	0	1
June 1-10	1	0	0	0
June 11-20	0	0	0	0
June 21-30	0	0	0	0
July 1-10	0	0	0	0
July 11-20	0	0	0	0
July 21-31	0	0	0	0
August 1-9[1]	0	0	0	1
August 10-19[2]	4	1	0	3
August 21-31	2	1	2	1
September 1-10[3]	3	2	3	1
September 11-20[4]	2	1	2	2
September 21-30[5]	3	0	1	2
October 1-10	0	1	0	0
October 11-20	0	0	0	0
October 21-December 31	0	0	0	0

1. Hunting seasons for all ungulates closed (January 1 to August 9).
2. Sheep and caribou seasons opened on August 10.
3. Starting in 1975 moose and goat seasons opened on September 1. Previously they opened on August 20 and August 10, respectively.
4. Sheep and moose seasons closed on September 20.
5. Caribou season closed September 30.

Prepared by: Ted Spraker, Game Biologist II

BLACK BEAR

SURVEY-INVENTORY PROGRESS REPORT - 1977-78

Game Management Unit 12 - Upper Tanana and White Rivers

Period Covered: July 1, 1977 - December 31, 1978

Seasons and Bag Limits

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

Harvest and Hunting Pressure

Information derived from sealing documents indicates that 20 black bears (17 males and 3 females) were harvested during the reporting period. This compares to 24 taken during 1974 and 17 during both 1975 and 1976. Seven bears were taken during the fall season (July 1 to December 31), 12 during the spring season (prior to July 1, 1978) and 1 after July 1978. Seventy-nine percent of the kill was of the black color phase, which is about normal for Unit 12. Harvest by drainage was as follows: 5, Chisana; 2, Nabesna; 5, Tanana; and 8, Tok.

One male bear was dispatched by Fish and Wildlife Protection in the Moon Lake campground following a request for assistance by the Division of Parks.

As in past years, the highway vehicle proved to be the most popular transportation mode. Although interest in bear hunting is high in the Interior, particularly with military personnel, it appears that little effort is expended by bear hunters.

Table 1. Comparison of transportation modes utilized by hunters in Unit 12, 1977-1978.

Transportation Mode	Harvest
Aircraft	1
Off-road vehicle	2
Boat	3
Horse	1
Other	2
Highway vehicle	10
Foot	1

According to information provided by hunters at the time bears were sealed, 55 percent of the animals were taken incidentally, and 89 percent of the hunters salvaged the meat. Obviously, bear meat is relished by the majority of bear hunters; in fact, some hunters reported taking bears specifically for the meat.

The mean skull size for male bears was 17.1 inches during the fall season and 15.9 inches during the spring, for an average of 16.4 inches. No skull size data are available for the bear taken during fall 1978.

Management Summary and Recommendations

The Unit 12 black bear harvest remains light, considering the size of the Unit and the amount of black bear habitat present. Most hunting effort occurs along the road system, and much of the harvest is incidental to other activities. Males constituted 89 percent of the harvest, suggesting that hunting has not significantly reduced the proportion of males in the population. The bear population is only lightly exploited. Because premolars collected since 1975 have not yet been read, age composition data are not available.

As other big game species decline in abundance and seasons become increasingly restrictive, we can expect that interest in black bear hunting will continue to increase, both for trophy value and as a source of food.

No changes in seasons or bag limits are recommended.

PREPARED BY:

Larry B. Jennings
Game Biologist III

SUBMITTED BY:

Oliver E. Burris
Regional Management Coordinator

BLACK BEAR

SURVEY-INVENTORY PROGRESS REPORT - 1977-78

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.

Harvests and Hunting Pressure

The 1977 reported black bear harvest in Unit 13 was 58 bears. Of these, 24 (41%) were taken incidental to other hunting activities. Residents killed 47 bears and nonresidents killed 10. Of the nonresident harvest, six hunters reportedly were guided. Over half (51%) of the successful black bear hunters salvaged the meat as well as the hide.

Most black bears are killed between May 10 and September 30 and about half are taken during the September 1-20 period which coincides with other big game hunting seasons for Unit 13.

Composition and Productivity

No information is available on composition and productivity other than that obtained from sealing documents. The sex and age composition of bears taken by hunters is shown in Appendix I. Indices used to assess population trends have shown little change since sealing began in 1973. Eight (14%) of the black bears killed in 1977 were of the cinnamon color phase; the remaining bears were of the black phase.

Management Summary and Conclusions

Harvest data including percent males, average male skull size, and average days hunted, are unchanged when compared to previous years' data. These data suggest that black bear populations in Unit 13 have remained relatively unaltered by existing harvest levels.

Recommendations

No changes in seasons or bag limits are recommended.

PREPARED BY:

Sterling Eide
Game Biologist III

SUBMITTED BY:

James B. Faro
Regional Management Coordinator

Appendix I. Black bear harvest data, game management Unit 13, July 1, 1973-1977.

Regulatory year	Total kill	No. males	Percent males	No. nonres.	Mean skull size males (mm)	Percent incidental kill	Percent salvaging meat	Seasons & bag limit
1973	69	42	61	34	411	--	__	3 bears; provided that the taking of cubs or females accompanied by cubs is prohibited. No closed season.
1974	50	32	64	10	413	--	--	Same
1975	71	47	66	15	429	--	--	Same
1976	60	38	63	13	425	48	55	Same
1977	58	37	64	10	421	41	52	Same

PREPARED BY: Sterling Eide, Game Biologist III

BLACK BEAR

SURVEY-INVENTORY PROGRESS REPORT - FOR REGULATORY YEAR 1977-78

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-five black bears were harvested in Subunits 14A and B during 1977 compared with 48 bears taken in 1976 (Appendix I). Nineteen (44%) of the bears were taken in the spring and 24 (56%) in the fall (Appendix II). Thirty-one bears were taken in 14A, 10 in 14B and 4 in an unknown area of Unit 14.

In the past two years, all black bears harvested in Subunit 14A have been taken by Alaska residents (Appendix III). In Subunit 14B, residents accounted for 50 percent of the 1977 harvest, up from the 31 percent taken by residents in 1976.

Twenty-three successful black bear hunters (77%) in Subunit 14A reported using "other" methods of transportation. It is believed that most hunters regard their method of transportation as "on foot" and thus fall into the "other" category. In Subunit 14A, transportation to and from the hunting area is also accomplished by automobile and thus this group also falls into the "other" category. Hunters using boats (2 equaling 7%) and off-road vehicles (1 equaling 3%) have decreased from 22 percent in the 1976 harvest to 10 percent in the 1977 take. Only one hunter reported using horses in 14A. In 14B, aircraft accounted for 50 percent (5), off-road vehicles 30 percent (3) and "other" 20 percent (2) of the transportation methods used.

In 1977, successful black bear hunters in Subunit 14A spent an average of 6.3 days in the field to bag an animal. In 1976 only 1.8 days were required to harvest a black bear in Subunit 14A. It should be noted however, that two resident hunters each reported hunting 60 days for a black bear in 14A, thus increasing the average amount of time hunted by successful hunters in that Subunit.

Composition and Productivity

Twenty-one (47%) of the black bears taken in Subunits 14A and 14B were males, 16 (36%) were females, and eight were of unknown sex.

Fifteen (48%) of the black bears taken in Subunit 14A were males, 9 (29%) were females and 7 were of unknown sex. In Subunit 14B, 4 males, 5 females and 1 of unknown sex were reported taken. The mean skull size

of male bears harvested in Subunit 14A during 1977 was 15.0 inches (N=15). Comparable data for Subunit 14B are 17.1 inches (N=4).

Management Summary and Conclusions

The black bear harvest in Subunits 14A and 14B appears to have stabilized somewhat from previous years when it fluctuated markedly. In 1977, the harvest for both subunits was 45 black bears. In 1976, 48 bears were taken, while in 1975, 1974 and 1973, respectively, 82, 24 and 67 bears were taken. It is probable that the low harvest in 1974 is the result of the "no hunting same day airborne" regulation which went into effect that year. It is also possible that the annual black bear harvests correspond to annual variation of natural foliage; black bear vulnerability is more a function of "sightability" than of bear density.

The percentage of males in Subunits 14A and 14B in the annual harvests has fluctuated around 60 percent in past years, but in 1977 it decreased to 7 percent while the percentage of female black bears taken have run from a low of 34 percent in 1973 to a high of 48 percent in 1974. In 1977, 3 percent of the black bear harvest in both Subunits were females.

It appears there is a tendency for hunters to increase their efforts in the spring, but not enough data have been accumulated to positively substantiate the trend at this time. Many bears are taken in conjunction with hunting camps and the attraction of cooking odors. Several hunters have reported bears taken in the immediate vicinity of camps.

Aircraft are used occasionally to spot bears, but hunting the following day usually results in poor success.

Recommendations

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

PREPARED BY:

Jack C. Didrickson
Game Biologist III

SUBMITTED BY:

James B. Faro
Regional Management Coordinator

Appendix I. Black bear harvest with mean skull size of male and female bear sealed in Alaska's Game Management Subunits 14A and B, 1973-77.

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)
	1977	31	15	63	9	37	7	15.0(15)	15.0 (8)
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)
	1977	10	4	44	5	55	1	17.1 (4)	16.2 (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)
	1977	4	2	50	2	50	0	12.4 (1)	16.0 (2)
Total	1973	67	43	66	22	34	2	17.3(37)	15.5(18)
	1974	24	11	52	10	48	3	17.4 (9)	15.5 (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)
	1977	45	21	57	16	43	8	16.1(19)	15.4(12)

1/ 1973 data for period July 1 - December 31; 1974, 1975 through 1977 data for period January 1 - December 31.
2/ Percentage based on known sex bears.
3/ Samples size in parenthesis.

Prepared by: Jack C. Didrickson, Game Biologist III

Appendix II. Chronology of black bear harvest in Alaska's game management subunits 14A and B, July 1, 1973-77.

Time Interval	Number Harvested 1973	1974	1975	1976	1977
Prior to May	--	0	0	0	0
May 1-10	--	1	0	1	1
May 11-20	--	1	0	1	0
May 21-31	--	0	4	4	5
June 1-10	--	1	9	1	2
June 11-20	--	1	6	0	6
June 21-30	--	2	4	0	5
Total Harvest Prior to July 1	--	6	23	7	19

Time Interval	Number Harvested 1973	1974	1975	1976	1977
July 1-10	1	0	3	7	1
July 11-20	2	0	7	2	2
July 21-31	5	0	5	2	2
Aug. 1-9 1/	2	0	3	1	0
Aug. 10-19 2/	10	2	6	0	0
Aug. 20-31	13	4	6	5	1
Sept. 1-10	20	3	10	5	8
Sept. 11-20 3/	11	8	13	6	4
Sept. 21-30	0	1	1	1	5
Oct. 1-10	0	0	1	0	1
Oct. 11-20	3	0	0	1	0
Oct. 21-Dec. 31	0	0	0	0	0
Total Harvest After July 1	67	18	55	30	24

1/ Period August 1-9 used because sheep season opened on Aug. 10.
2/ Period August 10-19 used because 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 date of moose and sheep seasons in Subunits 14A and B.

Prepared by: Jack C. Didrickson, 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, 1973-77.*

Subunit	Year	Residency of successful hunters: Nonres. No.	Nonres. %	Res. No.	Res. %	Avg. no. days hunted	Transportation used: Aircraft No.	Aircraft %	O.R.V. No.	O.R.V. %	Boat No.	Boat %	Horse No.	Horse %	Other No.	Other %
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	5	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
	1977	0	0	30	100	6.3	3	10	1	3	2	7	1	10	23	77
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
	1977	5	50	5	50	10.1	5	50	3	30	0	0	0	0	2	20
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	--
	1977	0	--	4	100	1.8	1	25	0	--	0	--	0	--	3	75
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
	1977	5	11	39	89	6.8	9	20	4	9	2	5	1	3	28	64

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

Prepared by: Jack C. Didrickson, Game Biologist III

BLACK BEAR

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

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 the taking of cubs or females accompanied by cubs is prohibited.

Harvest and Hunting Pressure

During 1977, of the eight black bears killed in Subunit 14C, six were taken prior to June 30 and two were taken after that date. During 1976, an identical sport harvest was reported.

The Eklutna drainage, excluding Thunderbird Creek and the east fork of Eklutna above the lake; the Eagle River drainage below the gorge; and all Turnagain Arm drainages from and including the North Fork of Campbell Creek on the north, to and including Rainbow Creek on the south, were closed to black bear hunting during 1977.

The boundaries of Game Management Subunit 14C were enlarged last year to include the drainages of Glacier Creek and Twentymile River. No bears were reported taken from these areas.

The successful hunters were residents of several local communities, including Anchorage, Palmer, Wasilla and Girdwood. Four hunters utilized aircraft while four others relied on foot travel. Hunters spent an average of 2.7 days afield before bagging a bear. Four of the hunters reported salvaging the meat for human consumption. Five bears came from the Lake George-Knik River area while two came from the Indian Creek-Girdwood area and one from the Peter's Creek drainage.

Composition and Productivity

Five of the bears harvested in 1977 were males and three were females. Mean skull size of the five male bears was 17.1 inches. From samples of three in 1976 and 12 in 1975, mean male skull sizes were 15.1 inches and 16.5 inches, respectively.

Management Summary and Conclusions

Two additional drainages were added to Game Management Subunit 14C during 1977. No harvest occurred in these drainages. Elsewhere in the subunit, the 1977 harvest was identical to that in 1976. This moderate harvest can most likely be attributed to inclement weather which prevailed throughout much of the fall season, particularly in the southern portion of the subunit. During a fall with less severe weather, such as 1975, the majority of the annual harvest would occur during the months of September and October.

Considering the extent of excellent black bear habitat throughout most of 14C, together with past harvest distribution, skull size and sex ratios, present harvest levels are well within desirable limits.

Recommendations

None at this time.

PREPARED BY:

David Harkness
Game Biologist III

SUBMITTED BY:

James B. Faro
Regional Management Coordinator

BLACK BEAR

SURVEY-INVENTORY PROGRESS REPORT - 1977-78

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 and the fall harvest was comprised of 56 percent males, (Appendix II).

Nonresidents killed 14 bears or 19 percent of the annual harvest. Of these bears two were killed in Subunit 15B, 11 in subunit 15C, and one in an unspecified part of Unit 15. Nonresidents took two bears during the spring season and 11 during the fall season.

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 nonresidents 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; and 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 B. 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.	Nonres. %	Res. No.	Res. %	Av. 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 %
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.	Nonres. %	Res. No.	Res. %	Av. 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 %
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: Nonres. No.	Nonres. %	Res. No.	Res. %	Av. 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 %
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: Nonres. No.	Nonres. %	Res. No.	Res. %	Av. 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 %
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 - FOR REGULATORY YEAR 1977-78

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 101 black bears taken in Unit 16 were sealed during 1977. This harvest level is comparable to the average annual harvest of 108 bears between 1973 and 1976 (Appendix I). Of 92 bears of known sex, 59 (64%) were males and 33 (36%) were females.

Thirty bears (30%) were taken during spring hunts prior to July 1 (Appendix II). The majority (22) of these were harvested in June. Of the 71 bears taken in the fall, only 13 (18 %) were taken during the first 20 days of September.

Twenty bears, 13 males, five females and two of unknown sex were taken in Subunit 16A. Eighty bears, 45 males, 28 females and seven of unknown sex were harvested in Subunit 16B. One male bear was taken from an undetermined subunit in 16.

Information pertaining to the number of unsuccessful black bear hunters in Unit 16 during 1977 is not sought and is unavailable. Successful hunters in Subunit A spent an average of 2.8 days hunting black bears while those in Subunit B hunted an average of 6.5 days (Appendix III).

Sealing data reveal that 76 percent of the black bear hunters in Unit 16B used aircraft as their primary means of transportation. Boats were the most common method of transportation in subunit A where 50 percent of the hunters used them.

Residency information shows that 74 (73%) of the 101 successful hunters were residents, only one of whom was on a guided hunt. Nine of the 27 successful nonresident hunters were accompanied by guides.

Composition and Productivity

The mean skull size of 59 male bears harvested in Unit 16 was 16.5 inches. The mean skull size for 33 females was 15.8 inches. Both figures are comparable to those averages for the preceding four years. The mean skull sizes for both males and females were larger in Subunit 16A than in 16B. Skull sizes in Subunit 16A were substantially larger in the 1977 harvest than in preceding years.

Management Summary and Conclusions

The Unit 16 black bear harvest of 101 bears in 1977 was above the previous year's harvest of 92 but was slightly below the average for the previous 4 years. The spring harvest of 30 bears was the lowest ever recorded for that season in Unit 16.

Greatest harvest fluctuations occurred in Subunit 16B, although the number of bears taken continues to be influenced by the number of moose hunters afield. Harvest chronology reveals that more bears were taken later in the fall than in previous years. Many were harvested after the close of sheep and moose seasons, indicating a growing interest in sport hunting for black bears in this unit.

Mean skull sizes of black bears for both sexes in both subunit 16A and B have either remained relatively constant or increased slightly since 1973.

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 & Game Biologist II

SUBMITTED BY:

James B. Faro
Regional Management Coordinator

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 females	No. unknown sex	Mean skull size males	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)
	1977	20	13	72	5	28	2	16.6 (10)	16.3 (4)
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	35	7	16.8 (40)	15.4 (22)
	1977	80	45	62	28	38	7	16.5(38)	15.7 (26)
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)
	1977	1	1	0	0	0	0	16.4(1)	---- (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)
	1977	101	59	64	33	36	9	16.5 (49)	15.8 (30)

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	'73	'74	'75	'76	'77	Date	'73	'74	'75	'76	'77
Prior to Apr. 1	--	0	0	0	0	July 1-10	1	2	0	1	2
April 1-30	--	1	0	0	0	July 11-20	0	0	1	0	5
May 1-10	--	2	1	0	0	July 21-31	2	0	2	0	1
May 11-20	--	14	4	6	6	Aug. 1-9	4	1	3	0	5
May 21-31	--	8	14	11	2	Aug. 10-19	10	3	4	2	2
June 1-10	--	2	8	6	8	Aug. 20-31[2/]	33	8	11	6	3
June 11-20	--	3	8	2	8	Sept. 1-10	53	1	23	25	8
June 21-30	--	3	3	0	6	Sept. 11-20	37	8	25	22	5
						Sept. 21-30[3/]	15	5	9	7	21
May (date unknown)	--	3	0	0	0	Oct. 1-10[4/]	0	1	3	4	11
						Oct. 11-20	1	0	0	0	4
						Oct. 21-Dec. 31	0	1	0	0	4
Total Harvest Prior to July	--	36	38	25	30	Total Harvest After July 1	156	30	81	67	71

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, 1976 and 1977.

PREPARED BY: Jack C. Didrickson, Game Biologist III 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, 1973-77.

		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
	1977	0	0	20	100	0	0	0	0	2.8	3	15	3	15	10	50	0	0	4	20
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
	1977	27	34	53	66	9	33	1	2	6.5	61	76	1	1	13	16	1	1	4	5
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
	1977	0	0	1	100	0	0	0	0	3.0	1	100	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
	1977	27	27	74	53	9	33	1	2	5.8	65	64	4	4	23	23	1	1	8	8

* 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 - 1977-78

Game Management Unit 19 - McGrath

Period Covered: January 1, 1977 - December 31, 1978

Seasons and Bag Limits

Unit 19	No closed season	Three bears; provided that the taking of cubs or females accompanied by cubs is prohibited

Harvest and Hunting Pressure

Hunting pressure on black bears in Unit 19 continues to be light. Aside from limited sport hunting of bears in Subunits 19B and 19C, most hunters show little interest in this species. The total harvest of black bears probably does not exceed 100 bears annually.

Composition and Productivity

Black bears can be found in moderate to high concentrations throughout the Unit. However, the population appears to have decreased from that of the 1974-1976 period. The drop in abundance was demonstrated by the fact that during 1977 and 1978 the number of black bears seen from the air was low compared to past years. Only a few areas along the floodplains of the major drainages have maintained high population levels. The causes of this decline are unclear. There was poor berry production during the past 3 years, a factor which could have affected the physical condition of bears prior to denning. However, mild winters, which should benefit survival, prevailed during the same period. The factor most probably responsible is the invasion by grizzly bears into habitat that was formerly used by black bears. Black bears have all but disappeared from many areas where grizzlies have become common. Moreover, I received three authentic reports during the past year of grizzly bear predation of black bears. In two cases black bears were apparently dug from dens and killed, and in one case a grizzly was seen eating a freshly killed black bear.

Management Summary and Recommendations

Because of the low level of harvest, there is no reason to change present seasons and bag limits.

PREPARED BY:

Peter E. K. Shepherd
Game Biologist III

SUBMITTED BY:

Oliver E. Burris
Regional Management Coordinator

BLACK BEAR

SURVEY-INVENTORY PROGRESS REPORT - 1977-78

Game Management Unit 20 - Central Tanana Valley

Period Covered: January 1, 1977 - December 31, 1978

Seasons and Bag Limits

Units 9, 11 through 14 (except for that portion of 14(C) in Chugach State Park), and 16 through 26	No closed season	Three bears; provided that the taking of cubs or females accompanied by cubs is prohibited

Harvest and Hunting Pressure

Sealing records indicate 201 black bears were harvested in Unit 20 during 1977. The 1978 harvest declined to 146. One hundred fifty-eight black bears were sealed in the Unit during 1976, 112 during 1975 and 97 during 1974. Sealing data for 1974 through 1976 have been slightly revised from previous reports. The preceding figures include 21 (1977) and 10 (1978) bears killed in defense of life and property. Interest in black bear hunting remained high during 1977 and 1978 and more than half of the successful hunters indicated that they hunted specifically for black bears.

