ALASKA DEPARTMENT OF FISH AND GAME
JUNEAU, ALASKA

STATE OF ALASKA
Jay S. Hammond, Governor

DEPARTMENT OF FISH AND GAME
Ronald O. Skoog, Commissioner

DIVISION OF GAME
Ronald J. Somerville, Director

ANNUAL REPORT OF SURVEY-INVENTORY ACTIVITIES

PART I. BLACK BEARS AND BROWN BEARS

EDITED AND COMPILED BY

Robert A. Hinman, Deputy Director

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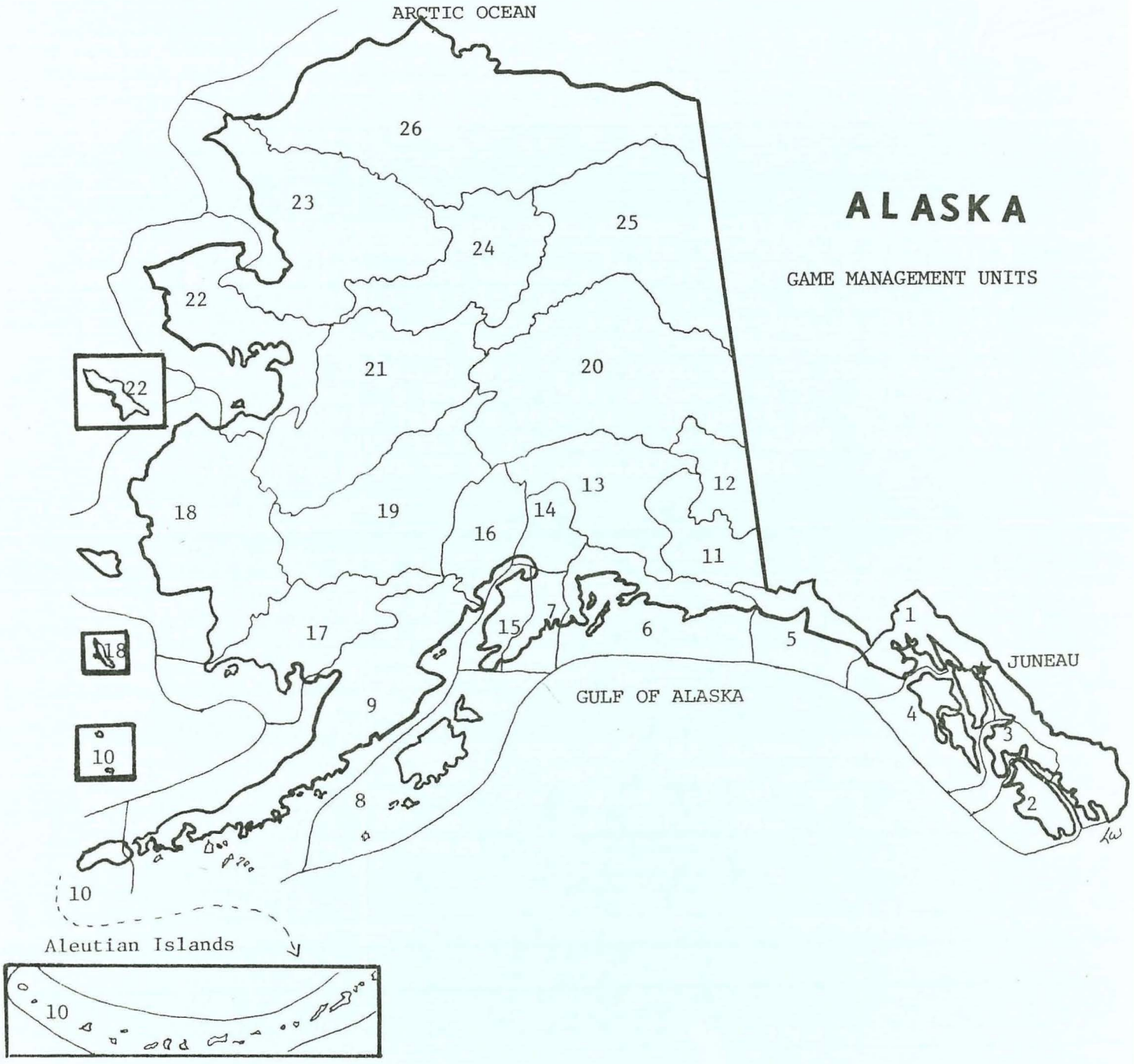
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Statewide Harvests and Population Status

Survey - Inventory Progress Reports on black bears and brown/grizzly bears are reported on a calendar year basis, in contrast to reports on other species which are reported on a regulatory year (July 1-June 30) basis. Reports in this volume are for calendar year 1980.

Black Bears

Black bears are abundant and populations stable in most units. Accurate population density indices are unavailable for black bears, but biologists felt that black bear populations were high and perhaps increasing in Units 15 and 16 and at least stable elsewhere. Sealing of black bears is required only in Units 1-7, 11-16, and 20; statewide harvests are therefore not available. Among those units in which sealing is required, the recorded take in 1980 was highest in Unit 16 (243, a record kill), followed by 161 bears in Unit 15 (also a record), 134 bears in Unit 20, and 89 bears in Unit 14. In most units black bears are under-utilized relative to their population levels.

Brown/Grizzly Bears

Brown bear populations appear healthy statewide, although concern was voiced about possible overharvest by guided hunters in the Nushagak Hills portion of Units 17 and 19. Arctic populations in Units 24-26 appear to be increasing following restricted permit harvests. It was noted that some of the most productive units in terms of number of young produced (Units 9, 13, 4) were also among the most heavily hunted.

Harvest figures are fairly accurate for brown bears due to mandatory sealing. Statewide hunter harvest in 1980 was 684 bears; a decline from the 1979 harvest of 881 bears. Leading units were Unit 9 (203 bears), Unit 8 (127 bears), Unit 13 (84 bears), and Unit 4 (66 bears).

CONTENTS

BLACK BEAR

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNITS 1A and 2

GEOGRAPHICAL DESCRIPTION: Ketchikan Area and Prince of Wales Island

PERIOD COVERED: January 1, 1980 - December 31, 1980

Season and Bag Limit

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.

Population Status and Trend

The black bear populations in Units 1A and 2 appear to be fairly constant, as indicated by harvest, hunter success and general observations. The average skull size of male bears taken during spring seasons has remained stable since 1975 and the high incidence of males in the spring harvest has not changed significantly.

Population Composition

No data were available.

Mortality

Twenty-seven black bears from Game Management Unit 1A and 73 from Game Management Unit 2 were reported taken by hunters in 1980 (Appendix I). One additional bear was taken in defense of life or property.

The harvest for Unit 1A represents a decrease of 10 percent from the 30 bears taken in 1979 while the Unit 2 harvest was up 4 percent over last year.

Harvests by season since 1974 are summarized in Appendix II. In the spring portion of the season in Unit 1A, six bears were taken from Revilla and surrounding small islands and 13 were taken on the mainland. This is a reversal of the 1979 harvest when 18 were taken on the islands and nine came from the mainland. In the spring, 47 bears were taken in Unit 2. The corresponding 1979 harvest was also 47 bears.

The spring harvest in Unit 1A was 100 percent males, slightly above the average of the 1974-1979 period. In Unit 2, the percent of males in the spring harvest for 1980 was 89, slightly above the 86 percent average for the 1974-1979 period.

The fall harvest in Unit 1A rose from three bears in 1979 to eight bears this year. Three of the eight bears were males. In Unit 2, the 1980 fall harvest of 26 bears was about the same as that of 1979. The sex ratio for these 26 bears was 54 percent males, about the same as the average for the past 5 years. The fall harvest has consistently produced a lower ratio of males than the spring season.

The chronology of the harvest is shown in Appendix III. In Unit 1A, 70 percent of the kill occurred during the spring season, and 84 percent of the spring bears were taken in the May 1 - May 31 period. In Unit 2 where 64 percent of the harvest occurred in the spring, 72 percent of the bears were taken in the May 1 - 20 period. The peak of the spring harvest in both Unit 1A and 2 occurred a little earlier this year than last year.

Transportation used by bear hunters in 1980 to reach hunting areas changed from last year. In Unit 1A this year, 63 percent of the bear hunters used boats, 30 percent used aircraft and 7 percent hunted from a road system. In Unit 2, where the logging roads are more extensive, 59 percent used road vehicles, 15 percent used airplanes, and 26 percent traveled by boat.

Nonresidents took 22 percent of the bears from Unit 1A and 41 percent from Unit 2. Sixty-four percent of the 36 bears taken by nonresidents were taken during the spring season.

Tabulation of data on incidental take of black bears shows 6 percent of the bears taken during the spring season were considered incidental, while 19 percent of the fall bears were indicated as taken incidental to other activities.

Fifty-five percent of the successful spring bear hunters and 50 percent of the fall hunters saved some or all of the meat from their bears.

Skull measurements once again showed considerably larger bears on Prince of Wales Island than in Unit 1A. In Unit 1A, 20 males averaged 17.6 inches while in Unit 2, the 48 males averaged 19.2 inches. Comparable figures for 1979 were 17.8 inches for 24 males from Unit 1A and 19.0 inches for 50 males from Unit 2. Male skull sizes have remained fairly constant for the past 5 years (Appendix I).

Age data for bears taken in 1980 are not available but will be included in next year's report. Some of the differences in the changing age ratios of the past 3 years have been linked to differences in the methods of aging the teeth. Once standardization is completed, all past aging data will be presented in a future report.

Ninety-one hunters took the 100 bears reported for 1980, from Units 1A and 2, indicating that nine hunters took two bears each.

Only one cinnamon bear was taken this year. Some selectivity for the cinnamon color phase over the normal black phase occurs, and this phase is found only on the mainland.

Management Summary and Recommendations

The black bear harvest for Unit 1A was down 7 percent from the long-term average and down 10 percent from the 1979 harvest. In general, the Unit 1A harvest has remained fairly constant. In Unit 2, the harvest appeared to be rising slowly and steadily. The 1980 harvest was up 26 percent from the long-term average and 4 percent from the 1979 harvest. While the harvest for both Units should continue to increase, Unit 2 will probably show greater proportional increases because of the heavy logging activity currently in progress, and planned for the future. Extensive logging road systems are being opened and connected, making the area attractive to hunters having motorized camping units.