Sex composition of the harvest has not changed greatly in the 5 years that black bears have been sealed. From 1974 to 1978 males comprised 69 to 74 percent of the annual harvests. In 1977, 69 percent of the bears sealed were males, 29 percent were females and 2 percent were of unknown sex. During 1978 the harvest was as follows: 69 percent males, 30 percent females and 1 percent of undetermined sex. As in past years, most of the harvest occurred along roads and navigable waterways in the more accessible portions of Subunits 20B and 20C.

Harvests from most areas increased during 1977 and decreased during 1978. In the Fairbanks area, however, the number of bears taken declined during both 1977 and 1978. The proportion of the Unit 20 harvest from the Fairbanks area also declined during this period. Although harvests in the heavily hunted Chena River drainage numerically followed the same trend as the remainder of Unit 20, the percentage of the unitwide take from this area has increased annually since 1976.

Composition and Productivity

No standardized surveys of black bear abundance are conducted in Unit 20. It is not known if harvest figures reflect changes in abundance or availability of bears, or changes in hunting pressure.

Analysis of the age structure of bears harvested in Unit 20 revealed that the production and subsequent survival of some cohorts was apparently better than others. For example, the 1972 cohort comprised a greater than expected proportion of the annual harvest. Other cohorts, notably 1971 and 1973, comprised smaller than expected proportions of the harvest. The cause for this differential production or survival is as yet undetermined.

Differences in the mean age of harvested black bears may be unreliable for measuring changes in population size. The over-representation of a single, numerous cohort in the harvest may mask a shift toward younger age animals which may result from continued large harvests. This may have occurred in the Chena River drainage where harvest level was high but average age has changed very little.

Management Summary and Conclusions

The decreasing age of bears harvested in the Fairbanks area and the Chena River drainage is cause for some concern. To a certain extent, subadults from less accessible areas will fill vacated habitat in more heavily hunted areas. Nevertheless, harvest and population trends should be closely monitored during the next few years to determine if season restrictions in some heavily hunted areas are warranted.

No change in seasons and bag limits is recommended for 1979.

PREPARED BY:

David M. Johnson
Game Biologist II

David G. Kelleyhouse
Game Biologist II

SUBMITTED BY:

Oliver E. Burris
Regional Management Coordinator

BLACK BEAR

SURVEY-INVENTORY PROGRESS REPORT - 1977-78

Game Management Unit 21 - Middle Yukon

Period Covered: July 1, 1977 - December 31, 1978

Seasons and Bag Limits

Unit 21	No closed season	Three bears; provided that the taking of cubs and sows accompanied by cubs is prohibited

Harvest and Hunting Pressure

Accurate harvest data are not available because sealing is not required in Unit 21. Black bears are abundant throughout the Unit and are harvested in substantial numbers.

Black bears are taken primarily by local residents during the spring for meat and pelts. There is considerable variation among local residents concerning the use of black bear for meat; some feel that black bear is a very important food species, while others are unwilling to eat black bear meat.

A substantial number of black bears are killed each summer by local residents at summer fish camps in defense of life and property, but are not reported to the Department. Many of these animals are not utilized since the meat is considered inedible when black bears are feeding on fish and the pelts are of poor quality during the summer.

Black bears are sought after again in the fall when the animals are fat and the meat and pelts are of good quality. Local residents also take some black bears during the winter by locating the animals in their dens.

Composition and Productivity

No surveys were conducted in 1977. Local residents report that the black bear population has been increasing for the past 5 or 6 years.

Management Summary and Recommendations

Black bear hunting has generated considerable concern by local residents in Unit 21. Since black bears are considered a food species by some people, there is interest in a regulation making it illegal to leave black bear meat in the field. This opinion has been expressed most commonly by the residents of Tanana who frequently observe incidents where black bears are taken for the pelt only.

In contrast, there is a desire by individuals who hunt black bears primarily for their pelt to have the season closed during the summer when pelts are of poor quality. They argue that there is ample opportunity to take black bears for meat during the spring and fall when pelts are of better quality.

Representatives of the USFWS expressed an interest in having black bears sealed in Unit 21, presumably to provide better information on the harvest in proposed d-2 areas which may become wildlife refuges. In the future, circumstances may necessitate the adoption of a mandatory bear sealing program in Unit 21, but at this time I would not recommend such a program. No changes in seasons, bag limits or use of black bear meat are recommended at this time. I do recommend that any proposals for change be generated by local advisory committees within the Unit.

PREPARED BY:

Roland Quimby
Game Biologist III

SUBMITTED BY:

Oliver E. Burris
Regional Management Coordinator

BROWN/GRIZZLY BEAR

SURVEY-INVENTORY PROGRESS REPORT FOR
CALENDAR YEAR 1977 AND SPRING SEASON 1978

Game Management Unit 1 - Southeast Alaska Mainland

Seasons and Bag Limits

Sept. 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 sport kill in Unit 1 during the 1977 season was 12 bears, consisting of eight males and four females. Eight males and one female were taken in the spring and three females were bagged in the fall. This represents a 43 percent decrease from the 21 bears taken in 1976. Guided hunts accounted for two bears, of which one was taken by a nonresident. Harvest statistics are shown in Appendix I.

Bear hunters in the spring of 1978 accounted for a harvest of 11 animals (eight males, three females). One nonresident hunter took a bear and one female was shot in defense of life.

The mean age for 11 brown bears of both sexes harvested in 1977 and the spring of 1978 was 7.1 years which matched the overall mean of bears harvested the previous eight seasons. Mean skull and hide sizes for both males and females are also within ranges established over the past 16 years for Unit 1.

Composition and Productivity

No data available.

Management Summary and Recommendations

The brown bear harvest in Unit 1 has been traditionally low with no apparent detrimental effect on existing population levels. No changes in seasons or bag limits are recommended.

PREPARED BY:

David L. Beaudin
Game Biologist I

SUBMITTED BY:

N. P. Johnson
Regional Research/Management Coordinator

APPENDIX I

Brown/Grizzly Bear Sport Harvest, Calendar Years 1961 Through 1977. By: Year, Total Kill, Number of Males, % of Males, No. by Nonresidents, % by Nonresidents, Mean Hide Size of Males, Mean Skull Size of Males, Mean Cementum Lines of Males and Calendar Year Seasons.

GAME MANAGEMENT UNIT 1

Calendar Year	Total Kill	No. Males	% Males[1]	No. Nonres.	% Nonres.	Mean Size Male[2]	Mean Skull Size Male[3]	Mean Cem. Lines Male[4]	Calendar Year Seasons
1961	12	8	67	1	8	13.2 (8)	24.8 (1)		11/1-6/30 9/1-12/31
1962	13	9	75	4	31	14.0 (9)	0		Same
1963	7	4	57	2	29	14.5 (4)	0		Same
1964	20	17	89	2	10	13.1 (17)	23.5 (5)		Same
1965	10	6	60	1	10	13.7 (5)	23.2 (2)		Same
1966	14	10	71	4	29	12.9 (10)	0		Same
1967	29	14	48	7	24	13.2 (15)	23.3 (6)		1/1-6/20 9/1-12/31
1968	17	10	59	4	24	12.9 (10)	20.8 (8)		1/1-6/10 9/1-12/31
1969	24	16	67	1	4	13.7 (16)	21.1 (15)	3.8 (4)	1/1-6/10 9/1-11/30
1970	13	6	46	4	31	11.2 (6)	20.2 (6)		4/1-6/10 9/1-11/30
1971	10	7	70	4	40	13.3 (7)	21.0 (7)	5.4 (7)	4/1-6/10 9/1-12/31
1972	17	8	50	4	24	12.8 (8)	19.7 (7)	5.7 (3)	1/1-6/10 9/1-12/31
1973	11	5	45	2	18	16.0 (4)	21.1 (4)	12.3 (4)	1/1-6/10 9/1-12/31
1974	18	14	78	4	22	13.2 (13)	20.8 (12)	6.4 (12)	Same
1975	13	8	62	2	15	13.7 (8)	21.5 (7)	6.1 (8)	Same
1976	21	10	50	7	33	15.4 (10)	22.4 (10)	6.9 (10)	Same
1977	12	8	66	1	8	14.4 (5)	21.0 (8)		Same
Spring 1978	11	8	73	1	9	14.0 (8)	21.9 (8)	8.3 (6)	1/1-6/10

[1] All male % based on known-sex bears.
[2] Length plus width given in ft. ( ) - sample size.
[3] Length plus width given in inches. ( ) - sample size.
[4] ( ) - sample size.

BROWN BEAR

SURVEY-INVENTORY PROGRESS REPORT FOR CALENDAR YEAR 1977

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

The sport harvest of brown bears from Unit 4 in 1977 was 66 bears. That represents a marked reduction from the previous year's record kill of 141 animals but is still slightly above the average for the period 1962-1971.

The composition of the harvest for 1977 was well within the "Standard" statistics that have been exhibited since 1962 (Appendix I) with the exception that there was a greater percentage of the harvest taken during the spring season.

Competition among hunters continues to be a problem. This year for the first time resident brown bear hunters were required to obtain a brown bear tag at a cost of $25.

Composition and Productivity

No data were gathered during the reporting period. However, many persons contacted throughout the course of the year expressed concern over an apparent lack of bears. This is also reflected in a greatly reduced harvest compared to the past four years. Persons making these observations were professional guides with considerable experience and commercial fisheries biologists. My own observations also indicated that bears were not nearly as observable on the beaches during the spring as they were in former years.

The consistency among harvest statistics tends to suggest the suspected population reduction is probably not attributable to the excessive sport harvests of previous years. Weather records show that the winter of 1976-1977 was the mildest on record in Southeast Alaska. Snowfall and accumulation were nearly nonexistent. The impact of a relatively snow-free winter on hibernating bears, when there would be no snow to insulate the animals, might be a source of winter mortality through exposure.

It should also be noted that the extremely mild and open winter of 1976-1977 created a very unnatural condition during the spring. Spring greenup began in many areas as early as February. Vaccinium was in bloom at that time. It is possible that bears were able to obtain their early spring forage without having to go to the beaches so their normal behavior patterns were altered. The blueberry crop was very poor at lower elevations, no doubt due to the early flowering as noted above. Again it is possible that the bears' feeding habits were altered by the lack of berries and that salmon alone were not a sufficient attraction to keep them at low elevations on fish streams in the fall. The salmon entered freshwater considerably earlier than normal also.

Management Summary and Recommendations

The magnitude of the impact of this extremely mild winter of 1976-1977 is unknown, but is sufficient to seriously cloud the past highly optimistic brown bear management situation. Therefore, no changes in the restrictive seasons or bag limits are recommended.

PREPARED BY: Loyal J. Johnson
Game Biologist III

SUBMITTED BY: Nathan P. Johnson
Regional Research/Management Coordinator

APPENDIX I. Brown Bear Sport Harvest, Calendar Years 1961 Through 1977, Game Management Unit 4.

Calendar Year	Total Kill	% Kill in Spring	% Males	% Nonresident Kill	Mean Hide Size Male[1]	Mean Skull Size Male[2]	Mean Cem. Lines[3] Male	Female
1961	39	72	80	59	15.1			
1962	44	73	66	66	14.6			
1963	27	67	74	56	14.4			
1964	55	72	67	44	14.2			
1965	64	67	67	52	13.7			
1966	75	65	63	67	13.1			
1967	62	66	69	48	13.2	22.7		
1968	50	72	76	36	12.7	22.3	8.0(10)	
1969	66	67	77	52	13.7	22.7	7.1(32)	
1970	66	85	73	55	13.7	22.0	7.8(40)	
1971	77	78	64	52	14.1	22.7	8.3(44)	8.1(15)
1972	77	66	75	53	14.3	22.5	8.8(55)	6.4(17)
1973	99	72	68	40	13.6	21.6	7.7(63)	8.5(32)
1974	84	74	73	51	13.9	22.2	7.6(57)	7.7(21)
1975	105	72	69	57	14.0	22.2	8.1(66)	6.4(29)
1976	141	79	64	60	14.1	22.4	9.4(90)	8.6(50)
1977	66	83	70	55	13.6	21.6	7.5(44)	8.6(17)

[1]Length plus width given in feet.
[2]Length plus width given in inches.
[3]Tooth sample size given in parenthesis.

BROWN/GRIZZLY BEAR

SURVEY-INVENTORY PROGRESS REPORT

Game Management Unit 5 - Yakutat

Seasons and Bag Limits

Sept. 1 - May 31	One bear every four regulatory years; provided that the taking of cubs and females accompanied by cubs is prohibited.

Harvest and Hunting Pressure

Hunting pressure for brown bears during the 1977 season was similar to previous years. Yakutat Bay, Russell Fjord, Situk River, Dangerous River and the Alsek River-Dry Bay areas received the heaviest hunting pressure. Resident hunters slightly outnumbered nonresident hunters.

Hunting pressure on the Malispina Forelands once again was minimal. This low pressure is due primarily to the limited access afforded to the area by boat because of wave action in the Gulf of Alaska, and because there are no public use cabins. Flat terrain with dense brushy cover makes it difficult to hunt on foot and makes it harder to find the bears.

Sport kill during the 1977 season was 16 bears (12 males, 4 females), the same as during the 1976 season. Eleven of the bears (nine males, two females) were taken in the spring with the remaining five (three males, two females) killed in the fall. Nonresidents accounted for 31 percent (five bears) of the harvest as compared to 56 percent (nine bears) during the 1976 season.

The average age for the males was 8.2 years (sample size 10) with an average skull size of 22.0 inches (sample size 10). Females had a mean age of 3.0 (sample size four) and an average skull size of 19.6 inches (sample size four). The average age of males increased by 1.3 years, while that for females decreased by 4.1 years. Average skull size for males decreased by 0.6 inches and that for females was down 0.8 inches from the 1976 season.

Additional brown bear harvest for 1977 included two defense of life and property kills, a female yearling destroyed in Yakutat by the Fish and Wildlife Protection Officer and an unknown adult bear shot on Knight Island. An adult female was taken illegally at the Icy Bay logging camp in Unit 5 and reported as having been killed in GMU-5.

Non-sport kills also included the carcass of a small bear, probably a yearling, that was found near the crash site of a plane that had been hauling fish for a local commercial fish company. Evidence indicated that the bear, which had been observed earlier, was probably killed by a larger bear, then partially consumed. Including all known brown bear mortalities, the harvest for GMU-5 during 1977 was 19 bears.

Composition and Productivity

Only one attempt was made to survey brown bears, during October 1977 and it was unsuccessful. Turbulent air coupled with patchy snow conditions at the 1,500 foot to 2,500 foot level led to negative survey results.

Management Summary and Conclusions

No change in the brown bear season is recommended.

PREPARED BY:

Ronald E. Ball
Game Biologist III

SUBMITTED BY:

N. P. Johnson
Regional Research/Management Coordinator

BROWN BEAR

SURVEY-INVENTORY PROGRESS REPORT FOR CALENDAR YEAR 1977

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

Seasons and Bag Limits

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

Harvest and Hunting Pressure

The 1977 brown bear harvest in Unit 6 was 36 animals: 22 males, 11 females and 3 unknown sex. Only one non-sport kill was reported. The 1977 sport harvest is the second largest harvest since 1968, one-third larger than the previous two years, but only slightly above the 17-year average of 32 bears (Appendix I). The spring harvest (Appendix II) of 23 bears is slightly higher than average (19), whereas the fall harvest (Appendix III) of 13 bears is average. Nonresident hunters took 52.8 percent of the harvest: 14 bears in the spring and five in the fall (Appendix II).

In 1977, males averaged 14.5 feet in hide size, 23.2 inches in skull size and 7.0 years of age. In 1977 females averaged 12.7 feet in hide size, 21.2 inches in skull size and 6.5 years old. Both male and female segments of the harvest compare favorably with the 17-year average (Appendix IV).

The distribution of harvest (Appendix V) was: five - Montague Island, 11 - Hinchinbrook Island, seven - Valdez to Cordova, one - Copper River Delta and 12 - East of Copper River. The 11 bears taken on Hinchinbrook is the largest recorded harvest for the island and is a reflection of increased guide pressure.

Management Summary and Conclusions

Analysis of the 1977 brown bear harvest data, as compared to harvest data collected since Statehood, indicates the current level of harvest and hunting pressure is not adversely affecting Unit 6 bear populations. The only area of concern is Hinchinbrook Island which will be closely monitored in the future.

Recommendations

Retain the current seasons and bag limits.

PREPARED BY:

Julius Reynolds
Game Biologist III

SUMMITTED BY:

James B. Faro
Regional Management Coordinator

APPENDIX I

R01-111-0104 ***
04/21/78

GAME MANAGEMENT UNIT 06
YEARLY BEAR SPORT HARVEST 1961 - 1977
HARVEST SUMMARY BY YEAR, SEX OF BEAR, AND RESIDENCY OF HUNTER
BROWN GRIZZLY

CALENDAR YEAR	TOTAL KILL	# OF MALES	# OF FEMALES	% OF MALES	% OF FEMALES	# OF UNKNOWN	# BY NONRES	% BY NONRES	SEASON DATES
1961	0013	006	007	046 %	054 %	000	003	023%	303 DAYS
1962	0024	017	007	071 %	029 %	000	009	038%	303 DAYS
1963	0030	016	013	055 %	045 %	001	004	013%	303 DAYS
1964	0032	022	007	076 %	024 %	003	009	028%	303 DAYS
1965	0034	018	016	053 %	047 %	000	008	024%	303 DAYS
1966	0038	020	017	054 %	046 %	001	008	021%	303 DAYS
1967	0060	036	019	065 %	035 %	005	028	047%	293 DAYS
1968	0064	040	019	068 %	032 %	005	033	052%	283 DAYS
1969	0023	012	010	055 %	045 %	001	008	035%	237 DAYS
1970	0028	013	014	048 %	052 %	001	010	036%	113 DAYS
1971	0020	014	006	070 %	030 %	000	010	050%	68 DAYS
1972	0039	021	017	055 %	045 %	001	019	049%	68 DAYS
1973	0031	022	007	076 %	024 %	002	018	058%	68 DAYS
1974	0029	014	015	048 %	052 %	000	017	059%	68 DAYS
1975	0024	017	007	071 %	029 %	000	011	046%	68 DAYS
1976	0024	018	006	075 %	025 %	000	010	042%	68 DAYS
1977	0036	022	011	067 %	033 %	003	019	053%	68 DAYS
TOTALS	0549	0328	0198	0062 %	0038 %	0023	0224	041%	

*** HARVEST TOTALS FOR THE PREVIOUS YEAR MAY CHANGE AS LATE SEALING CERT. ARE ADDED.
- * ALL %S ARE BASED ON TOTAL KNOWN SEX BEARS

PREPARED BY: Leo Miller, Game Technician V

APPENDIX II

R01-111-0104 ***
04/21/78

GAME MANAGEMENT UNIT 06
SPRING BEAR SPORT HARVEST 1961 - 1977
HARVEST SUMMARY BY YEAR, SEX OF BEAR, AND RESIDENCY OF HUNTER
BROWN GRIZZLY

CALENDAR YEAR	TOTAL KILL	# OF MALES	# OF FEMALES	% OF MALES	% OF FEMALES	# OF UNKNOWN	# BY NONRES	% BY NONRES	SEASON DATES
1961	0006	004	002	067 %	033 %	000	001	017%	01/01-06/30
1962	0009	008	001	089 %	011 %	000	001	011%	01/01-06/30
1963	0010	005	004	056 %	044 %	001	000	000%	01/01-06/30
1964	0019	013	004	076 %	024 %	002	004	021%	01/01-06/30
1965	0023	012	011	052 %	048 %	000	002	009%	01/01-06/30
1966	0024	014	009	061 %	039 %	001	004	017%	01/01-06/30
1967	0034	023	008	074 %	026 %	003	012	035%	01/01-06/20
1968	0038	022	012	065 %	035 %	004	022	058%	01/01-06/10
1969	0014	008	005	062 %	038 %	001	005	036%	01/01-06/10
1970	0019	009	010	047 %	053 %	000	009	047%	04/01-05/31
1971	0013	011	002	085 %	015 %	000	008	062%	05/10-05/25
1972	0019	014	004	078 %	022 %	001	008	042%	05/10-05/25
1973	0015	012	002	086 %	014 %	001	012	080%	05/10-05/25
1974	0019	009	010	047 %	053 %	000	010	053%	05/10-05/25
1975	0018	013	005	072 %	028 %	000	007	039%	05/10-05/25
1976	0019	014	005	074 %	026 %	000	008	042%	05/10-05/25
1977	0023	014	007	067 %	033 %	002	014	061%	05/10-05/25
TOTALS	0322	0205	0101	0067 %	0033 %	0015	0127	039%	

*** HARVEST TOTALS FOR THE PREVIOUS YEAR MAY CHANGE AS LATE SEALING CERT. ARE ADDED.
- * ALL %S ARE BASED ON TOTAL KNOWN SEX BEARS

PREPARED BY: Leo Miller, Game Technician V

APPENDIX III

R01-111-0104 ***
04/21/78

GAME MANAGEMENT UNIT 06
FALL BEAR SPORT HARVEST 1961 - 1977
HARVEST SUMMARY BY YEAR, SEX OF BEAR, AND RESIDENCY OF HUNTER
BROWN GRIZZLY

CALENDAR YEAR	TOTAL KILL	# OF MALES	# OF FEMALES	% OF MALES	% OF FEMALES	# OF UNKNOWN	# BY NONRES	% BY NONRES	SEASON DATES
1961	0007	002	005	029 %	071 %	000	002	029%	09/01-12/31
1962	0015	009	006	060 %	040 %	000	008	053%	09/01-12/31
1963	0020	011	009	055 %	045 %	000	004	020%	09/01-12/31
1964	0013	009	003	075 %	025 %	001	005	038%	09/01-12/31
1965	0011	006	005	055 %	045 %	000	006	055%	09/01-12/31
1966	0014	006	008	043 %	057 %	000	004	029%	09/01-12/31
1967	0026	013	011	054 %	046 %	002	016	062%	09/01-12/31
1968	0026	018	007	072 %	028 %	001	011	042%	09/01-12/31
1969	0009	004	005	044 %	056 %	000	003	033%	09/15-11/30
1970	0009	004	004	050 %	050 %	001	001	011%	10/10-11/30
1971	0007	003	004	043 %	057 %	000	002	029%	10/10-11/30
1972	0020	007	013	035 %	065 %	000	011	055%	10/10-11/30
1973	0016	010	005	067 %	033 %	001	006	038%	10/10-11/30
1974	0010	005	005	050 %	050 %	000	007	070%	10/10-11/30
1975	0006	004	002	067 %	033 %	000	004	067%	10/10-11/30
1976	0005	004	001	080 %	020 %	000	002	040%	10/10-11/30
1977	0013	008	004	067 %	033 %	001	005	038%	10/10-11/30
TOTALS	0227	0123	0097	0056 %	0044 %	0007	0097	043%	

*** HARVEST TOTALS FOR THE PREVIOUS YEAR MAY CHANGE AS LATE SEALING CERT. ARE ADDED.
- * ALL %S ARE BASED ON TOTAL KNOWN SEX BEARS

PREPARED BY: Leo Miller, Game Technician V

APPENDIX IV

R01-111-0105

GAME MANAGEMENT UNIT 06
YEARLY BEAR SPORT HARVEST 1961 - 1977
MEAN AGES, SKULL AND HIDE SIZES HARVESTED
BROWN GRIZZLY

04/04/78

	MEAN HIDE SIZES				MEAN SKULL SIZES				MEAN AGES								
	MALE		FEMALE		MALE		FEMALE		ALL MALES		ALL FEMALES		ALL SEXES*		M. >= 5YR		F. >= 5YR		
CALENDAR YEAR	HIDE SIZE	SAMP SIZE	HIDE SIZE	SAMP SIZE	SKULL SIZE	SAMP SIZE	SKULL SIZE	SAMP SIZE	AGE	SAMP SIZE	AGE	SAMP SIZE	AGE	SAMP SIZE	AGE	SAMP SIZE	AGE	SAMP SIZE	SEASON DATES
1961	14.2	006	13.4	007	19.6	001	00.0	000	00.0	000	00.0	000	00.0	000	00.0	000	00.0	000	303 DAYS
1962	15.7	017	13.8	007	26.7	005	00.0	000	00.0	000	00.0	000	00.0	000	00.0	000	00.0	000	303 DAYS
1963	13.9	016	12.7	013	23.9	004	20.4	001	00.0	000	00.0	000	00.0	000	00.0	000	00.0	000	303 DAYS
1964	14.6	022	13.9	007	24.5	003	23.0	001	00.0	000	00.0	000	00.0	000	00.0	000	00.0	000	303 DAYS
1965	15.4	018	13.5	016	25.2	003	22.1	004	00.0	000	00.0	000	00.0	000	00.0	000	00.0	000	303 DAYS
1966	14.4	020	13.8	017	24.2	007	22.3	003	00.0	000	00.0	000	00.0	000	00.0	000	00.0	000	303 DAYS
1967	14.2	035	13.0	018	23.7	026	21.7	011	00.0	000	00.0	000	00.0	000	00.0	000	00.0	000	293 DAYS
1968	14.5	040	12.7	019	23.5	036	21.7	017	00.0	000	00.0	000	00.0	000	00.0	000	00.0	000	283 DAYS
1969	14.7	011	12.4	010	23.5	012	20.8	008	08.2	004	08.3	004	08.3	008	12.6	002	13.3	002	237 DAYS
1970	14.4	013	13.0	014	23.6	012	21.2	014	05.4	008	06.1	009	05.8	017	08.5	003	07.5	006	113 DAYS
1971	15.2	014	12.2	006	24.9	013	20.2	006	09.9	008	05.3	004	08.4	012	09.9	008	09.6	001	68 DAYS
1972	13.5	021	12.6	017	22.0	021	20.9	015	05.4	021	07.3	016	06.2	037	08.3	008	10.8	006	68 DAYS
1973	13.9	021	11.7	007	23.0	021	20.0	007	05.1	018	04.9	006	05.0	024	09.5	005	10.8	001	68 DAYS
1974	14.0	014	12.3	015	23.2	013	21.1	013	06.4	014	05.8	015	06.1	029	09.0	008	10.9	005	68 DAYS
1975	14.6	017	12.4	007	23.9	017	21.2	006	07.9	017	05.2	007	07.1	024	09.5	012	10.1	002	68 DAYS
1976	14.3	018	12.9	006	22.8	016	20.3	005	06.1	017	06.1	006	06.1	023	09.4	008	12.1	002	68 DAYS
1977	14.5	021	12.7	011	23.2	021	21.2	011	07.0	020	06.5	011	06.8	031	09.9	011	10.2	005	68 DAYS
TOTALS	14.4	0324	12.9	0197	23.5	0231	21.2	0122	06.5	0127	06.3	0078	06.4	0205	09.4	0065	10.3	0032	

* 1961 AND 1962 HIDE LENGTH MEASURED FROM THE BASE OF THE TAIL
** 1963 TO PRESENT DATE HIDE LENGTH MEASURED FROM ANUS
*** HARVEST TOTALS FOR THE PREVIOUS YEAR MAY CHANGE AS LATE SEALING CERT. ARE ADDED.

PREPARED BY: Leo Miller, Game Technician V

APPENDIX V

Unit 6

Brown Bear Sport Harvest by Location & Year

Year	Montague	Hinchinbrook	Valdez-Cordova	Copper River Delta	East of Copper River	Total
1961	4	1	1	3	3	12
1962	1	6	1	1	15	24
1963	11	6	4	3	6	30
1964	6	9	5	1	9	30
1965	5	4	8	10	6	33
1966	6	4	11	5	11	37
1967	15	8	10	7	15	55
1968	15	5	12	10	20	62
1969	5	3	3	5	4	20
1970	2	2	6	2	14	26
1971	6	1	5	3	7	22
1972	11	6	8	4	9	38
1973	1	2	4	6	19	32
1974	6	5	6	1	11	29
1975	2	3	3	0	16	24
1976	1	4	5	6	8	24
1977	5	11	7	1	12	36
Total Number	102	80	99	68	185	534
17 year Average	6.0	4.7	5.8	4.0	10.9	31.4

PREPARED BY: Julius Reynolds, Game Biologist III

BROWN/GRIZZLY BEAR

SURVEY-INVENTORY PROGRESS REPORT - 1977

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 one female was harvested in Unit 7 by a resident sport hunter during 1977.

Composition and Productivity

Due to the low harvest in this Unit, sex and age composition data are too limited for meaningful analysis.

Management Summary and Conclusions

During the past 17 years, 15 sport-killed and six nonsport-killed bears have been reported from Unit 7. The sport kill has consisted of eight males and seven females. Five bears (33% of the sport harvest) were taken by nonresidents.

Brown bears are relatively abundant in parts of Unit 7 but there has been little interest in hunting them because of the heavy timber and brush cover.

Brown bears appear to be increasing in numbers over most of the Unit and the annual kill are well below the sustainable level.

Recommendations

The fall season should be changed to Sept. 1 - Oct. 10 to increase the opportunity to harvest a brown bear.

PREPARED BY:

Ted H. Spraker
Game Biologist III

SUBMITTED BY:

James B. Faro
Regional Management Coordinator

APPENDIX I

BROWN/GRIZZLY BEAR - GMU 7

Table 1. Harvest and hunting pressure, Unit 7.

Calender 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]	Calender 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	19.0	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
1977	1	0	0	0	0	0	--	--	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: Ted H. Spraker, Game Biologist III

BROWN/GRIZZLY BEAR

SURVEY-INVENTORY PROGRESS REPORT - 1977-78

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 and Amook Islands.	Oct.25-Dec.31 April 1-May 15	One bear every four regulatory years by permit only; provided the taking of cubs and females accompanied by cubs is prohibited. See 5 AAC 81.055 for permit conditions.
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.15-Dec.31 April 1-May 20	

Harvest and Hunting Pressure

In the drawing hunt area 200 hunters reported hunting in 1977, an increase from 179 in 1976. In the registration hunt area where permit numbers were unlimited, 116 hunters reported hunting in 1977, a decline from 166 in 1976. Spring effort was unchanged, as 56 hunters reported hunting in the registration hunts during both 1976 and 1977 spring seasons.

Overall hunter success for 1977 was 38 percent (Appendix I), compared to 30 percent success in 1976. Residents were 22 percent successful while nonresidents were 75 percent successful.

Total harvest in 1977 was 124 bears, seven more than were taken in 1976 (Appendix II). Ninety bears were killed in the spring and 34 during the fall season. Sex composition of the harvest was 83 males (67%) and 41 females (33%).

The spring harvest of 90 bears equals the average spring harvest for the preceeding 16 years and compares to 76 bears taken in 1976. The fall harvest of 34 bears is below the previous 16-year average of 44 bears. Mild spring weather allowed hunters more actual hunting days than usual. Nonresident hunters took 74 bears, or 60 percent of the 1977 harvest, compared to the 1961-1976 average of 55 percent.

Four hundred sixty-two permits were issued to brown bear hunters in 1977, the second year under the current permit system (Appendix III).

This is a decrease of 32 percent from the 677 permits issued in 1976. Hunters received 282 permits for the spring season and 180 permits for the fall season. Although almost one-third fewer permits were issued in 1977 than during 1976, hunting pressure as indicated by reporting hunters declined only 8 percent from 345 hunters in 1976 to 316 hunters in 1977. Fall hunting effort declined about 35 percent from 164 hunters in 1976 to 107 hunters in 1977 (Appendix IV). Spring effort increased by 13 percent from 181 hunters in 1976 to 209 hunters in 1977. The new $25 trophy tag fee for resident brown bear hunters probably explains the decline in fall effort. Opportunistic bear hunting during the fall deer and elk seasons was discouraged by this requirement.

Five hunters reported wounding and losing a bear during spring 1977. Only one bear was reported lost during the fall making a total of six reported wounding losses for 1977.

Five bears were reported killed in defense of life or property in 1977. A sow and two cubs were killed at the New England Fish Company cannery in Uganik Bay in October. After frequenting the cannery dump all summer, the bears shifted their foraging to the caretaker's residence when the cannery shut down and garbage became unavailable. Another bear of unknown sex was killed by a deer hunter along Narrow Strait near Kodiak. The fifth bear was shot in the Discoverer Bay area by an employee of Afognak Logging Corporation who buried it in a rock quarry before the carcass could be examined.

Scattered remains of a subadult bear carcass, presumably killed during the previous fall, were located on the U.S. Coast Guard Base in September. One bear carcass was located in Ugak Bay in September by a hiker. The carcass of a 2 or 3-year-old bear was found near Afognak River, a popular recreational area.

The total recorded mortality from all sources is 132 bears. Wounding loss probably accounted for an additional 5-10 bears. Unreported illegal kill is also estimated at 5-10 bears. Thus, the total estimated mortality in Unit 8 during 1977 is approximately 150 bears.

Distribution of the harvest is shown in Appendix V. Subunit 4 sustained the highest harvest with 46 bears (38%). Sixteen bears were taken from the Afognak-Raspberry-Shuyak Islands group, compared to an average of 13 bears annually for the preceding 16 years. Three bears were killed on Shuyak Island, where bear kills are seldom recorded. The three bears were taken by hunters outfitted or guided by recently established residents of Shuyak Island.

Subunit 5 (Spiridon Bay-Kizhuyak Bay) sustained a harvest of 31 bears compared to the previous 16-year average of 27 bears. The remaining harvest subunits recorded harvests less than the average recorded for the previous 16 years.

Subunit 4 recorded the highest harvest of any subunit, but 83 percent of the take was male. The average take of females during the 1961-76 period in subunit 4 was 24. Only eight females were taken there in 1977; only two of which were over 4 years of age.

Skull size measurements of the bears taken in 1977 were lower than in previous years. Average male skull size in 1977 was 23.2 inches compared to a 1961-1977 average of 24.2 inches (Appendix VI). Average skull size for females in 1977 was 21.1 inches compared to 21.8 inches during the 1961-1977 period (Appendix VI). The mean age of the bears taken in 1977 was also lower than in previous years (Appendix VI).

For 80 males in the 1977 harvest the mean age was 5.9 years compared with the 1969-1977 average of 6.4 years. Forty-six percent of the males were 5 years or older compared to the 1969-1976 average of 55 percent. The mean age for 36 females was 6.6 years compared to the 1969-1977 average of 6.9 years. Eighteen females 5 years or older were killed in 1977, well below the 1969-77 average of 28 bears in this age group.

Composition and Productivity

Aerial composition counts were conducted by the U.S. Fish and Wildlife Service during July and August, 1978 (Appendix VII). Alpine surveys were conducted in the Uganik and Uyak Bay areas on 11 and 15 July. Cubs and yearlings comprised 27 percent of the 132 animals observed in these alpine counts. The stream counts were done on Sturgeon River, Connecticut Creek, Pinnell Creek, and Dog Salmon Creek from 12 August through 15 August. Cubs and yearlings comprised 36 percent of the 87 animals observed in these stream counts. For the combined counts, cubs and yearlings comprised 37 percent of the animals tallied. Females with cubs or with yearlings comprised 28 percent of the 139 adults tallied. The adult category includes subadult single bears.

Management Summary and Conclusion

Although the resident trophy tag requirement apparently reduced opportunistic fall bear hunting, overall hunting pressure declined only slightly in 1977. Spring hunting effort actually increased over the previous year, indicating that the tag fee is not a deterrent to serious bear hunters. Spring hunting pressure was unchanged in the registration hunt area, Afognak Island, and northeastern Kodiak Island.

The total 1977 sport harvest of 124 bears is below the previous 16-year average of 134 bears. Harvest continues to favor males at about a 2:1 ratio. Average age and average skull size declined slightly for both sexes in 1977. Eighteen females of potentially reproductive age (5 yr.+) were killed in 1977, well below the previous 16-year average of 28 mature females. Considering the relatively low take of adult females and high percentage of males in the harvest, the 1977 harvest is believed to be within sustainable limits.

Distribution of the harvest between subunits was near the previous 16-year average in most subunits. The harvest of three bears on remote Shuyak Island, where little hunting or harvest have occurred in the recent past, illustrates the potential immediate impact on brown bear of "live-off-the-land" human settlements.

Recommendations

The recommended maximum annual take from subunit 1-Afognak Island is 20 animals. Seventeen animals were taken there in 1976 and 16 were taken in 1977, despite a 15-day reduction in the fall 1977 season. Hunter success on Afognak is low relative to that recorded for Kodiak Island. However, the potential for exceeding the recommended harvest is high on Afognak, since it is on an unlimited permit basis and is the best hunting area under unlimited permits in Unit 8. The potential for overharvest on Afognak is particularly high during the alternate year bear season closures on the Alaska Peninsula (Unit 9).

The rapidly expanding logging road system will continue to provide improved access for bear hunting on Afognak. Moreover, the potential for both unreported kills and defense of life and property kills increases as the logging operations expand. The conveyance of much of Afognak's National Forest lands to private corporations under terms of the Alaska Native Land Claims Settlement Act will open up the island to additional development. The transition from an inaccessible wilderness area to a heavily roaded and intensively logged area requires appropriate changes in the management of brown bears. The remoteness and inaccessibility of the area can no longer be depended on to limit the bear harvest.

The Afognak and adjacent islands area should be encompassed in the permit drawing system with a fixed number of permits assigned. This would allow more precise regulation of hunting pressure and prevent overharvest.

It is also recommended that the September, June, and July portions of the season on northeastern Kodiak Island be eliminated. This area has a relatively low bear population and presently sustains minimal harvest. This change would prevent hunting during the summer months when hides are not prime.

PREPARED BY:

Roger B. Smith
Game Biologist III

SUBMITTED BY:

James B. Faro
Regional Management Coordinator

APPENDIX I

Brown Bear Hunter Success by Residency and Season, 1977-Unit 8

	Residents who reported hunting			Non-residents who reported hunting			All hunters		
	No. reporting	No. successful	% successful	No. reporting	No. successful	% successful	No. reporting	No. successful	% successful
Spring	139	31	22%	70	56	80%	209	87	42%
Fall	82	17	21%	25	15	60%	107	32	30%
Spring and Fall	221	48	22%	95	71	75%	316	119	38%

Submitted by: Roger B. Smith
Game Biologist III

APPENDIX II

Brown Bear Sport Harvest by Year, Sex of Bear and Residency of Hunter, 1966-1977, Unit 8.

Calendar Year	Total Kill	No. Males	No. Females	% Males	% Females	No. Unknown	No. By Nonresidents	% By Nonresidents
1966	0200	107	089	055	045	004	097	049
1967	0186	107	078	058	042	001	092	049
1968	0105	061	043	059	041	001	062	059
1969	0097	061	036	063	037	000	052	054
1970	0092	061	029	068	032	002	044	048
1971	0113	063	042	060	040	008	051	045
1972	0132	080	050	062	038	002	071	054
1973	0155	086	069	055	045	000	091	059
1974	0165	095	070	058	042	000	113	068
1975	0119	070	049	059	041	000	083	070
1976	0117	073	041	064	036	003	067	057
1977	0124	083	041	067	033	000	074	060

Prepared By: Roger B. Smith, Game Biologist III

APPENDIX III

Brown Bear Permit Issuance and Use Statistics, Unit 8, 1977

	Spring		Fall		Total	
	No.	%	No.	%	No.	%
Permits issued	282	100%	180	100%	462	100%
Permit reports returned	209	74%	170	94%	379	82%
Permit reports not returned	73	26%	10	6%	83	18%
Reporting permittees who hunted	209	100%	107	63%	316	83%
Successful hunters reporting	87	42%	33	31%	120	38%

APPENDIX IV

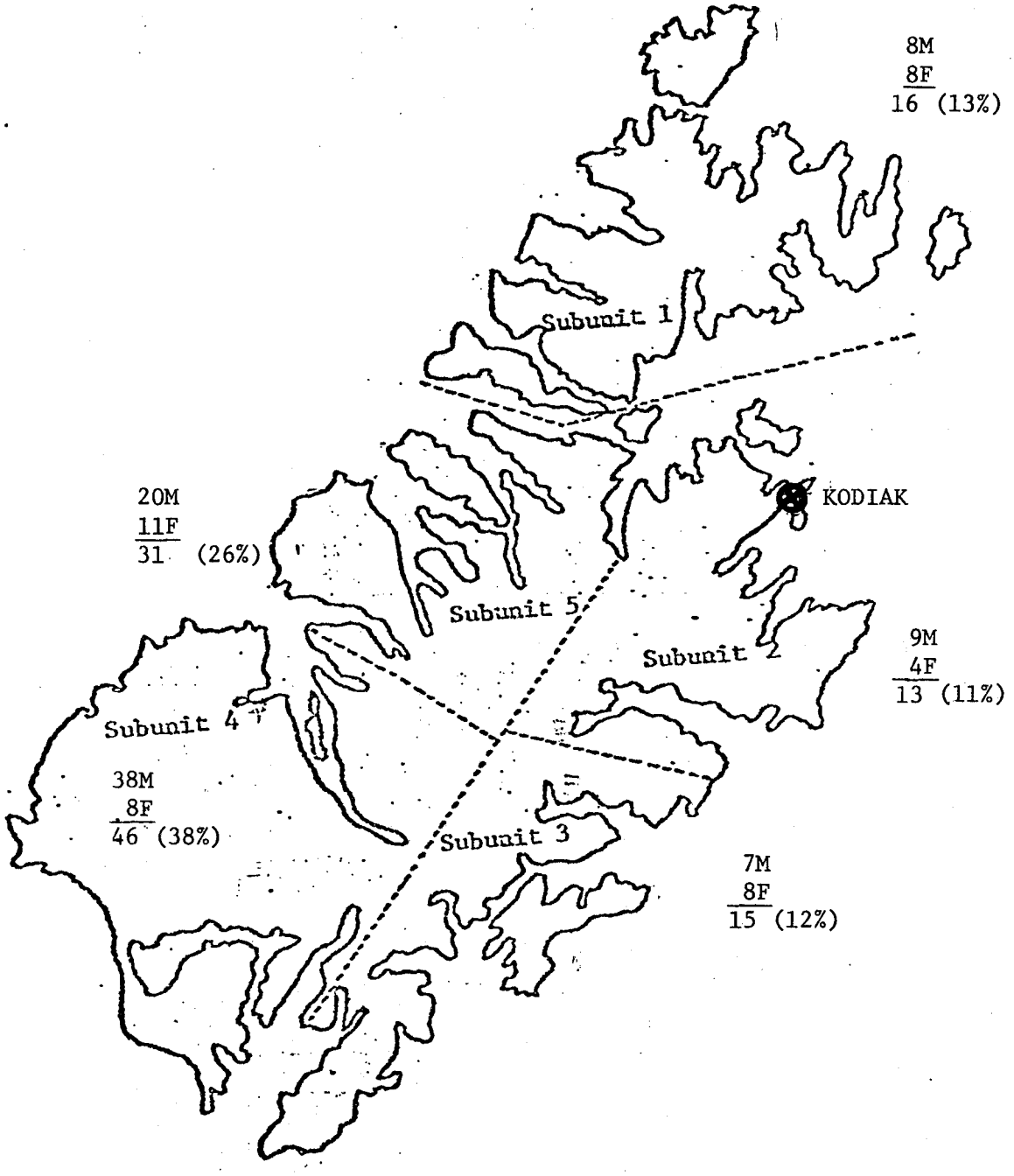
Distribution of Brown Bear Hunting by Season and Residency of Hunter, 1977-Unit 8

	Residents who reported hunting		Non-residents who reported hunting		Total hunters	
	No.	%	No.	%	No.	%
Spring						
Drawing hunt	83	59%	57	41%	140	100%
Registration hunt	56	81%	13	19%	69	100%
	139		70		209	
Fall						
Drawing hunt	36	60%	24	40%	60	100%
Registration hunt	46	98%	1	2%	47	100%
	82		25		107	
Spring and Fall						
Drawing hunt	119	60%	81	40%	200	100%
Registration hunt	102	88%	14	12%	116	100%
	221		95		316	

Submitted by: Roger B. Smith
Game Biologist III

APPENDIX V

Distribution of Unit 8 Brown Bear Sport Harvest 1977



Prepared By: Roger B. Smith
Game Biologist III

APPENDIX VI

Hide and Skull Size and Age Summary for Brown Bear Sport Harvest, Unit 8, 1966-1977.

	Mean Hide Sizes				Mean Skull Sizes				Mean Ages									
	Male		Female		Male		Female		All Males		All Females		All Sexes*		M. > = 5yr		F. > = 5yr	
Calendar Year	Hide Size	Samp Size	Hide Size	Samp Size	Skull Size	Samp Size	Skull Size	Samp Size	Age	Samp Size	Age	Samp Size	Age	Samp Size	Age	Samp Size	Age	Samp Size
1966	15.7	107	13.6	088	24.5	064	21.9	046	00.0	000	00.0	000	00.0	000	00.0	000	00.0	000
1967	15.3	107	13.7	077	23.9	063	21.9	033	00.0	000	00.0	000	00.0	000	00.0	000	00.0	000
1968	15.6	061	14.0	042	23.9	057	21.8	039	00.0	000	00.0	000	00.0	000	00.0	000	00.0	000
1969	16.0	060	14.2	032	24.3	058	21.8	033	05.7	052	05.2	032	05.5	084	07.4	028	07.6	015
1970	15.2	060	14.3	028	23.8	057	22.1	029	05.5	057	06.8	028	05.9	085	08.6	025	09.3	016
1971	15.2	063	13.8	042	24.0	057	21.6	038	06.4	059	05.5	040	06.0	099	10.1	028	09.0	015
1972	15.2	079	14.0	050	23.9	078	22.0	048	06.2	077	07.8	046	06.8	123	09.2	036	11.0	025
1973	15.5	086	13.7	068	24.5	082	21.5	065	07.4	084	07.0	068	07.3	152	09.4	056	09.9	037
1974	15.5	095	13.8	070	24.3	090	21.9	067	07.0	092	07.5	068	07.2	160	08.8	059	09.1	047
1975	15.4	069	13.3	048	23.9	065	21.5	042	06.5	066	05.7	047	06.2	113	08.4	039	07.4	027
1976	14.9	073	13.4	041	23.6	068	21.7	037	06.2	071	08.8	040	07.1	111	09.2	037	11.9	025
1977	14.9	083	12.9	040	23.2	079	21.1	037	05.9	080	06.6	036	06.1	116	09.0	037	10.2	018

Prepared By: Roger B. Smith, Game Biologist III

APPENDIX VII

Brown Bear Composition Counts, Kodiak National Wildlife Refuge*

Alpine Counts

Category	1971 No.	%	1972 No.	%	1973 No.	%	1974 No.	%	1975 No.	%	1976 No.	%	1977 No.	%
Adults	30	62%	171	80%	103	71%	55	54%	93	58%	39	49%	83	63%
Cubs	8	17%	29	14%	38	26%	29	28%	22	14%	20	25%	25	19%
Yearlings	10	21%	13	6%	5	3%	18	18%	45	28%	21	26%	24	18%
Total	48		213		146		102		160		80		132	

Stream Counts

Category	1971 No.	%	1972 No.	%	1973 No.	%	1974 No.	%	1975 No.	%	1976 No.	%	1977 No.	%
Adults	134	69%	181	75%	147	81%	132	78%	184	58%	84	54%	56	64%
Cubs	44	23%	39	16%	17	9%	18	11%	79	25%	9	6%	12	14%
Yearlings	16	8%	22	9%	18	10%	19	11%	53	17%	62	40%	19	22%
Total	194		242		182		169		316		155		87	

Stream and Alpine Counts Combined

Category	1971 No.	%	1972 No.	%	1973 No.	%	1974 No.	%	1975 No.	%	1976 No.	%	1977 No.	%
Adults	164	68%	352	77%	250	76%	187	69%	277	58%	123	52%	139	63%
Cubs	52	21%	68	15%	55	17%	47	17%	101	21%	29	12%	37	17%
Yearlings	26	11%	35	8%	23	7%	37	14%	98	21%	83	35%	43	20%
Total	242		455		328		271		476		235		219	

* From US Fish and Wildlife Service Records

Submitted by: Roger B. Smith
Area Management Biologist
September 29, 1978

BROWN BEAR

SURVEY-INVENTORY PROGRESS REPORT 1977-78

Game Management Unit 9 - Alaska Peninsula

Season and Bag Limits

Spring Season

Unit 9, except the drainages of the Naknek River	Season closed in '76-'77 regulatory year	
Unit 9C, the drainages of Naknek River only	May 1 - June 30	One bear every four regulatory years by permit only; provided the taking of cubs and females accompanied by cubs is prohibited. See 5 AAC 81.055 and separate permit hunt supplement.

Fall Season

Unit 9C, the drainages of the Naknek River only	Sept. 1 - Oct. 31	One bear every four regulatory years by permit only; provided the taking of cubs and females accompanied by cubs is prohibited. See 5 AAC 81.055 and separate permit hunt supplement.
Remainder of unit 9C and 9A, 9B, 9D and 9E.	*Oct. 7 - Oct. 21	One bear every four regulatory years; provided taking of cubs and females accompanied by cubs is prohibited.

*Board policy is that the season in this portion of Unit 9 will be open every other regulatory year.

Harvest and Hunting Pressure

The 1977 GMU 9 brown bear season consisted of three parts: A 61-day spring season and a 61-day fall season on the lower drainages of the Naknek River, and a 15-day fall season for the remainder of the unit. Participation in the hunt on the drainages of the Naknek River required a permit, issued only at the King Salmon office of the Department of Fish and Game. During the spring, 12 hunters obtained permits and

harvested three bears; 45 hunters obtained permits for the fall hunt and harvested five bears. One hundred eighty-one additional brown bears were harvested during the 15-day fall season in the remainder of GMU 9. Thus the 1977 total kill was 189, which closely parallels the previous 10-year mean of 196 bears (Appendix I).

Unit wide, males constituted 58 percent of the fall harvest. The mean age of these males, 4.5 years, is the lowest on record, and the mean age of males over 5 years old, 8.3 years, is also substantially reduced compared to previous years. The mean male skull size, 22.4 inches, matches the 1974 mean as the smallest on record, but parameters for females harvested in 1977 do not differ significantly from prior high measurements (Appendix II).

Composition and Productivity

Limited data are available on mean litter sizes from observations at the McNeil River State Game Sanctuary and from a brown bear study conducted by the U.S. Park Service. The McNeil River data on nine litters indicates a family size of 2.66 cubs of the year and 1.83 cubs older than one year. The National Park Service data on 28 litters shows 2.11 cubs of the year and 2.58 cubs older than one year. Because of the small sample sizes and the fact that only sows with at least one cub were considered, it is impossible to draw definitive conclusions about the productivity of the population from these data. However, there is no indication that the GMU 9 brown bear population has suffered any reduction in potential production.

Management Summary and Conclusions

The 61-day spring and fall hunts on the lower drainages of the Naknek River were established by the Board of Game in 1976 to direct sport hunting pressure at the nuisance brown bears residing in close proximity to the communities of South Naknek, Naknek and King Salmon. A total of 13 brown bears have been harvested during the three seasons this hunt has existed. Two of the bears killed during the spring hunt in 1977 had been eartagged and tattooed during a National Park Service bear study at Brooks River in Katmai National Monument. This lends credence to the belief that some of the nuisance bears taken in local communities originate in the Monument area. It is likely that Katmai will continue to act as a reservoir of high bear density from which sub-adults will emmigrate into the low density Naknek drainage. Thus the extended local spring and fall seasons may have to be maintained to prevent any increases in potentially dangerous, bear-human interactions.

In 1976 the Board of Game also implemented alternate regulatory year brown bear seasons in the remainder of GMU 9 to achieve their goal of limiting the brown bear harvest to 150 bears annually, taken south of the Naknek River. Of the total 189 bears harvested in 1977, 160 were taken south of the Naknek River, exceeding the goal by 6.7 percent. Thus, it initially appears that the alternate year approach is a viable means of controlling the annual harvest level.

The declines in the two mean age values and low mean skull sizes of males harvested in 1977 (Appendix II) raise concern and may indicate that the availability of large males has been reduced in GMU 9. The declines may also be a result of season timing or changing hunter selectivity. Fall harvests traditionally include more young bears. More effective enforcement of the same day airborne regulation has reduced the opportunity to illegally locate and kill a large, older-age-class male. Hunters now tend to illegally take the first legal bear observed and a higher percentage of young age class animals are harvested. In the 1977 fall harvest, 74 percent of the male bears were less than 5 years old, whereas the 1976 spring harvest contained only 35 percent less than 5 years old. In 1975, with both a spring and fall season, an intermediate value of 40 percent males less than 5 years old was found. Therefore, with several possibly compounding causes of the decline, it is too early to accurately access the impact of an annual harvest of about 150 bears south of the Naknek River on this unit's potential to provide older age class animals. Age and skull size parameters should be monitored carefully in the spring of 1978 and fall of 1979 to determine whether or not the harvest goal needs to be modified.

Recommendations

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

PREPARED BY:

Christian A. Smith
Game Biologist III

SUBMITTED BY:

James B. Faro
Regional Management Coordinator

Appendix I

Game Management Unit 9, yearly bear sport harvest 1961-1977. Harvest summary by year, sex of bear and residency of hunter.

Calendar Year	Total Kill	# of Males	# of Females	% of Males*	% of Females	# of Unknown	# By Nonres.	% By Nonres.	Season Dates
1961	0120	084	031	073%	027%	005	071	059%	264 Days
1962	0154	108	046	070%	030%	000	096	062%	264 Days
1963	0164	102	055	065%	035%	007	114	070%	273 Days
1964	0156	103	045	070%	030%	008	110	071%	273 Days
1965	0209	136	069	066%	034%	004	138	066%	273 Days
1966	0229	157	062	072%	028%	010	172	075%	273 Days
1967	0214	147	063	070%	030%	004	163	076%	248 Days
1968	0160	113	042	073%	027%	005	134	084%	238 Days
1969	0093	066	022	075%	025%	005	067	072%	177 Days
1970	0157	102	050	067%	033%	005	118	075%	56 Days
1971	0195	122	063	066%	034%	010	137	070%	47 Days
1972	0279	154	119	056%	044%	006	203	073%	47 Days
1973	0242	138	098	058%	042%	006	183	076%	31 Days
1974	0141	075	066	053%	047%	000	114	081%	15 Days
1975	0224	120	096	056%	044%	008	141	063%	31 Days
1976	0153	107	041	072%	028%	005	087	057%	16 Days**
1977	0189	108	077	058%	042%	004	129	068%	15 Days**
TOTALS	3079	1942	1045	0065%	0035%	0092	2177	071%	

* All percentages are based on total known sex bears.
** An additional 122 days were open on the lower Naknek drainage.

PREPARED BY: Leo Miller, Game Technician V

Appendix II

Game Management Unit 9

Brown/grizzl, bear sport harvest 1961 - 1977 showing mean ages, skull and hide sizes harvested.

Calendar Year	Mean Hide Sizes				Mean Skull Sizes				Mean Ages										Season Dates
	Male		Female		Male		Female		All Males		All Females		All Sexes*		M. > = 5yr		F. > = 5yr		
	Hide Size	Samp Size	Hide Size	Samp Size	Skull Size	Samp Size	Skull Size	Samp Size	Age	Samp Size	Age	Samp Size	Age	Samp Size	Age	Samp Size	Age	Samp Size	
1961	16.4	081	13.7	027	26.2	029	21.5	004	00.0	000	00.0	000	00.0	000	00.0	000	00.0	000	264 Days
1962	16.4	105	13.4	046	26.6	035	21.1	004	00.0	000	00.0	000	00.0	000	00.0	000	00.0	000	264 Days
1963	16.0	100	13.2	055	26.6	050	21.9	008	00.0	000	00.0	000	00.0	000	00.0	000	00.0	000	273 Days
1964	16.1	101	13.9	044	26.7	040	22.6	006	00.0	000	00.0	000	00.0	000	00.0	000	00.0	000	273 Days
1965	15.7	134	13.5	065	25.7	070	21.8	015	00.0	000	00.0	000	00.0	000	00.0	000	00.0	000	273 Days
1966	15.7	157	13.8	061	25.8	061	22.3	015	00.0	000	00.0	000	00.0	000	00.0	000	00.0	000	273 Days
1967	15.8	144	13.8	063	24.9	111	21.8	042	00.0	000	00.0	000	00.0	000	00.0	000	00.0	000	248 Days
1968	15.5	113	14.0	042	24.2	104	21.6	038	00.0	000	00.0	000	00.0	000	00.0	000	00.0	000	238 Days
1969	15.8	065	13.5	021	24.6	064	21.3	019	07.5	055	05.9	019	07.1	074	09.7	034	09.7	007	117 Days
1970	15.2	100	14.1	050	24.0	099	22.2	047	06.9	093	07.0	044	07.0	137	09.8	054	10.6	021	56 Days
1971	15.1	119	13.5	062	24.0	117	21.5	060	06.8	112	05.4	061	06.3	173	10.4	054	09.2	020	47 Days
1972	14.7	151	13.6	119	23.5	146	22.0	112	06.8	146	08.0	115	07.3	261	10.7	066	11.1	067	47 Days
1973	14.9	138	13.4	098	23.5	134	21.5	089	06.0	129	06.8	093	06.3	222	08.3	064	10.2	044	31 Days
1974	14.3	074	13.4	065	22.4	066	21.6	060	05.5	073	07.5	065	06.4	138	10.0	023	11.9	030	15 Days
1975	14.4	120	13.6	095	23.1	117	21.6	093	06.0	119	07.1	094	06.5	213	10.0	048	10.6	047	31 Days
1976	15.3	106	13.0	041	24.5	105	21.1	040	07.5	099	06.5	038	07.2	137	09.4	064	09.2	020	16 Days***
1977	14.5	108	13.8	076	22.4	103	21.5	073	04.5	100	07.0	072	05.5	172	08.3	026	11.2	033	15 Days***
TOTALS	15.4	1916	13.6	1030	24.2	1451	21.7	0725	06.4	0926	07.0	0601	06.6	1527	09.7	0433	10.6	0289	

* 1961 and 1962 hide length measured from the base of the tail
** 1963 to present date hide elngth measured from anus
*** Harvest totals for the previous year may change as late sealing cert. are added.
**** An additional 122 days were open on the lower Naknek drainage.

PREPARED BY: Leo Miller, Game Technician V

BROWN BEAR

SURVEY-INVENTORY PROGRESS REPORT 1977-78

Game Management Unit 10 - Aleutian Islands

Seasons and Bag Limit

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

Bear hunting on Unimak Island is controlled by a permit system administered through the U.S. Fish and Wildlife Service. Fifteen permits are issued annually. During this reporting period six brown bears (five females and one of sex unknown) were harvested (Appendix I).

Composition and Productivity

No work was accomplished during this reporting period.

Management Summary and Conclusions

The brown bear range in GMU-10 is restricted to Unimak Island. This island is part of the Eastern Aleutian Island National Wildlife Range with access and brown bear hunting closely controlled by the U.S. Fish and Wildlife Service. Data from harvested animals are insufficient to produce meaningful indicators of the population status.

Recommendations

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

PREPARED BY: Christian A. Smith
Game Biologist III

SUBMITTED BY: James B. Faro
Regional Management Coordinator

BROWN/GRIZZLY BEAR

SURVEY-INVENTORY PROGRESS REPORT - 1977-78

Game Management Unit 11 - Wrangell Mountains, Chitina River

Season and Bag Limits

Unit 11	Sept. 1 - Oct. 10	One bear every four regulatory years, provided that the taking of cubs or females accompanied by cubs is prohibited.
	May 10 - May 25	

Harvest and Hunting Pressure

Tabulated data on brown/grizzly bear harvests from 1961 through 1977 are presented in Appendix I. The 1977 harvest of 22 bears (2 spring, 20 fall) is 18.5 percent lower than the 1976 total of 27. The percentage of males in the harvest dropped to 55 percent, 6 percent lower than the average since 1961. In 1977, mean hide size increased by 0.1 feet while the mean skull size and the mean age declined by 1.2 inches and 1.2 years respectively (Appendix I). Harvest by nonresidents made up 59 percent (13 bears) of the 1977 harvest.

Composition and Productivity

No data available.

Management Summary and Conclusions

Although 18 percent less than in 1976, the 1977 harvest of 22 bears represents another high harvest. The percentage of males in the 1977 harvest decreased to 55 percent while the mean age of the males increased to 6.1 years. The high kill figures along with a favorable mean age indicate the population is at least stable and is probably increasing.

Recommendations

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

2. Composition of kill should be closely monitored for decreasing percentage of males and increasing average ages.

PREPARED BY:

Robert Tobey
Game Biologist II

SUBMITTED BY:

James B. Faro
Regional Management Coordinator

APPENDIX I. Yearly 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[3]	Mean Skull Size Male[3]	Mean Cem. Lines Male[4]	Calendar Year Seasons
1961	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	16	10	63	7	44	13.8	22.0	8.3(10)	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	2	64	12	86	12.9	21.5	6.4(9)	Same
1975	20	12	63	12	60	12.8	21.9	7.2(10)	5/15-5/25 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
1977	22	12	55	13	59	12.8	20.6	6.1(11)	Same

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: Robert Toby, Game Biologist II

BROWN/GRIZZLY BEAR

SURVEY-INVENTORY PROGRESS REPORT

Game Management Unit 12 - Upper Tanana-White Rivers

Period Covered: July 1, 1977 - December 31, 1978

Seasons and Bag Limits

Unit 12	Sept. 10 - Oct. 10, 1977 May 10 - May 25, 1978 Sept. 1 - Oct. 10, 1978	One bear every four regulatory years; provided that the taking of cubs and females accompanied by cubs is prohibited.

Harvest and Hunting Pressure

According to sealing documents, 21 bears (8 males and 13 females) were harvested in Unit 12 during the reporting period. In addition, one male bear was taken in defense of life. The mean skull size for male bears was 22.3 inches. Compared to bears taken during the previous 5 years, this represented an increase of approximately 1.0 inches in average skull size. Eight bears were taken during fall 1977, nine during fall 1978 and four in spring 1978. There was no significant difference in skull size between fall-harvested bears and spring-harvested bears. The Nabesna and Tok River drainages each produced seven and six bears, respectively, while three bears each were taken from the Chisana and White River drainages and two from the Tetlin drainage. The harvest distribution was similar to that of recent years.

Hunters utilizing aircraft for transportation harvested 14 bears, those using horses took three and those using highway vehicles or hunting on foot each took two. Mean length of successful hunts was 7.1 days.

Of the successful hunters, 18 were nonresidents and three were residents. All three resident-harvested bears were taken during the spring season. In the past, residents have accounted for about half of the harvest, but that percentage has decreased in recent years.

The average age for seven males was 9.2 years and for 12 females, 6.2 years. This sample size is too small for meaningful data analysis.

Management Summary and Recommendations

The 1978 Unit 12 grizzly bear harvest of 14 animals represents little difference from the past 10-year average of 15 bears. The resident harvest declined appreciably from former years, which is most likely due to the reduced hunting pressure after the recently imposed $25 resident tag fee came into effect. Although we have no accurate measure of

grizzly bear hunting effort except on a statewide basis, there appears to be considerable interest in grizzly hunting among interior Alaska hunters.

Considering the geographical size of Unit 12 and the apparent abundance of grizzly bears, the harvest during this period was light. Casual observations indicate that grizzly bears are reasonably abundant throughout most of Unit 12; however, most hunting effort is concentrated in only a few areas.

The 1977-1978 bear harvest represents only a small portion of the population; therefore, skull and hide measurement data probably do not accurately represent the true age or sex composition of the bear population, nor do they reflect the abundance of large, trophy animals in the population.

The small harvests of recent years have had little effect on the Unit 12 grizzly populations; the density of grizzlies in the area appears to be high enough to sustain an increased harvest.

PREPARED BY:

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Larry B. Jennings
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SUBMITTED BY:

Oliver E. Burris
Regional Management Coordinator

BROWN/GRIZZLY BEAR

SURVEY-INVENTORY PROGRESS REPORT - 1977 - 1978

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 and females accompanied by cubs is prohibited.

Harvest and Hunting Pressure

The brown/gizzly bear harvest in Unit 13 was 38 bears. This figure represents a reduction in harvest of 20 bears from the 1976 harvest. Hunting pressure is not measured. The $25.00 resident tag regulation, permit requirements for caribou hunters, restrictions of guides to specific areas and the fall season opening in Game Management Unit 9 may have substantially reduced hunting pressure and therefore harvests in Game Management Unit 13.

Composition and Productivity

Sex and age data for harvested brown/grizzly bears are available from sealing documents. Figure 1 shows that 82 percent of the brown bears sealed in Game Management Unit 13 were males. Figure 2 indicates a mean age of 6.1 for the 1977 male harvest, which is slightly below the 9-year average of 6.4 years.

Management Summary and Conclusions

Hunting and guiding regulation changes which affect harvest pressure make analysis of harvest information difficult. Direct comparisons of 1977 data with previous years' information is not possible because of these changes and reduced sample sizes. Numerous requests for a spring brown bear season were submitted to the Board of Fish and Game by local advisory committees and individuals. The 1977 harvest data do not indicate that additional harvests can be sustained on a long term basis in Game Management Unit 13.

Recommendations

1. Retain existing season to establish trends under the new regulations.
2. Obtain information from the population through additional research.

PREPARED BY:

Sterling Eide
Game Biologist III

SUBMITTED BY:

James B. Faro
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Figure 1.

111-0104 ***
/12/78

GAME MANAGEMENT UNIT 13
YEARLY BEAR SPORT HARVEST 1961 - 1977
HARVEST SUMMARY BY YEAR, SEX OF BEAR, AND RESIDENCY OF HUNTER
BROWN GRIZZLY

CALENDAR YEAR	TOTAL KILL	# OF MALES	# OF FEMALES	% OF MALES	% OF FEMALES	# OF UNKNOWN	# BY NONRES	% BY NONRES	SEASON DATES
1961	0041	020	020	050 %	050 %	001	025	061%	30 DAYS
1962	0034	021	013	062 %	038 %	000	019	056%	30 DAYS
1963	0041	021	019	053 %	048 %	001	026	063%	30 DAYS
1964	0036	015	020	043 %	057 %	001	023	064%	30 DAYS
1965	0044	025	018	058 %	042 %	001	021	048%	30 DAYS
1966	0063	033	026	056 %	044 %	004	041	065%	30 DAYS
1967	0031	016	014	053 %	047 %	001	014	045%	30 DAYS
1968	0037	017	019	047 %	053 %	001	018	049%	21 DAYS
1969	0017	015	002	088 %	012 %	000	008	047%	31 DAYS
1970	0027	018	008	069 %	031 %	001	015	056%	21 DAYS
1971	0072	032	035	048 %	052 %	005	044	061%	35 DAYS
1972	0048	028	020	058 %	042 %	000	025	052%	31 DAYS
1973	0044	026	017	060 %	040 %	001	026	059%	31 DAYS
1974	0072	040	031	056 %	044 %	001	034	047%	40 DAYS
1975	0080	043	031	058 %	042 %	006	037	046%	40 DAYS
1976	0058	028	025	053 %	047 %	005	022	038%	40 DAYS
1977	0038	031	007	082 %	018 %	000	012	032%	40 DAYS
TOTALS	0783	0429	0325	0057 %	0043 %	0029	0410	052%	

*** HARVEST TOTALS FOR THE PREVIOUS YEAR MAY CHANGE AS LATE SEALING CERT. ARE ADDED.
- * ALL %S ARE BASED ON TOTAL KNOWN SEX BEARS

Figure 2.

R01-111-0105

GAME MANAGEMENT UNIT 13
YEARLY BEAR SPORT HARVEST 1961 - 1977
MEAN AGES, SKULL AND HIDE SIZES HARVESTED
BROWN GRIZZLY

04/03/78

CALENDAR YEAR	MEAN HIDE SIZES: MALE SIZE	MALE SAMP SIZE	FEMALE SIZE	FEMALE SAMP SIZE	MEAN SKULL SIZES: MALE SIZE	MALE SAMP SIZE	FEMALE SIZE	FEMALE SAMP SIZE	MEAN AGES: ALL MALES AGE	ALL MALES SAMP SIZE	ALL FEMALLS AGE	ALL FEMALLS SAMP SIZE	ALL SEXES* AGE	ALL SEXES* SAMP SIZE	M. >= 5YR AGE	M. >= 5YR SAMP SIZE	F. >= 5YR AGE	F. >= 5YR SAMP SIZE	SEASON DATES
1961	13.1	018	11.9	019	23.4	002	21.7	001	00.0	000	00.0	000	00.0	000	00.0	000	00.0	000	30 DAYS
1962	14.0	020	12.3	012	21.0	002	19.6	001	00.0	000	00.0	000	00.0	000	00.0	000	00.0	000	30 DAYS
1963	12.7	021	11.7	019	23.3	001	19.9	002	00.0	000	00.0	000	00.0	000	00.0	000	00.0	000	30 DAYS
1964	12.8	014	11.7	020	21.3	005	20.4	004	00.0	000	00.0	000	00.0	000	00.0	000	00.0	000	30 DAYS
1965	12.9	024	11.8	018	21.5	009	21.0	005	00.0	000	00.0	000	00.0	000	00.0	000	00.0	000	30 DAYS
1966	13.1	033	12.0	026	21.2	007	19.9	006	00.0	000	00.0	000	00.0	000	00.0	000	00.0	000	30 DAYS
1967	12.9	016	11.6	013	22.2	013	19.4	011	00.0	000	00.0	000	00.0	000	00.0	000	00.0	000	30 DAYS
1968	12.9	018	12.0	019	22.0	015	19.6	018	00.0	000	00.0	000	00.0	000	00.0	000	00.0	000	21 DAYS
1969	13.1	015	11.5	002	22.0	014	20.2	002	06.7	012	04.8	002	06.4	014	09.1	007	05.8	001	31 DAYS
1970	12.7	018	11.1	008	20.5	018	19.4	007	05.2	014	05.7	007	05.4	021	09.6	005	08.3	004	21 DAYS
1971	12.3	032	11.9	035	20.4	031	19.4	032	05.0	026	06.9	033	06.0	059	09.1	008	10.9	015	35 DAYS
1972	13.0	027	11.8	020	21.3	027	19.7	018	06.9	027	05.3	020	06.2	047	11.1	012	09.1	006	31 DAYS
1973	13.4	025	12.0	017	21.7	023	20.3	016	06.9	025	07.3	015	07.1	040	11.1	011	08.4	011	31 DAYS
1974	12.8	040	12.0	031	21.1	038	19.8	027	06.3	039	07.3	028	06.7	067	11.1	016	10.6	016	40 DAYS
1975	13.0	042	12.2	031	21.7	041	20.2	029	07.2	040	07.7	031	07.4	071	12.4	016	09.8	021	40 DAYS
1976	13.1	027	11.4	025	21.5	025	19.3	022	06.8	028	05.0	025	05.9	053	10.8	014	08.7	005	40 DAYS
1977	12.6	031	11.3	006	20.7	026	19.9	006	06.1	028	07.4	005	06.3	033	12.4	009	10.5	003	40 DAYS
TOTALS	12.9	0421	11.9	0321	21.3	0297	19.8	0207	06.4	0239	06.6	0166	06.5	0405	11.0	0098	09.7	0086	

* 1961 AND 1962 HIDE LENGTH MEASURED FROM THE BASE OF THE TAIL
** 1963 TO PRESENT DATE HIDE LENGTH MEASURED FROM ANUS
*** HARVEST TOTALS FOR THE PREVIOUS YEAR MAY CHANGE AS LATE SEALING CERT. ARE ADDED.

BROWN/GRIZZLY BEAR

SURVEY-INVENTORY PROGRESS REPORT - FOR CALENDAR YEAR 1977

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

Four bears were killed in Game Management Unit 14 during 1977 (Appendix I). A decreasing trend in total harvest since 1963 is evident. Chugach State Park (Subunit 14C) has been closed to brown bear hunting since 1973, and this closure may have contributed to the decrease in total harvests. Relative to the previous decade, nonresident hunters have taken a relatively smaller portion of each harvest during the 1970's. In 1977, all of brown bears harvested in Unit 14 were taken by residents.

Composition and Productivity

Percentages of males in the harvests have varied greatly, as expected when dealing with such small numbers. Cumulatively, the mean percentage of all males harvested is 49 percent of the total harvests.

Management Summary and Conclusions

Total bear harvests from Unit 14 have declined in the 1970's relative to the 1960's. This decline may be due partly to cessation of hunting in Subunit 14C, since the creation of Chugach State Park.

Recommendations

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

PREPARED BY:

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SUBMITTED BY:

James B. Faro
Regional Management Coordinator

Appendix I

R01-111-0104 ***
03/30/78

GAME MANAGEMENT UNIT 14
YEARLY BEAR SPORT HARVEST 1961 - 1977
HARVEST SUMMARY BY YEAR, SEX OF BEAR, AND RESIDENCY OF HUNTER
BROWN GRIZZLY

CALENDAR YEAR	TOTAL KILL	# OF MALES	# OF FEMALES	% OF MALES	% OF FEMALES	# OF UNKNOWN	# BY RESIDENTS	% BY RESIDENTS	SEASON DATES
1961	0014	006	008	043 %	057 %	000	007	050%	30 DAYS
1962	0007	004	003	057 %	043 %	000	000	000%	30 DAYS
1963	0013	008	004	067 %	033 %	001	005	038%	30 DAYS
1964	0012	009	003	075 %	025 %	000	001	008%	30 DAYS
1965	0015	007	008	047 %	053 %	000	007	047%	45 DAYS
1966	0005	002	003	040 %	060 %	000	002	040%	30 DAYS
1967	0012	006	005	055 %	045 %	001	006	050%	30 DAYS
1968	0011	003	007	030 %	070 %	001	006	055%	30 DAYS
1969	0002	002	000	100 %	000 %	000	000	000%	31 DAYS
1970	0004	000	004	000 %	100 %	000	000	000%	21 DAYS
1971	0016	006	010	038 %	063 %	000	004	025%	35 DAYS
1972	0004	002	002	050 %	050 %	000	000	000%	31 DAYS
1973	0001	001	000	100 %	000 %	000	000	000%	31 DAYS
1974	0003	001	001	050 %	050 %	001	000	000%	31 DAYS
1975	0005	004	001	080 %	020 %	000	001	020%	31 DAYS
1976	0008	002	004	033 %	067 %	002	004	050%	31 DAYS
1977	0004	001	003	025 %	075 %	000	000	000%	31 DAYS
TOTALS	0136	0064	0066	0049 %	0051 %	0006	0043	032%	

*** HARVEST TOTALS FOR THE PREVIOUS YEAR MAY CHANGE AS LATE SEALING CERT. ARE ADDED.
- * ALL %S ARE BASED ON TOTAL KNOWN SEX BEARS

Prepared by: Leo Miller

Game Technician V

BROWN/GRIZZLY BEAR

SURVEY-INVENTORY PROGRESS REPORT - CALENDAR YEAR 1977

Game Management Unit 15 - Western Kenai Peninsula

Seasons and Bag Limits

Sept. 10 - Sept. 30	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 certificates indicate that two male and three female bears were taken during the 1977 season (Appendix I). The 1977 harvest was comparable to the average annual harvest for 1961-1976 of 4.7 bears. One bear was taken by a nonresident.

Composition and Productivity

Data not available.

Management Summary and Conclusion

Appendix I shows annual harvest characteristics of brown bears killed since 1961.

The 1977 sport harvest of five brown bears is comparable to the average of 4.7 for the preceeding 16 years and is well below the sustained yield level. Most bears in Unit 15 are harvested incidental to moose hunting. The low bear harvest in 1977 may have resulted from the delayed opening of bear season (Sept. 10) compared to the opening of moose season (Sept. 1).

Although there is no technique available to census bears, their numbers appear to be increasing. This theory is supported by the increased number of reported brown bear sightings and complaints of nuisance bears.

Recommendations

No change in the spring brown bear season.

The fall brown bear season should be lengthened from September 10 - September 30 to September 1 - October 10. This change will provide greater opportunities for hunters to kill bears and allow later hunting for those sportsmen concerned about hide quality.

PREPARED BY:

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SUBMITTED BY:

James B. Faro
Regional Management Coordinator

APPENDIX I

Brown/Grizzly Bear - 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)			9/01-09/30
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
1977	5	2	40	1	20	14.3(2)	22.3(2)	2.8(2)	9/10-09/30

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 A. LeRoux, Game Biologist III

BROWN/GRIZZLY BEAR

SURVEY-INVENTORY PROGRESS REPORT 1977-78

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-nine brown bears were killed during the 1977 bear seasons in Unit 16 (Appendix I). Nine male bears and one bear of unknown sex were taken during the spring season, the highest spring harvest since 1972. Nine males and 10 females were killed during the fall season. Twelve bears (41%) were taken by nonresident hunters.

Composition and Productivity

Sixty-four percent of the known-sex brown bears taken in Unit 16 in 1977 were males. Although harvest figures collectively show a greater percentage of males than females taken, 1977 was the first year since 1974 that this actually occurred. The mean age of bears killed in 1977 was 7.6 years for males and 5.8 years for females. Trend line analysis indicates a stable mean age in the harvest of both sexes. The mean skull size of males taken in 1977 was 22.8 inches, slightly above the 16-year average of 22.4 inches.

Management Summary and Conclusions

Annual harvests of brown bears in Unit 16 have fluctuated between 18 and 43 bears since 1961. Harvests peaked between 1967 and 1971 when an average of 40 bears per year were taken. No adverse effects from this level of harvest were noted in subsequent mean ages or skull sizes of either sex. Harvest levels have remained below 30 bears per year for the past 4 years. With a 10 day extension on the fall 1978 season, the bear kill in Unit 16 is expected to be noticeably higher than it has been in the past.

Recommendations

Season dates were expanded by the Board of Game from 10 September-10 October to 1 September-10 October for the 1978 season. No further changes are recommended.

PREPARED BY:

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Game Biologist III and Game Biologist II

SUBMITTED BY:

James B. Faro
Regional Management Coordinator

Appendix I

Game Management Unit 16

Yearly brown/grizzly bear sport harvest - summary by year, sex of bear, and residency of hunter.

Calendar Year	Total Kill	# of Males	# of Females	% of Males	% of Females	# of Unknown	# By Nonres.	% By Nonres.	Season Dates
1961	0029	011	016	041%	059%	002	019	066%	153 Days
1962	0018	009	009	050%	050%	000	010	056%	153 Days
1963	0027	018	008	069%	031%	001	012	044%	153 Days
1964	0019	013	006	068%	032%	000	009	047%	153 Days
1965	0037	022	008	073%	027%	007	019	051%	153 Days
1966	0028	011	016	041%	059%	001	014	050%	153 Days
1967	0025	011	012	048%	052%	002	016	064%	153 Days
1968	0023	016	007	070%	030%	000	016	070%	153 Days
1969	0037	023	013	064%	036%	001	017	046%	76 Days
1970	0041	032	008	080%	020%	001	028	068%	81 Days
1971	0041	020	019	051%	049%	002	020	049%	81 Days
1972	0023	013	009	059%	041%	001	011	048%	67 Days
1973	0043	024	016	060%	040%	003	024	056%	56 Days
1974	0024	014	008	064%	036%	002	016	067%	47 Days
1975	0019	008	010	044%	056%	001	008	042%	47 Days
1976	0025	011	012	048%	052%	002	007	028%	47 Days
1977	0029	018	101	064%	036%	001	012	041%	47 Days
TOTALS	0488	0274	0187	0059%	0041%	0027	0258	053%	

* All percentages are based on total known sex bears.
*** Harvest totals for the previous year may change as late sealing cert. are added.

PREPARED BY: Leo Miller, Game Technician V

Appendix II

Game Management Unit 16

Yearly brown/grizzly bear sport harvest 1961 - 1977 showing mean ages, skull and hide sizes harvested.

	Mean Hide Sizes				Mean Skull Sizes				Mean Ages									
	Male		Female		Male		Female		All Males		All Females		All Sexes*		M. > = 5yr		F. > = 5yr		
Calendar Year	Hide Size	Samp Size	Hide Size	Samp Size	Skull Size	Samp Size	Skull Size	Samp Size	Age	Samp Size	Age	Samp Size	Age	Samp Size	Age	Samp Size	Age	Samp Size	Season Dates
1961	12.8	011	12.6	016	21.7	002	19.2	001	00.0	000	00.0	000	00.0	000	00.0	000	00.0	000	153 Days
1962	12.2	009	12.5	009	00.0	000	00.0	000	00.0	000	00.0	000	00.0	000	00.0	000	00.0	000	153 Days
1963	13.1	018	12.1	008	23.6	004	00.0	000	00.0	000	00.0	000	00.0	000	00.0	000	00.0	000	153 Days
1964	12.7	013	11.2	006	22.8	002	00.0	000	00.0	000	00.0	000	00.0	000	00.0	000	00.0	000	153 Days
1965	13.5	022	12.5	008	22.5	005	00.0	000	00.0	000	00.0	000	00.0	000	00.0	000	00.0	000	153 Days
1966	13.3	011	12.3	016	24.4	003	20.1	004	00.0	000	00.0	000	00.0	000	00.0	000	00.0	000	153 Days
1967	41.2	011	11.8	012	22.6	009	20.5	008	00.0	000	00.0	000	00.0	000	00.0	000	00.0	000	153 Days
1968	14.4	015	11.7	007	23.4	013	19.6	007	00.0	000	00.0	000	00.0	000	00.0	000	00.0	000	153 Days
1969	14.2	023	11.9	013	22.6	022	20.5	009	06.8	022	05.8	011	06.5	033	11.3	010	09.0	005	76 Days
1970	14.1	031	12.3	008	22.3	030	19.3	006	06.8	028	05.3	008	06.5	036	10.4	014	08.2	004	81 Days
1971	13.1	020	12.4	019	21.7	018	20.1	018	05.1	018	05.3	018	05.2	036	10.4	005	09.6	006	81 Days
1972	13.7	012	11.7	008	23.6	011	20.2	009	08.0	012	07.5	008	07.8	020	11.7	007	09.6	005	67 Days
1973	13.0	023	11.8	016	22.0	021	20.6	015	06.5	024	07.3	015	06.8	039	10.1	011	10.9	008	56 Days
1974	13.3	014	11.2	008	22.2	014	18.9	008	06.6	014	04.0	008	05.7	022	09.6	008	08.1	002	47 Days
1975	13.6	008	12.5	101	21.7	006	20.7	009	07.2	008	08.6	009	08.0	017	11.0	004	10.3	007	47 Days
1976	12.5	011	12.2	011	20.9	009	20.4	008	04.5	011	06.2	011	05.3	022	11.1	002	08.1	006	47 Days
1977	14.0	018	12.0	010	22.8	017	20.0	010	07.6	017	05.8	010	06.9	027	12.1	008	08.2	005	47 Days
TOTALS	13.5	0270	12.1	0185	22.4	0186	20.1	0112	06.6	0154	06.2	0098	06.4	0252	10.8	0069	09.3	0048	

* 1961 and 1962 hide length measured from the base of the tail.
** 1963 to present date hide length measured from anus.
*** Harvest totals for the previous year may change as late sealing cert. are added.

PREPARED BY: Leo Miller, Game Technician V

BROWN BEAR

SURVEY-INVENTORY PROGRESS REPORT - 1977-78

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 in 1977 was 42 bears (Appendix I), of which 26 were taken in the spring and 16 were taken in the fall. Males represented 73 percent of the spring kill, 56 percent of the fall kill, and 67 percent overall. Mean male hide size (15.3 feet), skull sizes (23.9 inches), and age (9.6 years) increased over the 1976 values and were above the average for the past 10 years (Appendix I). The percent of the harvest taken by nonresidents declined slightly from previous levels to 71 percent.

Composition and Productivity

No data are available.

Management Summary and Conclusions

The trend toward increasing harvests in Unit 17 is continuing. As noted in previous reports, the harvest pattern in this Unit reflects closures in adjacent Unit 9. Thus in 1977 with the Alaska Peninsula closed during May, the Unit 17 spring kill increased by 25 percent over previous levels. In even numbered years, it is anticipated that the majority of the kill will occur during the fall. While this induced "alternate year" fluctuation may have some beneficial effect through spreading hunting mortality over a broad range of sex and age categories, a number of parameters should be closely monitored to assess the overall impact of increasing harvest levels on the Unit 17 bear population.

Primary among those statistics that should be watched is the age distribution of the harvested males. While the current high mean age and

wide-spread distribution of ages may indicate that hunting pressure is relatively light and not affecting the male age structure; it could just as well indicate that non-selective hunting pressure is being exerted upon a population whose age distribution was previously unaltered by hunting. In that case, ages of harvested bears yield no clue to the intensity of the take.

The relatively low harvests prior to 1970 followed by increasing kills since then could set the stage for the latter situation. If, in fact, an average harvest of 30-40 bears has been sufficient to affect the male age structure, an unpredictable, rapid decline in male ages should occur in the near future. Given the general reproductive biology of brown bears, such a decline should occur within the next 2 years. Unless such a decline takes place, however, there is no evidence that a harvest of this magnitude is at all detrimental.

In addition it should be emphasized that the above mentioned phenomenon would not necessarily indicate a major population decline. It would simply indicate that harvest levels had reached a point where the age structure had been modified by removing most of the old males from the population. If, however, subsequent harvests remain at the level at which the decline in male age occurs for a few more years, then a hunting-induced population decline could result. Thus a decline in male age should be taken as a warning that the maximum harvest level has been reached or perhaps exceeded.

Two other statistics that are valuable in assessing harvest intensity are overall sex ratio and the sex ratio of older bears in the harvest. In hunted bear populations, the males' age structure generally declines at a greater rate than the females'. This is a function of the reduced "vulnerability" of sows due to their protection during years when they are accompanied by cubs. As hunting mortality increases, the sexual disparity in age structures becomes more pronounced and females numerically dominate the population. As a result, even though they are individually "less vulnerable" their relative abundance leads to nearly equal availability of legal sows and boars in any given year. Thus a sustained 1:1 sex ratio in the harvest should be taken as an indication of heavy hunting pressure. As a corallary to the above, in heavily hunted populations females should significantly out-number males among the older bears taken.

In Unit 17, males comprise nearly 70 percent of the harvest and since 1970 have dominated the age classes over 10 by a 4.4:1 margin. Thus it appears that current harvest levels are not excessive. Should these sex ratios change or, as discussed previously, should male ages drop sharply in the future, more restrictive regulations might then be desirable.

Recommendations

No change in season and bag limits.

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APPENDIX I

Game Management Unit 17 - Bristol Bay

Brown/Grizzly Bear Sport Harvest, Calendar Years 1961 through 1977

Calendar Year	Total Kill	% Spring[1]	% Males[2]	% Nonres.	Mean Hide Size Male[3]	Mean Skull Size Male[4]	Mean Cem Age Male[5]	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	9	27	91	14.8	22.5	--	Same
1968	10	30	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	17	55	87	14.7	23.1	6.1(11)	5/15-6/10 9/1-10/15
1971	33	21	66	79	14.2	23.1	6.5(18)	Same
1972	36	14	61	78	13.9	22.1	8.0(21)	Same
1973	41	56	75	80	15.0	24.3	9.6(26)	5/15-6/10 10/7-10/21
1974	29	62	83	76	15.2	23.7	7.7(22)	Same
1975	29	52	79	86	15.1	23.5	9.8(23)	5/10-5/25 10/7-10/21
1976	37	32	68	89	14.7	22.9	7.7(24)	Same
1977	42	62	67	71	15.3	23.9	9.6(26)	Same

1/ % of total kill taken in spring for years with $\bar{>}$ 10 bears harvested.
2/ All male % based on known- sex bears.
3/ Length plus width given in feet.
4/ Length plus width given in inches.
5/ Tooth sample size in parenthesis.

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BROWN/GRIZZLY BEAR

SURVEY-INVENTORY PROGRESS REPORT-1977-78

Game Management Unit 18 - Yukon-Kuskokwim Delta

Period covered July 1, 1977 - June 30, 1978

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

Four grizzly bears, three males and one female, were reported taken in Unit 18 during the fall of 1977. All four bears were harvested by nonresidents on guided hunts.

Two of the males harvested were 11 years old, the remaining male was a two-year-old. The female was 14 years of age.

Composition and Productivity

An aerial survey was flown July 31, 1977 during the morning hours on the Tuluksak, Kisaralik and Kasigluk Rivers and no bears were sighted. This was probably a function of the high water conditions rather than an index of the bear population in those drainages.

Management Summary and Recommendations

The 1977 grizzly harvest in Unit 18 was higher than any annual harvest since 1971 when six bears were taken. Three of the bears were taken on the Kisaralik River and the remaining one was harvested on Cripple Creek in the Kilbuck Mountains. All of the bears this year were taken by one guide team. From local reports, bears are present in sufficient numbers to continue to attract hunters.

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

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BROWN/GRIZZLY BEAR

SURVEY-INVENTORY PROGRESS REPORT - 1977-78

Game Management Unit 19 - McGrath

Period Covered: January 1, 1977 - December 31, 1978

Seasons and Bag Limits

Unit 19	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 grizzly bear harvest of 45 during 1977 was similar to the average of 43 for the previous 10 years, but the 1978 take of 70 bears was the highest on record for Unit 19. This increase in grizzly bear kill occurred primarily during fall 1978.

The harvest of bears continued to be highest in Subunits 19A, 19B and 19C, with over half of the grizzly bear kill reported from Subunits 19A and 19B. During this 2-year period almost 90 percent of the successful bear hunters in this area were nonresidents. There was a high degree of competition for bears, especially in the Nushagak Hills (Subunit 19B and southern 19A) where 14 guides have hunting areas. This competition was compounded by the fact that the Unit 9 bear season (except the Naknek drainage) was closed. Over 20 percent of the statewide grizzly harvest is usually taken from Unit 19. As a result of the Unit 9 closure, a considerable amount of hunting pressure has shifted to Unit 19. Most guides prefer to book combination hunts featuring moose, caribou and brown bear hunting in a single area. Portions of Unit 19 offer such opportunities; consequently, this unit received a high amount of hunting pressure from nonresidents on guided hunts.

During the 1977 and 1978 fall seasons, guides and hunters reported seeing many young bears, a fact that suggests the bear population may be beginning to exhibit some changes in age structure and numbers. In this period, age data analysis of hunter-killed bears showed that increased numbers of adult females (those over 5 years of age) are beginning to appear in the harvest. This trend began to emerge in the statistics after 5 years (1972-1976) of relatively heavy harvest. In 1977 and 1978 the proportion of females over 5 years of age in the harvest to males over 5 years of age in the harvest was 85 males/100 females. For the previous 5 years the ratio was 160 males/100 females. Female bears of all ages accounted for 50 percent of the harvest (23 of 43 bears of known sex, 1977; 33 of 68, 1978).

The average age of the 43 bears taken in 1977 was 7.9 years; in 1978 the average age of 68 bears was 8.0 years. These figures represent little change from the average age of 8.3 years for bears comprising the harvests during the period 1969-1976.

Management Summary and Recommendations

Continued heavy exploitation of grizzly bears in Unit 19 may result in overharvest of productive females and a decrease in the number of trophy size bears. Harvest levels should be kept at no more than 50 bears a year by restrictions of fall seasons, alternate year open seasons or permit seasons. The area of greatest concern is the Nushagak Hills (Subunit 19B and southern 19A) where no more than 35 bears should be taken. Since the 1979-1980 season will be open in Unit 9 and a more effective enforcement effort has begun in Unit 19, no changes in seasons or bag limits are recommended at this time.

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BROWN/GRIZZLY BEAR

SURVEY-INVENTORY PROGRESS REPORT - 1977-78

Game Management Unit 20 - Fairbanks, Central Tanana River Drainage

Period Covered: July 1, 1977 - December 31, 1978

Seasons and Bag Limits

Unit 20	Sept. 10 - Oct. 10, 1977 May 10 - May 25, 1978 Sept. 1 - Oct. 10, 1978	One bear every four regulatory years, provided that the taking of cubs and females accompanied by cubs is prohibited.

Harvest and Hunting Pressure

The reported sport harvest for Unit 20 during the period July 1, 1977 to December 31, 1978 was 56 grizzly bears (Table 1). In addition, one bear was reported taken in defense of life and property during 1978. The spring 1978 harvest of five bears (3 males and 2 females) was comparable to the average spring harvest of seven bears for the 15 previous years during which spring seasons were open. Ten days were added to the fall 1978 season for a total season length of 56 days.

Table 1. Grizzly bear sport hunting harvest for Unit 20.

Season	Total Harvest	No. of Males (percent)	No. of Females (percent)	Unknown Sex
Fall 1977	21	14(70)	6(30)	1
Spring 1978	5	3(60)	2(40)	0
Fall 1978	30	19(68)	9(32)	2

The 1978 harvest of 35 grizzlies was the highest kill since 1972 when 36 bears were taken. This level of harvest was probably the result of opening the season 10 days earlier than in 1977, a situation which allowed increased opportunity to take bears incidental to moose and sheep hunting. Nonresident hunters took 14 and 20 percent of the grizzlies during 1977 and 1978, respectively; however, no bears were killed by nonresidents during spring seasons.

Male bears comprised 70 percent of the harvest during this reporting period. The ages of bears killed ranged from 2 to 18 years (mean 7.5) for males and 2 to 17 years (mean 6.5) for females.

Composition and Productivity

Because of the lack of reliable techniques, bear surveys are not conducted in Unit 20, but it appears that productivity is moderate to high. Observations by Department biologists and reports from the public indicated that sow-cub and sow-yearling family groups were relatively abundant. Although the sample size for known-age bears taken during fall 1978 was small (n=28), 80 percent of the males and 67 percent of the females were less than 8 years of age. This further suggests a moderate to high production rate.

Management Summary

Hunting pressure and harvest continues to be concentrated in the Alaska Range. Even so, the grizzly population appears to be moderately dense in this area. Grizzlies are also abundant in the Tanana Hills and White Mountains, but are virtually unhunted throughout much of this area. Since the moose hunting season closure and restricted caribou seasons began, grizzly harvests have been virtually eliminated in Subunit 20E. The grizzly population in Subunit 20E and northern 20C appears to be increasing. Harvests in these areas are low. Consequently, higher levels of harvest could probably be sustained without adverse effects.

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BROWN/GRIZZLY BEAR

SURVEY-INVENTORY PROGRESS REPORT - 1977-78

Game Management Unit 21 - Middle Yukon

Period Covered: July 1, 1977 - December 31, 1978

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

One bear was reported taken during fall 1977, one during spring 1978 and three during fall 1978. During 1961-1976, the number of bears reported taken annually by hunters ranged from zero to seven and averaged 1.7 bears per year. Of the five bears killed during the report period, three were males, one was a female and one was of unknown sex. In addition, one male was taken in defense of life or property. Three of the five bears killed were taken by nonresidents.

Hunting pressure may increase in the area during the next few years if guides move into Unit 21 to establish exclusive guiding areas.

Management Summary and Recommendations

At the present rate of harvest in Unit 21, the bear population should remain unaffected by hunting pressure. No changes in regulations are recommended.

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BROWN/GRIZZLY BEAR

SURVEY-INVENTORY PROGRESS REPORT - 1977-78

Game Management Unit 22 - Seward Peninsula

Period Covered: January 1, 1977 - June 30, 1978

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

The reported harvest during the 18 month report period was 29 grizzly bears, 22 males, six females and one bear of unknown sex. Nine bears were taken illegally or in defense of life and property and two were taken on a scientific collecting permit. Of the 18 taken by recreational hunters, eight were taken by residents of Alaska and six of these hunters were residents of Unit 22. Ten bears were taken on guided hunts. The distribution of the harvest was as follows:

Ungalik-Shaktoolik River	8
Fish River (Golovin, White Mountain	7
Nome-Eldorado River (Nome area)	6
Cape Wooley-Cape Rodney area	4
Unalakleet River	2
American River	1
Tubutulik River	1
Total	29

In previous S & I reports the harvest was reported by calender year. The highest annual sport harvest was ten bears and the average was three. For comparison the spring and fall sport harvest during 1977 totaled 12 bears, seven were taken on guided hunts, and the remaining five were killed by Alaskan residents. Including illegal kills, the total harvest during calender year 1977 was estimated to be 25 to 30 bears.

Reindeer herders considered bears nuisance predators, and this in part accounted for the high percentage (27%) of bears taken in defense of life or property. Unfortunately reindeer herders do not always

report the number of bears they kill, and often these facts are obtained only after investigation by Fish and Wildlife Protection. Also, a considerable number of bears taken by villagers are never reported. Based on complaints of illegal activity and conversations with villagers, the total unreported harvest was estimated to be 15 to 20 bears. Therefore the total harvest during the report period was estimated to be 45 to 50 bears.

Composition and Productivity

Grizzly bear composition and productivity surveys were not conducted during the report period, but bear sightings were noted in the course of other field work. Sightings from the public were recorded as well.

Two distribution surveys were conducted during 1976, and from that very limited data, density in Unit 22 was tentatively estimated to be a minimum of one bear per 80 square miles. Subsequent aerial surveys (moose, muskox, etc.), suggested the density was highest in the central and eastern portion of Unit 22 and lowest in the western half. A registered guide hunting bears in the drainages of the Shaktoolik and Ungalik rivers reported the sighting of 150 plus bears during a three week period. He claimed at least half or more were different animals. These drainages occupy approximately 2500 square miles. Assuming a minimum population of 50 bears, the density was on the order of one bear per 50 square miles. The density in the central Seward Peninsula appeared to be somewhat less. Judging from the number of tracks observed in spring when bears emerge from hibernation, the estimated density was one bear per 40 to 60 square miles.

The available data in the western portion of Unit 22 are extremely limited, but the density was probably lower; perhaps on the order of one bear per 80 to 120 square miles.

Although the background information is certainly incomplete, the grizzly bear population in Unit 22 probably increased slowly during the last 15 years (or longer). It appears that bears now occupy most (if not all) the suitable habitat and the density in some areas may be approaching range carrying capacity.

Management Summary and Recommendations

The data obtained to date are too limited to make an accurate statement about the density or size of the grizzly bear population in Unit 22. However, when possible, it is desirable to determine a figure that can be used as a starting point for management purposes. It should be emphasized that all figures in this report are strictly estimates, and undoubtedly they will change as more population information is obtained.

If one assumes an average density of one bear per 60 square miles, there are approximately 400 bears in Game Management Unit 22. The harvest was estimated to be 30 bears annually which is 7.5% of the minimum estimated population. Harry Reynolds (personal communication)

indicated an annual harvest of three is considered to be a safe management objective for the grizzly bear population in the western Brooks Range. The limited population data suggest that bears on the Seward Peninsula may have been overharvested during the report period. On the other hand, there are two reasons to believe this may have not been the case. The population estimate was probably low, and the annual productivity in Unit 22 was probably higher than grizzly bear populations in the Brooks Range. However, it does suggest a trend, and indicates better data should be obtained. Still, another important factor must be considered. Due to the ever present problem of grizzly bear predation on reindeer range, it may be desirable in some areas to keep bear populations below carrying capacity. This objective will not only reduce the actual predator-prey conflicts, but if the bears are taken by sport hunters, the resource will be used more wisely. Often, the hide is not salvageable when the bear is taken in defense of life and property.

In the last two years several guides have shown an interest in taking bears on the Peninsula, often in areas where reindeer numbers are low or lacking. At least three guides have been moderately successful, and this was reflected in a higher annual harvest. If this trend continues, an adjustment in the regulations may be necessary.

At present time no changes in season and bag limits are recommended.

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BROWN/GRIZZLY BEAR

SURVEY-INVENTORY PROGRESS REPORT

Game Management Unit 23 - Kotzebue Sound

Period Covered: July 1, 1977 - June 30, 1978

Seasons and Bag Limits

Unit 23, that portion draining into the Noatak River upstream from its confluence with the Nimiuktuk River	Sept. 1-Oct. 10 May 10-May 25	One bear every four regulatory years by permit only; provided that the taking of cubs or females accompanied by cubs is prohibited. 32 permits will be issued.
Remainder of Unit 23	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

The reported brown/grizzly bear harvest for the 1977-1978 season was 30 bears, 23 males and seven females. The fall harvest was 22 bears of which 23 percent were female, while in the smaller spring harvest of eight bears, 25 percent were females. The pattern of more males in the harvest probably is a result of their greater mobility and the preference by most hunters for larger animals.

Three bears were taken in the permit area. There were only 11 applications for the 32 permits that were available.

The preferred mode of transportation by bear hunters was aircraft, 78 percent. Only 18 percent used boats and 4 percent used other means of transportation.

Since hunting on the upper Noatak is limited to hunters with permits

hunting effort was concentrated in the area below the Nimiuktuk River. Four bears were harvested on the Kelly River drainage, eight bears from the Kugururok drainage, and three bears from the remainder of the Noatak drainage below the Kelly River.

Nonresidents harvested 57 percent of the bears, while residents harvested 43 percent. Residents of the unit harvested 17 percent of the total harvest.

Management Summary and Recommendations

The harvest of 30 bears is probably below the sustainable harvest level for the Unit. There was a concentration of hunting pressure and kill in the lower portions of the Noatak drainage caused by the permit season for that area above the Nimiuktuk River. This concentration of hunting efforts should be monitored closely. Future changes in Federal land managements probably will shift hunting pressure to other areas. Further permitting of areas to coincide with estimated bear populations may have to be considered to distribute hunting pressure if large areas become unavailable to nonsubsistence hunters.

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BROWN/GRIZZLY BEAR

SURVEY-INVENTORY PROGRESS REPORT - 1977-78

Portion of Game Management Unit 23 and Units 24-26 - Brooks Range

Period Covered: January 1, 1977 - December 31, 1978

Seasons and Bag Limits

See 1976-77 and 1977-78 Hunting Regulation Booklet and the 1977-78 Permit Hunt Supplement.

During this report period, three different seasons have been in effect for the Brooks Range. The permit system for the Brooks Range was first implemented during the 1977-1978 regulatory year, which began July 1, 1977; thus, in 1977, permits were required during the fall season but not in the spring season. Permit areas included the upper Noatak River drainage in Unit 23, and all of Units 24, 25 and 26. During the fall season of 1978, seasons and permit quotas remained the same as those for the 1977-1978 regulatory year but the boundaries of the permit areas were changed to delete those areas of lowland habitat in Units 24 and 25 where grizzly bears receive negligible hunting pressure.

Harvest and Hunting Pressure

Grizzly bear harvest and hunting pressure in the Brooks Range (Units 23-26) increased significantly beginning in the mid-1960's. In order to stop or avert overhunting of grizzlies in this region, seasons were shortened or closed in all or some of the Brooks Range units beginning in 1971. Because of similarity in grizzly bear habitat use, population densities and vulnerability to overharvest, consistent seasons have been maintained for Units 23-26 (Brooks Range) since 1975. To limit the harvest to 40-50 bears, permits have been required in Units 24-26 and a portion of Unit 23 since July 1977. Table 1 depicts the harvest during 1977 and 1978. The permit system has reduced the total take to the estimated limits which were proposed: the 1977 grizzly bear kill included 48 taken by sport hunters and five known killed illegally or taken in defense of life or property; in 1978, 37 were taken by sport hunters and seven were taken illegally or in defense of life or property.

The mean age of the bears reported killed in the Brooks Range during 1969-1976 was 8.6 years, compared to 7.6 years in 1977 and 7.2 years in 1978. Whether these data accurately represent a reduction in the mean age of the population is uncertain. The proportion of males taken in the harvest was relatively high: 78 percent of the bears killed in 1977 and 72 percent in 1978.

Table 1. Harvest of grizzly bears taken in Unit 23 (portion) and Units 24-26, 1977 and 1978.

Unit	Sport Harvest 1977 Spring	1977 Fall	1977 Total	1978 Spring	1978 Fall	1978 Total	Non-Sport Harvest (DLP & illegal) 1977	1978
23-permit area	4	2	6	0	4	4	0	1
24-permit area	6	4	10	0	10	10	1	3
24-remainder	--	--	--	0	2	2	--	0
25-permit area excluding ANWR*	5	8	13	0	4	4	3	0
25-remainder	--	--	--	1	6	7	--	0
26A	3	6	9	1	4	5	0	2
26B	6	2	8	0	2	2	0	0
26C and that portion of 25 in ANWR*	0	2	2	1	2	3	1	2
Totals	24	24	48	3	34	37	5	7

* Arctic National Wildlife Range

Composition and Productivity

Research conducted in the Brooks Range in 1973-1975 and 1977-1978 has shown that productivity of grizzly bear populations in the area is low. Females reach a mean age of from 8.5 and 10.1 years (western and eastern Brooks Range, respectively) before producing their first litter. Mean density is probably only 1 bear/100 sq. mi. and mean reproductive rate ranges from 0.420 to 0.512 cubs/female/year.

Management Summary and Recommendations

Based on the harvest rate, and sex and age composition of the kill under the permit system, no changes in seasons or bag limits are recommended at this time.

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POLAR BEAR

SURVEY-INVENTORY PROGRESS REPORT

Game Managment Units 18, 22, 23 and 26 Marine waters and coastal environs.

Period Covered 1 July, 1977 through 30 June, 1978

Seasons and Bag Limits - Closed; except Alaskan Natives may harvest polar bears under provisions of the Marine Mammal Protection Act.

Harvest and Hunting Pressure

During the 1977-78 reporting period the known statewide harvest of polar bears by Native hunters was 59, including two bears at Shishmaref that were not sealed. The estimated actual harvest is probably in excess of 100 bears. The known harvest was comprised of 28 males, 22 females and nine bears of unknown sex (Appendix I). Although Department personnel in Nome, Kotzebue and Barrow attempted to seal all bears taken, the State Attorney General in 1976 ruled that State regulations were not applicable to Native hunters because of the Native exemption in the Marine Mammal Protection Act. Consequently, the number of bears offered for sealing has been declining.

The take was distributed among nine villages compared to 12 the previous year. Two villages, Wales and Shishmaref, accounted for 47.5 percent (28 bears) of the known harvest. Villagers in Game Management Unit 26 took 22 bears, primarily as a result of favorable ice conditions.

An accumulation of marine mammal carcasses along certain beaches attracted bears to coastal areas, and hunters running the beaches with snow machines became very effective at taking those bears. One hunter working between Wales and Shishmaref took ten bears in 6 days of hunting between 16 December and 3 January.

Weather and ice conditions remain the primary determinants of bear distribution, but marine mammal carcasses seem to concentrate the bears in areas where they are overwintering. Of significance this year was the lack of bears in the St. Lawrence Island area. Hunters in that area reported no sightings during the year. The previous year's harvest for the Island hunters was 30 bears.

Distribution and Abundance

Ice conditions and the resulting availability of food was apparently the prime factor in determining the low southern distribution of polar bears during the winter of 1977-1978. Numerous open leads and abundant seals in the Chukchi and Beaufort seas appeared to halt the southern movement of bears. The lack of harvest or sightings around St. Lawrence Island plus the harvest in GMU 26 indicated this was the situation.

Management Summary and Recommendations

With the Marine Mammal Protection Act of 1972 restricting polar bear hunting to Alaskan Natives and the general lack of aircraft

use by hunters, the current annual kill is not expected to increase markedly. Present Federal regulations, however, do not prohibit the killing of cubs or sows with cubs. Ethics should dictate restraint in the taking of cubs and sows, however; the small amount of usable products obtained from cubs and the loss of a producing female should in themselves be convincing deterrents to such actions. Federal laws 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 a more biologically sound management program could be instituted. Furthermore, under State management both Natives and non-Natives alike should derive benefit from the use of a controlled harvest of bears. If State management is not forthcoming, efforts should be made to amend existing Federal laws.

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Appendix I. Polar bear harvest 1 July 1977 - 30 June 1978.

GMU	Village	Male	Female	Unknown	Total
22	Wales	5	2	0	7
	Shishmaref	8	11	2	21
subtotal		13	13	2	28
23	Kotzebue	1	0	0	1
	Kivalina	0	1	0	1
	Pt. Hope	3	2	2	7
subtotal		4	3	2	9
26	Pt. Lay	2	3	1	6
	Wainwright	5	0	2	7
	Barrow	3	1	1	5
	Kaktovik	1	2	1	4
subtotal		11	6	5	22
Total		28	22	9	59

CARIBOU

SURVEY-INVENTORY PROGRESS REPORT - FOR REGULATORY YEAR 1977-78

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

Seasons and Bag Limits

Unit 7	Aug. 10 - Oct. 31	One caribou by permit only. 100 permits will be issued. See 5 AAC 81.055 and separate permit hunt supplement.
Unit 15	No open season	

Harvest and Hunting Pressure

One hundred permit holders harvested 26 caribou in Unit 7 during the 1977 season. The harvest was composed of 11 (42%) males and 15 (58%) females. The hunter success rate was 44 percent (Appendix I and III) with 41 permit holders not hunting.

Seventy-three percent of the harvest occurred from August 10-20 and 84 percent by August 31. Sixteen percent of the harvest occurred in September. No caribou were taken in October (Appendix II).

Two hundred and thirty-six applications were received for the 100 permits.

Composition and Productivity

Three attempts to survey caribou in Unit 7 all met with failure. On January 24, 1978, one herd of caribou composed of approximately 150 to 200 animals was located. An exact count was not obtained because the photos taken did not turn out due to a camera malfunction. No other caribou could be located. Subsequent surveys on February 28 and March 28 failed to locate the caribou, although tracks of a large herd were found on March 28.

The subunit 15 caribou herd has remained relatively scattered throughout the winter and no census has been made. Numerous sightings of caribou from this group have been reported from the Jean Lake area. This is roughly 12 miles southeast of the area these animals normally winter. This group is now estimated to number 75-100 animals.

Management Summary and Conclusions

The harvest quota of 50 animals for the 1977 season was based on projected recruitment of 20 percent to the post-1976 hunting season population of 252. Since it is not possible to census these caribou between calving time and the hunting season, there is no way to determine

actual recruitment until the next post-season census. It is important that a post season census be accomplished each year to adjust regulations for the next season on the basis of mid-winter population status.

Since a good census was not accomplished after the 1977 season, a conservative approach to harvesting is warranted. The 1977 harvest was only 52 percent of the projected harvestable surplus. However, lacking data on the actual 1977 recruitment, it could be unwise to assume that 20 percent recruitment was achieved and base harvest on a further 20 percent recruitment in 1978. The fact that prior to 1975 recruitment was at the rate of 36 percent and dropped to 20 percent after 1974 for unknown reasons further justifies a conservative management approach.

If future censuses show that recruitment has remained at about 20 percent and the population increased, the excess caribou can easily be removed in one season by hunters.

Recommendations

Not more than approximately 25 caribou be harvested in 1978. No regulatory changes are recommended.

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James B. Faro
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 MM	Harvest FF	Total	Percent Successful
1972-73	Aug. 10-Nov. 30	20	6	0	6	30
1973-74	Aug. 10-Nov. 30	100	10	1	11	11
1973-74	Jan. 1-Jan. 31	50	1	0	1	2
1973-74	Feb. 1-Feb. 28	50	0	0	0	0
1973-74	Mar. 1-Mar. 31	50	0	0	0	0
Total 73-74		250	11	1	12	5
1974-75	Aug. 10-Nov. 30					
	Jan. 1-Mar. 31	573[1]	30	14	44	8[2]
1975-76	Aug. 10-Nov. 30[3]					
	Jan. 1-Mar. 31	869[1]	38	49	87	10
1976-77	Aug. 10-Mar. 31[4]	457[1]	22	27	49	33[5]
1977-78	Aug. 10-Oct. 31	100	11	15	26	44[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 the number of hunters who actually hunted

PREPARED BY: Paul A. LeRoux, Game Biologist III

Appendix II. Caribou harvest chronology in Game Management Unit 7, 1977.

	Aug.		Sept.			Oct.		
	10-20	21-31	1-10	11-20	21-30	1-10	11-20	21-31
Males	9	0	0	0	2	0	0	0
Females	10	3	1	1	0	0	0	0
Total	19	3	1	1	2	0	0	0
Percent Total	73%	11%	4%	4%	8%	0%	0%	0%

PREPARED BY: J. J. Sexton, Game Biologist II

Appendix III. 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
77-78	Aug. 10-Oct. 31	26	100	59	26	41	--	44

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

PREPARED BY: Paul LeRoux, Game Biologist III

CARIBOU

SURVEY-INVENTORY PROGRESS REPORT - FOR REGULATORY YEAR - 1977-1978

Game Management Unit 9 - Alaska Peninsula

Seasons and Bag Limits

Aug. 10 - Mar. 31	Four antlered caribou; provided that not more than one caribou be taken from Aug. 10-Oct. 31.

Harvest and Hunting Pressure

Field observations and discussions with residents indicate caribou hunting pressure and harvest on the Alaska Peninsula increased slightly over the levels experienced during the 1976-77 season. The harvest is estimated at less than 1,500 caribou, below the peak harvest estimates of 2,000 caribou annually for the period 1973 through 1975. The majority of this harvest came from the Alaska Peninsula herd, with less than 25 caribou estimated taken from that portion of the Mulchatna herd occurring in GMU 9.

Harvest reports, formerly used during the 1970-71 season, were reinstated for caribou hunting in GMU 9 this season. Data from harvest reports are not yet available.

Composition and Productivity

An attempt to photo census postcalving concentrations of the Alaska Peninsula caribou herd south of Cinder River was unsuccessful. The animals remained scattered throughout the Bering Sea flats from the Meshik River to Black Lake, and did not collect in compact groups suitable for photographing.

Calving success, estimated during pre-census reconnaisance flights, exceeded 50 calves per 100 cows. Estimates during the 1976 reconnaisance flights placed calving success at over 60 calves per 100 cows. Reports of twin calves were received from air taxi operators and from a commercial fisheries biologist. These reports indicate the herd is maintaining a high level of calving success.

Management Summary and Conclusions

A restrictive bag limit of one caribou during the period from August 10 to October 31 reduced hunting pressure relative to earlier years when multiple caribou could be harvested. Reduced moose populations, with restrictive seasons and bag limits have contributed toward reduced hunting pressure and harvest on caribou since opportunities for multi-species hunts have been reduced.

Hunting activity during November increased because animals were readily accessible from King Salmon and the bag limit increased to four antlered animals. An estimated one-third of the total harvest occurred during November. The winter of 1977-78 was the second consecutive snow-free winter. The lack of snow eliminated snow machines and hindered ski-equipped aircraft, resulting in a low winter harvest.

Prior to 1975 both the spring and fall migrations occurred primarily along the Bering Sea flats. The fall migration began in late August and culminated in early October upon arrival on the wintering grounds between Becharof Lake and the Naknek River. The herd remained primarily on the wintering grounds until late February when the southern migration started. This movement ended in early May on the calving grounds south of Port Heiden.

Beginning in 1975, the timing and routes of the migration have followed no set pattern. During this reporting period, the fall migration occurred in two segments. The first group of approximately 5,000 caribou traveled along the Bering Sea flats, arriving on the wintering grounds in mid-August. The remaining animals are believed to have traveled in small groups over the mountains of the Aleutian Range, arriving in mid-November. Caribou remained on the wintering grounds until mid-December when the southern movement toward calving grounds began. By late February, few animals could be located north of Cinder River.

Erratic migratory patterns were reported for the Nelchina herd in the 1960's, the Forty-Mile herd in the 1930's and again in the 1950's, and the McKinley herd in the 1920's. In these instances the erratic movements were a prelude to the emigration of large numbers of animals with resultant population declines. The cause for emigration is unknown, but if related to herd density, continued population growth of the Alaska Peninsula herd is undesirable and could forecast a similar decline in the future. This decline would most likely occur through emigration across the Naknek and Kvichak Rivers into the present range of the Mulchatna caribou herd. A movement of this type has not occurred since the 1870's.

The present level of recruitment is believed to exceed the mortality rate, thus the herd is probably increasing. The current eight-month hunting season and liberal winter bag limit should be adequate to maintain the herd at its present level, but the past two winters of poor snow and ice conditions have restricted access and minimized the harvest.

An increase in the August 1-October 31 bag limit from its present one animal would increase the total harvest, but that increase would occur primarily in the number of male caribou harvested and would not affect the reproductive capacity of the herd. The late season harvest, favoring females, must be increased to lower the recruitment level and stabilize the herd size.

Recommendations

1. A photo census, with accompanying composition count, needs to be

accomplished on all caribou ranging south of the Naknek River. This census would establish the present size of the Alaska Peninsula caribou herd, its composition, and and present reproductive rate.

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

PREPARED BY:

Nick Steen
Game Biologist II

SUBMITTED BY:

James B. Faro
Regional Management Coordinator

CARIBOU

SURVEY-INVENTORY PROGRESS REPORT FOR REGULATORY YEAR - 1977-78

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

Sixty-seven caribou were killed on Adak Island during the 1977-78 season (Appendix I). The confirmed sport harvest consisted of 34 males, 31 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 150 animals.

On October 19, 1977, John Martin, USFWS Refuge manager stationed at Adak, observed 214 caribou on Adak Island from a Cessna 172. Mr. Martin had excellent coverage of the animals on Caribou Peninsula, Central Point, and all the way down Yakak. He may have missed animals in the Split Top-Chapel Cove-Beyer Bay area. Fifteen caribou were harvested prior to the October 19, 1977 survey. Subtracting 52 caribou taken after the October census would leave a minimum population of 162 caribou on Adak Island after the 1977-78 hunting season (precalving 1978). Since it is so difficult to obtain a total caribou count on Adak Island it is theorized that the 1978 (precalving) population is approximately 200.

During the summer of 1977 the U.S. Navy removed all their helicopters and horses from Adak Island. Since fixed-wing aircraft for game census on the island are so limited, it is now even more difficult to complete a caribou population estimate. The removal of the horses, the cutback in the use of the U.S. Naval harbor tug for caribou hunters and the increases in nonresident hunting license and big game tag fees have caused a reduction in the number of animals harvested.

Recommendations

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

An effort should be made to observe calving and obtain pregnancy data from winter hunting to determine if twinning is occurring on Adak Island.

Using the minimum population of 200 caribou on Adak Island prior to 1978 calving, approximately 100 caribou should be taken during the 1978-79 hunting season.

PREPARED BY:

J. J. Sexton
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SUBMITTED BY:

James B. Faro
Regional Management Coordinator

APPENDIX I

Adak caribou herd, population and mortality 1962-1977

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
1977**	200 (est. post hunting pop.)	0	67

* 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; 1977 - 150.

PREPARED BY: Jerome J. Sexton, Game Biologist II

CARIBOU

SURVEY-INVENTORY PROGRESS REPORT - 1977-78

Game Management Unit 10 - Unimak Island Only

Seasons and Bag Limits

Unit 10	August 10 - March 31	Four caribou

Harvest and Hunting Pressure

Unimak Island is part of the Eastern Aleutian Islands National Wildlife Refuge with access controlled by the U.S. Fish and Wildlife Service. Aircraft landings are restricted to established runways, water surfaces and beaches below mean high tide. Additionally, no mechanized equipment is authorized off the existing road system. Because of this limited access, hunting pressure and harvest is very light. Residents of Cold Bay, False Pass and the Cape Sarachef Radar Site are believed responsible for the majority of the caribou harvest. Harvest tickets are not required for hunting caribou on Unimak Island. The harvest is estimated at less than 100 caribou.

Composition and Productivity

No work accomplished during this reporting period.

Residents of the Cold Bay area report numerous animals have migrated from Unimak Island across False Pass to the mainland. This movement may, in part, account for the decline in caribou numbers reported by U.S. Fish and Wildlife Service Refuge personnel and Coast Guard members on Unimak. Quantitative data on the present status of the caribou population are unavailable.

Management Summary and Conclusions

The limited access makes it extremely difficult and costly for all but local residents to hunt on the island. Because of the limited hunting pressure it is doubtful if hunting has any effect upon this caribou population.

Recommendations

A census of the Unimak Island caribou herd should be conducted. However, due to logistical problems and high financial costs associated with field work and considering the low public interest in this herd, the census should be conducted only when other jobs require travel to the area.

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

PREPARED BY:

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SUBMITTED BY:

James B. Faro
Regional Management Coordinator

CARIBOU

SURVEY-INVENTORY PROGRESS REPORT FOR 1977-78

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

Seasons and Bag Limits

Unit 11	Aug. 10 - Sept. 30	One caribou by permit only. 150 permits will be issued.

Seasons and bag limits from 1968 through 1977 are listed in Appendix I. Earlier seasons and bag limits for the unit corresponded with those in effect for the Nelchina caribou herd (see report for Game Management Unit 13, Appendix I); the 1977-78 season in Unit 11 was 30 days longer than in Unit 13 (Sept. 1 - Sept. 20).

Harvest and Hunting Pressure

The 1977 hunting season was the first season in which the Mentasta caribou herd was hunted by permit only. A total of 277 permit applications were received and 150 permits issued. All permittees were required to return their permit reports. Successful hunters were required to return the lower jaw of their kill with their permit reports. The reported harvest was 52 caribou (Appendix I). This harvest is about one-third of the estimated average of 154 caribou harvested in the previous four years. With an estimated herd size of 2,262 caribou, a harvest of 52 animals represents 2.3 percent of the population. In the past, hunters have selectively harvested bulls. This trend continued in 1977-78 as bulls comprised 75 percent of the take.

Aircraft was the preferred method of transportation used by hunters.

Herd Size, Composition and Productivity

A photocensus of the Mentasta herd in post-calving aggregations was obtained on June 27, 1977. Several small bands were counted in addition to the bands on the photocensus. A total count of 1,855 adults and 407 calves was obtained. Calves constituted 18 percent of the herd, a 40 percent decrease from 1976 (30%) but consistent with 1975 findings (19.5%).

Seasonal Movements

From November 1976 until early March 1977 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 moved down Boulder Creek and out of Unit 11. During 1977 the majority of the Mentasta herd calved on the western slopes of Mt. Sanford, north of the Sanford River. The traditional calving area around Drop Creek has been used by only a few caribou in recent years.

Post-calving aggregations of cows, calves, and small bulls were located between Boulder Creek and the Nadina River during June. Caribou remained scattered above timberline from the Cheshnina River to the Sanford River during July and early August.

Caribou concentrated for the fall breeding season in the higher elevations along the Klawasi and Nadina Rivers. Between the breeding pause and January 1978, most of the Mentasta caribou were found again in the foothills of the Mentasta Mountains.

Management Summary and Conclusions

The Mentasta caribou herd has been stabilized through relatively low harvests, primarily of bulls. Competition exists for winter range on an unknown portion of the Nelchina herd and may contribute to this apparent population stabilization.

Recommendations

1. The Mentasta caribou herd should continue to be hunted by permit only.

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

PREPARED BY:

Robert Tobey
Game Biologist II

SUBMITTED BY:

James B. Faro
Regional Management Coordinator

APPENDIX I

Mentasta caribou herd seasons, bag limits, harvests, sex composition of the harvests, and abundance estimates, 1968-69 through 1977.

Year	Season	Bag Limit	Harvest Known	Harvest Estimated[a]	Males Reported in Harvest Number (%)[b]	Estimated Total Adult Caribou Population[c]
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. 21	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
1977	Aug. 10 - Sept. 30	1 Caribou	52	---	39 (75%)	1,855

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 accumulated totals of 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, 1976 and 1977 values were photocensus counts of all adults found during June.

PREPARED BY: Robert Tobey, Game Biologist II

APPENDIX II. A comparison of percentage of resident hunters, hunter success and transportation means for the Mentasta caribou herd, 1960-70 through 1977.

Year	Hunters, Number (%)[a]	Number (%) 0	1	2+	Average Kill Per Hunter	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
1977	-----	41 (44%)	52 (56%)	-- --	0.56	71.2%	7.7%	--	--	15.4%	1.9%	52

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

b. Symbols for transportation methods: 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.

PREPARED BY: Robert Tobey, Game Biologist II

CARIBOU

SURVEY-INVENTORY PROGRESS REPORT - 1977-78

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

Period Covered: July 1, 1977 - June 30, 1978

Seasons and Bag Limits

Unit 12	Sept. 1 - Sept. 15	One caribou

Harvest and Hunting Pressure

Harvest ticket returns indicated that 48 caribou (37 bulls and 11 cows) were harvested from the Chisana Herd during the 1977 hunting season. The entire harvest occurred in the area between the Chisana and White Rivers. There were 22 unsuccessful hunters.

About half of the successful hunters used horses and the other half used aircraft for primary transportation. Users of off-road vehicles reported taking two caribou.

The reported harvest of 48 was down slightly from the preceding 3-year average of 56. Reasons for the reduction are unclear, but a slightly different caribou distribution pattern during the hunting season may have contributed to the reduced harvest.

Composition and Productivity

The following data were obtained from sex and age composition surveys conducted on September 29, 1977.

Bulls/100 Cows	Yrlgs/100 Cows	Calves/100 Cows
41	11	44

Percent Bulls in Herd	Percent Yrlgs in Herd	Percent Calves in Herd
21.0	5.0	22.0

All 273 caribou classified were in the vicinity of Beaver Lake. If all yearlings were correctly identified, and if the animals classified were representative of the entire herd, survival to the yearling age class was poor. The Chisana Herd is estimated to contain about 1,000 caribou. If 5 percent of the herd were yearlings, the 1977-1978 harvest was approximately equal to yearling recruitment. Assuming that the natural mortality rate was between 5 and 13 percent, as shown for several other caribou herds, the Chisana Herd declined during 1977.

During a post-parturition survey conducted in a Helio Courier 295 on June 19, 1978, a total of 316 animals was observed in the Chathenda,

Beaver, Flat and Baultoff Creek drainages under poor to fair survey conditions. The observed calf:cow ratio was 9.5:100. A subsequent count from the ground on October 20, 1978 showed 17.7 calves:100 cows in a sample of 100. These data suggest that initial calf production was low in 1978 or that early mortality was high. More detailed investigations of other Interior caribou herds in recent years have revealed high initial calf production followed by high calf mortality.

Management Summary

The reported harvest for the Chisana Herd in 1977 was small, and roughly equal to the yearling increment in 1977.

A significant portion of the harvest was taken by guided nonresident hunters. This resulted in a relatively large take of bulls. Assuming the reported sex composition is accurate, over two-thirds of the 1977 harvest consisted of bulls. Despite this take of bulls, the post-hunting sex ratio of 41 bulls per 100 cows was satisfactory.

Because the Chisana Herd is one of the few herds in the Interior not managed on a permit system, there is a possibility that hunting pressure could shift to this area. Any increase in hunting pressure could result in excessive take; consequently, harvest levels should be monitored closely in the future. No change in seasons and bag limits is recommended, but it is imperative that recruitment and mortality also be closely monitored to determine the population trend.

PREPARED BY:

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SUBMITTED BY:

Oliver E. Burris
Regional Management Coordinator

CARIBOU

SURVEY-INVENTORY PROGRESS REPORT - 1977-78

Game Management Units 13 & 14 except 14(C) - Nelchina Herd

Seasons and Bag Limits

Unit 13 & 14 except 14(C)	Sept. 1 - Sept. 20	One caribou by permit only. 750 permits will be issued.

Harvest and Hunting Pressure

In 1977, caribou hunting pressure and harvest were controlled through permits. A total of 1,383 applications for permits were received, 750 permits were issued, and 360 caribou were killed. Permit holders were required to complete a report and successful hunters were further required to surrender the lower jaw to the Alaska Department of Fish and Game. Harvest data for the Nelchina herd since 1972 is shown in Appendix I.

Success ratios of permit holders who reported hunting increased from 43 percent in the previous year to 62 percent in 1977.

Herd Size, Composition and Productivity

Sex and age composition counts were conducted in June and October of 1977 and in April of 1978. All of these composition counts yielded higher than average calf ratios. Some discrepancy exists between the October and April calf ratios, but high calf crops and survival are apparent in 1977 (Appendix II).

Seasonal Movements

Caribou calved in the Kosina River area, and spent the remainder of the summer in the Talkeetna Mountains, primarily south of the Susitna River. By mid-October, caribou gathered into a herd consisting of many small groups in the Slide Mountain/Tyone Creek area. In early November, most caribou had moved east from the Talkeetna Mountains. Many stayed in the Lake Louise flats but several thousand crossed the Richardson Highway/Alyeska Pipeline, Tok Highway, and Copper River to winter in the Wrangell Mountains near Copper Lake. By April, caribou began their annual migration back toward the calving grounds. Several small groups of caribou did not conform to this general pattern. For instance, caribou were found in the Upper Susitna River during the calving period and during the winter. Breeding caribou were located in the Watana Creek Hills and near Brushkana Creek.

Management Summary

The higher census figures, good calf survival, and reduced harvest suggest that the Nelchina caribou herd has been expanding and will continue to expand. Proposed management plans have specified that the Nelchina caribou herd will be maintained at 20,000 caribou. Under existing management guidelines, herd size can continue to increase under conditions where 5 percent of the herd are taken annually.

During the June 1977 post-calving census, 14,000 caribou were tallied. This figure indicates the 1976 population estimate of 8,081 was too low. Errors of this type may occur periodically when using a census technique that depends on caribou forming large groups subsequent to calving and further requires that each adult female caribou be directly observed and either photographed or directly counted. Undoubtedly, the actual post-calving population is larger than revealed by these direct counts. A post-hunting population estimate of 13,936 was obtained through sex and age composition data collected in October and applied to the cow base obtained during the post-calving census after adjustment for females removed by harvest. These population estimates are shown in Appendix IV.

Recommendations

1. Increase the number of permits to allow a harvest of 5 percent of the Nelchina caribou herd.

2. Continue to monitor caribou populations through censuses and sex and age composition counts.

3. Attempt to determine if breeding populations are being established in the Upper Susitna River.

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SUBMITTED BY:

James B. Faro
Regional Management Coordinator

NELCHINA HERD

Appendix I. Reported Unit 13 caribou harvest by sex, residency of hunter, success ratios, and total extrapolated harvest, 1972-1977.

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%)
1977	360	N/A	580	62%	275	(78%)	77	(22%)	---	---	---	---

PREPARED BY: Sterling Eide, Game Biologist III

NELCHINA HERD

Appendix II. Survival of calves from birth to following year. Sex and age composition data, 1972-1977 - 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%)
1977	60	(32%)	47	(26%)	38	(21%)	52	(28%)

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

PREPARED BY: Sterling Eide, Game Biologist III

Appendix III. Nelchina herd population estimates, 1972-1977.

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
1977	14,000	7,588	79	7,509	3,559	2,868	13,936

* 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

CARIBOU

SURVEY-INVENTORY PROGRESS REPORT - 1977-78

Game Management Units 13 and 20C - McKinley Herd

Period Covered: July 1, 1977 - June 30, 1978

Seasons and Bag Limits

That portion of Unit 20(C) lying south of the Tanana River and west of the western boundary of Unit 20(A)	No open season

Composition and Productivity

Caribou surveys conducted by National Park Service personnel in late May 1977 during the peak of calving revealed 33 calves per 100 females. It is not known if this relatively low ratio represents poor natality, poor calf survival or both. Subsequent survival of this calf crop is unclear because during surveys conducted in July and October yearlings were not differentiated from adult cows. Nevertheless, the low recruitment of calves born in 1976 probably resulted in relatively few yearlings during 1977. Hence, lumping the yearling and adult cow categories during surveys probably did not result in a gross underestimation of calf survival. It appears that significant calf loss occurred within the first 5 months because the percent calves in the yearling-cow sample declined from 33 to 15-22 between June and November.

Management Summary

Reasons for the continued poor recruitment of calves in this herd remain obscure. Because grizzly bears and wolves are frequently observed on the calving grounds, predation may account for calf loss between June and October. In utero pregnancy rates, antler retention of cows in mid-May or counts of females with distended udders within 5-10 days of the calving peak should be conducted to determine if natality rates are low or if the observed low recruitment is the result of poor survival. Movement studies involving 20 radio-collared adult caribou in 1976 and 1977 have provided little insight into the reasons for poor recruitment.

The National Park Service estimates indicate the herd numbers 900-1,200 animals. Based on the low level of production and recruitment observed the past 4 years, further declines appear imminent.

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CARIBOU

SURVEY-INVENTORY PROGRESS REPORT - FOR REGULATORY YEAR 1977-78

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

Seasons and Bag Limits

Sept. 1 - Sept. 20 — One caribou

Harvest and Hunting Pressure

Three male and no female caribou were harvested in Unit 14 during 1977 (Appendix I). One successful hunter was a resident and two were non-residents (Appendix II). All of the Unit 14 harvest came from the Talkeetna Mountains in Subunit 14B, probably from scattered bands of the Nelchina Herd. The 1977 harvest is the lowest ever recorded; this probably was due to a new permit hunt system initiated this year in Units 13 and 14 for 750 hunters. All caribou were taken by hunters utilizing aircraft.

Compositon 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

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 in utilizing Unit 14 in hunting caribou. Total harvests have ranged from a high of 55 during 1971-72 to a low of three in 1977.

Recommendations

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

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Appendix I. Reported Harvest of Caribou from Alaska's Game Management Subunits 14A and B, 1969-70 through 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
1977	3	100	0	0	0	3

Appendix II. Residency* of Successful Caribou Hunters in Alaska's Game Management Subunits 14A and B, 1969-70 through 1977.

	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
1977	1	33	2	66	0	3

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

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CARIBOU

SURVEY-INVENTORY PROGRESS REPORT FOR 1977-1978

Game Management Unit 16 - West Side of Cook Inlet

Seasons and Bag Limits

Aug. 10-Oct. 31	One caribou

Harvest and Hunting Pressure

A total of 37 caribou (19 males, 8 females, and 10 of unspecified sex) were harvested in Unit 16 during the 1977 season. Eighty-three residents and 11 nonresidents reported hunting in the unit. Residents were substantially more successful than were nonresidents (79% and 21% respectively). Thirty-one caribou were reported taken from the Western Alaska Range in the Rainy Pass area. Two hunters reported taking caribou in the Peters Hills, while four were from unknown locations.

Composition and Productivity

No data were collected during 1977.

Management Summary and Conclusions

The 1977 regulatory year was the first year in which harvest tickets were required for hunting caribou in Unit 16. It is probable that hunting pressure was higher than indicated by harvest reports, as many hunters may have been unaware of the new requirement. The Unit 16 caribou season and bag limit were reduced in 1977 to conform with the season and bag limit in adjacent Unit 19. Formerly, the season closed on March 31 and the bag limit was two caribou.

Recommendations

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

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CARIBOU

SURVEY-INVENTORY PROGRESS REPORT FOR REGULATORY YEAR - 1977-78

Game Management Unit 17 - Bristol Bay (Mulchatna herd)

Seasons and Bag Limits

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 August 10-October 31.

Harvest and Hunting Pressure

Hunting pressure and harvest of Mulchatna caribou are believed to have been the lightest in recent years. Harvest reports for this unit were required for the first time, however, these harvest data are not yet available. The total estimated harvest for the Mulchatna caribou herd is less than 500 caribou.

Composition and Productivity

No work accomplished during this reporting period.

Management Summary and Conclusions

An aerial photo census was planned for this reporting period. In preparation for the census, monthly reconnaisance flights were initiated in April over the range of the Mulchatna caribou herd. The April 27, 1977, survey located an estimated 7,000 to 8,000 caribou in the vicinity of Twin Lakes. On the subsequent survey, May 16, 1977, numerous trails were observed leading northwesterly from the April 27, 1977 location to heavy spruce timber on the Holitna and Stoney Rivers. Less than 500 total caribou were located during this survey. Subsequent surveys were unable to relocate the Mulchatna caribou herd or post-calving concentrations.

Winter surveys attempting to locate the main portion of the Mulchatna caribou herd, have been unsuccessful. A March survey located an estimated 1,575 caribou and it appears the majority of the Mulchatna caribou herd may have emigrated from GMU 17.

A crossing of the Kvichak River near Igiugig by an estimated 500 caribou occurred in early December. This is only the second known crossing of that river in recent times. The first occurred in 1972, at the same location, and involved approximately 2,000 caribou. An almost total absence of snow cover precluded surveys to determine routes of travel, activities, or ultimate destination of this group.

The Mulchatna caribou herd also ranges through portions of Game Management Units 9, 18 and 19. Reports for those 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 1978. The suspected emigration of the Mulchatna caribou herd from GMU 17 leaves the herd size, composition and reproductive status in doubt.

2. If the proposed photo census confirms the suspected herd reduction, extensive reductions in seasons and bag limits are warranted.

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CARIBOU

SURVEY-INVENTORY PROGRESS REPORT

Game Management Unit 18 - Yukon-Kuskokwim Delta (Andreafsky Drainage Herd)

Period Covered July 1, 1977 - June 30, 1978

Seasons and Bag Limits

Unit 18	Aug. 10-Sept. 30	One caribou

Hunting and Harvest Pressure

An estimated 70 caribou were harvested during the spring of 1978 in the Andreasky drainage. This estimate is based on several reports from local hunters and air charter services operating from villages on the Lower Yukon River.

Seasonal Distribution, Migration, and Concentration

No surveys have been conducted in this area. Movements and seasonal distribution of this herd are not known. Skoog (1968) and Hemming (1971) estimated this herd to be composed of approximately 1500 animals. Recent local reports indicate the population may be slightly less.

Management Summary and Conclusions

Hunting pressure on the caribou found in the Andreafsky River Drainage is almost entirely by residents of six villages on the lower Yukon River; Mountain Village, Pitkas Point, Pilot Station, St. Marys, Marshall, and Russian Mission. Local residents traveling by snowmachine, have easy access to these animals during the spring.

Little information has been gathered on the Andreafsky herd making it difficult to evaluate the effect of the present hunting pressure on the status of the herd at this time. On the basis of information provided by residents of Pilot Station, it is felt that more caribou were harvested than usual during the 1978 spring season. Many hunters were unsuccessful in hunting moose in this area and hunted caribou to make up for the lack of meat.

The majority of this caribou herd is located in the upper headwaters of the Andreafsky River where access by boat is very difficult. Caribou are predominately taken in the spring by hunters using snow machines. For this reason the Board of Game changed the season timing, establishing a short spring hunting season effective July 1, 1978. No changes in seasons or bag limits are recommended at this time.

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Hemming, J. 1971. The distribution and movement patterns of caribou in Alaska. Wildl. Tech. Bull. No. 1, Alaska Dept. Fish and Game, Juneau.

Skoog, R. 1968. Ecology of the caribou (*Rangifer tarandus granti*) in Alaska. Unpubl. Ph. D. Disst., Univ. California, Berkely.

CARIBOU

SURVEY-INVENTORY PROGRESS REPORT - 1977-78

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, 1977 - June 30, 1978

Seasons and Bag Limits

Units 17, 19(A) and 19(B)	Aug. 10 - Mar. 31	Two caribou, provided that not more than one may be taken per day, nor may more than one caribou be taken from Aug. 10-Oct. 31.
Units 18, 19(D), 21 and that portion of Unit 22 draining into Norton Sound south of Cape Denbigh	Aug. 10 - Sept. 30	One caribou
Unit 19(C)	Aug. 10 - Oct. 31	One caribou

Harvest and Hunting Pressure

Mulchatna Herd - Harvest ticket returns showed that 50 caribou were harvested from the Mulchatna Herd in Unit 19 during the 1977-1978 hunting season. The sex composition of the harvest was 42 bulls, 6 females and two of unspecified sex.

Other Herds - The total reported harvest for Unit 19 was 120 caribou. Fifty of these were from the Mulchatna Herd, 57 from the north slope of the Alaska Range east of Stony River and 12 from other unspecified areas in Unit 19. The sex composition of caribou taken from herds other than the Mulchatna Herd included 54 bulls, 11 cows and 4 of unspecified sex. In addition, approximately 30 unreported caribou were taken by residents living along the Kuskokwim River. Most of these were taken from the 1,200-1,500 caribou that frequent the White Mountain-Big River-Swift River area.

Numbers, Composition and Productivity

A variable number of the approximately 10,000 caribou in the Mulchatna Herd spend part of the year in Unit 19. Region II (Southcentral Alaska) Department staff classified 758 caribou from the herd on October 27 and 28, 1978. The following ratios were observed: 50.3 bulls:100 cows, 19.1 yearlings:100 cows and 64.5 calves:100 cows.

The Beaver Herd is estimated to contain about 2,000 caribou, but no current herd composition data are available. The Sunshine-Cloudy Mountains Herd is estimated to contain about 400 caribou and a fixed-wing survey in fall 1977 suggested about 10 percent of the herd were calves, compared to 16 percent in fall 1978.

The north slope of the Alaska Range west of Mt. McKinley National Park and east of Stony River may contain as many as 3,000 caribou, but no current composition data are available.

The Granite Mountains and southern Kuskokwim Mountains support several hundred additional caribou, but no composition data are available.

Management Summary and Recommendations

The Mulchatna Herd is very productive at present, and appears little impacted by the current level of harvest. The harvest level on the caribou along the north slope of the Alaska Range is not heavy, but recruitment rates are not known at present. Harvest pressure is very light on the remaining herds in the area but they appear to be decreasing or stable at best. In general it appears that predation is the primary factor depressing these herds. More data on recruitment levels and herd numbers are essential to ensure proper management and to evaluate the effectiveness of future management actions aimed at increasing productivity or herd numbers.

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CARIBOU

SURVEY-INVENTORY PROGRESS REPORT - 1977-78

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

Period Covered: July 1, 1977 - June 30, 1978

Seasons and Bag Limits

No open season (closure of the Delta Herd to sport hunting, effective on July 9, 1974, continued through the 1977-1978 season).

Composition and Productivity

Ground composition counts of 1,365 caribou were conducted on aggregations of the Delta Caribou Herd on October 26, 27, 29 and November 2, 1977. Animals were more widely scattered during October this year than during preceding years. Groups were noted from Dry Creek in the east to the headwaters of the Totatlanika River in the west. There was also evidence of recent use of the Tanana Flats between Gold King and the Little Delta River.

For the second consecutive year, calf survival was in excess of 40 calves:100 cows. In contrast, post-calving surveys in June 1977 revealed only 34 calves:100 cows. Differential mortality during the intervening 4 months, or sampling error through inconsistent classification or consistent classification of differently segregated groups (28 fewer adult females and 50 additional calves observed in fall), may account for the 7 percent increase. Fall bull:cow ratios (33:100) showed no significant change from 1976 when 39 bulls:100 cows were observed. Recruitment to fall remained poor, as percent yearlings in the herd and yearlings per 100 cows were 3 and 6, respectively. Assuming yearlings were accurately identified during surveys, 73 percent of the calves present in October 1976 were lost by June 1977, and a 50 percent loss of the remaining 1976 calf cohort occurred between June and October 1977. Stable sex ratios and the absence of young bulls further substantiated that recruitment to the herd was low.

In 1978 calving again occurred at the headwaters of Delta Creek. This area was used for approximately 10 days following the peak calving period. By June 8 most of the calving segment (1,200-1,400 animals) had begun a westerly movement, and, by the time composition counts were conducted (June 13 and 14), it was located at the headwaters of the West Fork of the Little Delta River.

Results of this composition survey indicated the fifth recruitment failure for this herd in the 6 years for which post-calving data are available. A classification of 951 caribou consisted of 81 bulls, 661 cows, 157 calves and 52 yearlings. Cows were classified by the presence

or absence of mammary development to determine if substantial calf mortality had occurred just prior to classification. If aerial surveys conducted during the peak of calving (May 28) are representative, initial production was excellent (71 calves per 100 adults, n=586). However, within 15 days, survival declined to 24 calves per 100 cows (66% mortality). One hundred eighty-seven cows (28% of the adult females classified) had a well-developed udder. The fact that 157 cows were accompanied by calves indicated some calf loss had occurred immediately prior to the surveys. In addition, recruitment remained poor, as yearlings comprised 6 percent of the sample. Overwinter calf mortality of 81 percent occurred between November 1977 and June 1978.

Management Summary

The Delta Herd continues to be plagued with recruitment failures. Although good initial calf production has occurred in the past 3 years, subsequent calf mortality has been high. The rate of recruitment (less than 10%) has not offset natural losses, and as a result the herd has continued to decline.

Because of 5 consecutive years of poor recruitment, most adults are older age animals. Many of these animals are approaching maximum life expectancy and will soon disappear from the population as a result of natural mortality.

Reasons for the poor recruitment of the herd remain obscure. Range and disease-related factors have not been evaluated. Predator-prey relationships have not been conclusively ascertained, but wolf-ungulate studies conducted the past 3 years 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 the Alaska Range foothills which are characterized by relatively high wolf densities. If age-specific losses are similar for the Delta Caribou Herd, wolf predation may be the major factor responsible for the low rate of overwinter calf survival. Ranges of wolf packs which utilize areas frequented by the Delta Herd indicate that 20-30 wolves were present in April 1978. Assuming the herd contains 1,500-1,700 caribou, a conservative July 1978 wolf to caribou ratio of 1:43 existed. Continued reduction of wolf numbers in this area may reveal the extent to which wolf predation is involved in controlling population trends of the Delta Caribou Herd.

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CARIBOU

SURVEY-INVENTORY PROGRESS REPORT - 1977-78

Game Management Unit 20C - Fortymile Herd

Period Covered: July 1, 1977 - June 30, 1978

Seasons and Bag Limits

Unit 20(C)	Sept. 1 - Sept. 15	One caribou

Harvest and Hunting Pressure

According to harvest ticket returns, 60 caribou (12 males, 5 females and 43 of unspecified sex) were harvested from the Fortymile Herd during the 1977 hunting season. Of the 60 successful hunters, 56 listed transportation means as follows: 11 used aircraft, 7 used boats, 14 used ATV's and 24 used highway vehicles. Harvest ticket data indicated that 77 people reported hunting caribou from the Fortymile Herd.

Composition and Productivity

Fixed-wing surveys conducted during mid-June 1977 to determine initial productivity revealed 40 calves per 100 cows. These surveys serve only to indicate relative productivity since an unknown number of bulls and yearlings were also present and classified in the cow category.

Standard sex and age composition surveys were made in late September 1977 in the North Peak-Seventymile River area (Table 1). Inclement weather made accurate classification difficult and it is believed that yearlings were underestimated. Therefore, the following figures for yearlings should be considered minimum.

Table 1. Classification of 1,150 caribou, late September 1977.

Bulls/100 Cows	Yrlgs/100 Cows	Calves/100 Cows
52	14	45

Percent Bulls in Herd	Percent Yrlgs in Herd	Percent Calves in Herd
25.0	6.5	21.0

Calf survival was the highest since sex and age composition surveys were first initiated on an annual basis in 1972.

A post-parturition survey conducted on June 14, 1978 in a Helio Courier 250 aircraft revealed 26 calves per 100 cows. A total of 479 animals was located near the fork of the Charley River, but this represented only about one-quarter of the estimated calving segment. If these observations are representative of the herd, initial calf production

or survival was only fair. Poor survival is likely because every year in which initial productivity was monitored during calving it was high.

Management Summary and Recommendations

Despite improved calf survival experienced by the 1976 cohort, subsequent yearling survival remained only fair, resulting in no increase in herd size. In fact, recent studies have shown that a 7-13 percent natural mortality rate can be expected in herds with predator densities comparable to that present in the range of the Fortymile Herd.

Because of poor yearling recruitment, the reported harvest of 60 caribou and the illegal harvest (of unknown magnitude) which occurs along the Taylor Highway between late fall and early spring may be a significant mortality source to the herd. Local residents living along the Taylor Highway have long relied on caribou as a major protein source and recent season and bag limit restrictions appear to have done little to change this use pattern. Local residents still take caribou as the animals become available. If recruitment were reasonably good, poaching losses could probably be tolerated biologically. However, in view of continued low calf survival, such losses are unacceptable. Improved I&E efforts aimed at educating the public regarding the biological impact of poaching, along with an increased enforcement effort, may help reduce the problem.

A predator reduction program should be initiated in Units 20C and 20E to improve calf survival and subsequent recruitment. Without a significant reduction in predator numbers, recruitment into the Fortymile Herd will continue to be poor with further population reductions inevitable. Because of the low recruitment experienced in recent years, younger age class animals constitute a relatively small portion of the herd while older adults make up the remainder. Without improved recruitment the herd will decline at an extremely rapid rate as the older animals die. Predator control would improve recruitment of calves into the breeding population, and may facilitate population growth.

If the caribou population continues to decline, at some period in the future it will be necessary to close the hunting season in order to eliminate as many sources of mortality as possible. However, as evidenced by the Delta and the McKinley Herds, a hunting closure without a predator control program will probably not allow herd growth.

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

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CARIBOU

SURVEY-INVENTORY PROGRESS REPORT - 1977-78

Game Management Unit 20D - Macomb Herd (Delta Herd east of Delta River)

Period Covered: July 1, 1977 - June 30, 1978

Seasons and Bag Limits

Unit 20(D)	Sept. 1 - Sept. 15*	One caribou

* The Macomb Management Area was closed to all motorized vehicles (except float planes on Fish Lake) involving hunting from Aug. 10-Sept. 20. The caribou season was closed Sept. 8 by emergency announcement.

Harvest and Hunting Pressure

Harvest ticket returns showed that 106 hunters harvested 93 caribou from the Macomb Herd during 1977. Sex composition of the harvest was 17 males, 23 females and 53 of unspecified sex. Seven of the 93 caribou harvested were taken in the range of the Delta or Fortymile Herd, but were coded as having been taken from the Macomb Herd. Reported harvests are normally substantially lower than the actual take. Therefore, it is likely that approximately 100 caribou were taken from the Macomb Herd during the 1977-1978 season.

Of the 78 successful hunters reporting means of transportation, 45 listed highway vehicle, 26 listed off-road vehicle, 6 listed horse, 1 listed boat and 1 listed motorbike.

Composition and Productivity

A helicopter was used on October 21, 1977 to classify 227 caribou from the air and 94 from the ground. Of the 321 caribou classified, the following ratios were observed: 42 bulls:100 cows, 18 yearlings:100 cows and 32 calves:100 cows.

Management Summary

The area west of the Glenn Highway, east of the Delta River, north of the Alaska Range and south of the Tanana River (i.e. the Macomb Herd) is estimated to contain 700 to 800 caribou. The fall 1977 composition showed a 9-percent yearling recruitment which means that 63 to 72 caribou comprised the yearling cohort. It is apparent that the reported harvest of 93 exceeded the annual increment. Because additional loss of yearlings will occur before they reproduce and because natural mortality takes adults from the herd in addition to the hunter harvest, it is obvious that the herd cannot tolerate the current level of harvest. It should also be noted that the season was closed early by emergency order which

prevented an even greater take. The harvest must be lowered. A limited number of permits that restrict the take to bulls is the safest way to achieve this.

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