PREPARED BY:

Robert E. Wood
Area Management Biologist

SUBMITTED BY:

Nathan P. Johnson
Region I Research/
Management Coordinator

APPENDIX I. Black Bear Sport Harvest Statistics for GMU's 1A and 2 with Color Phase, Kill by Nonresidents Mean Skull Size and Methods of Transportation used for Calendar Year 1980.

							**		**		Transport Used-%		
		Total	No.	No.	Unk	Kill By	Mean Skull	Mean Skull		% *		Road	
GMU	Season	Kill	Males	Females	Sex	Non - Res	Size - Male	Size - Female		Cinnamon	Air	Boat	Vehicle
1-A Mainland	Spring	13	13	0	0	1 (8%)	18.0 (12)	0	0	0	8	92	0
	Fall	5	2	3	0	2 (40%)	16.1 (2)	15.8	(2)	20%	80	10	0
	Total	18	15	3	0	3 (17%)	17.7 (14)	15.8	(2)	6%	28	72	0
1-A Revilla	Spring	6	6	0	0	2 (33%)	17.3 (6)	0	0	...	33	50	17
	Fall	3	1	2	0	1 (33%)	0 0	15.6	(2)	...	33	33	33
	Total	9	7	2	0	3 (33%)	17.3 (6)	15.6	(2)	...	33	44	22
Total 1-A	Spring	19	19	0	0	3 (16%)	17.8 (18)	0	0	...	16	79	5
	Fall	8	3	5	0	3 (38%)	16.1 (2)	15.7	(4)	...	63	25	13
	Total	27	22	5	0	6 (22%)	17.6 (20)	15.7	(4)	...	30	63	7
2	Spring	47	42	5	0	20 (43%)	19.3 (35)	17.0	(3)	...	15	30	55
	Fall	26	14	12	0	10 (38%)	19.0 (13)	17.2	(9)	...	15	19	65
	Total	73	56	17	0	30 (41%)	19.2 (48)	17.2	(12)	...	15	26	59

* Cinnamon phase occurs only on mainland.

** ( ) = Sample Size

APPENDIX II. Black Bear Harvest by Season with Sex Ratios and Skull Sizes for GMU's 1A and 2, 1974 - 1980.

Unit	Year	Season	Total Kill	% Males	Mean Skull Size - Male	(n)	Mean Skull Size - Female	(n)
1A	1974	Spring	34	94				
		Fall	13	62				
		Year	47	83	17.8	(36)	15.2	(5)
1A	1975	Spring	27	89	17.3	(21)	16.3	(3)
		Fall	6	67	16.9	(4)	16.4	(1)
		Year	33	85	17.2	(25)	16.3	(4)
1A	1976	Spring	22	95	17.7	(21)	15.1	(1)
		Fall	5	80	18.1	(4)	16.5	(1)
		Year	27	93	17.8	(25)	15.8	(2)
1A	1977	Spring	9	100	17.7	(9)		
		Fall	7	57	13.7	(1)	15.4	(3)
		Year	16	81	17.3	(10)	15.4	(3)
1A	1978	Spring	15	87	18.2	(11)	15.8	(2)
		Fall	9	67	17.4	(5)	16.2	(3)
		Year	24	79	18.0	(16)	16.0	(5)
1A	1979	Spring	27	93	17.8	(24)	15.6	(1)
		Fall	3	33	....	....	17.1	(1)
		Year	30	87	17.8	(24)	16.4	(2)
1A	1980	Spring	19	100	17.8	(18)	....	....
		Fall	8	38	16.1	(2)	15.7	(4)
		Year	27	81	17.6	(20)	15.7	(4)
2	1974	Spring	22	77				
		Fall	5	60				
		Year	27	74	19.1	(15)	16.2	(2)
2	1975	Spring	27	93	19.5	(24)	17.5	(1)
		Fall	15	53	18.8	(7)	16.5	(5)
		Year	42	79	19.3	(31)	16.6	(6)
2	1976	Spring	61	87	19.4	(50)	16.8	(6)
		Fall	18	61	17.5	(8)	16.8	(7)
		Year	79	81	19.1	(58)	16.8	(13)
2	1977	Spring	34	85	19.0	(28)	17.2	(4)
		Fall	17	65	19.5	(5)	15.9	(4)
		Year	51	78	19.1	(33)	16.5	(8)
2	1978	Spring	44	89	19.3	(39)	17.5	(2)
		Fall	23	57	18.7	(11)	16.5	(7)
		Year	67	78	19.2	(50)	16.7	(9)

APPENDIX II (Cont'd). Black Bear Harvest by Season with Sex Ratios and Skull Sizes for GMU's 1A and 2, 1974 - 1980.

Unit	Year	Season	Total Kill	% Males	Mean Skull Size - Male (n)		Mean Skull Size - Female (n)	
2	1979	Spring	47	98	19.1	(42)	17.6	(1)
		Fall	23	61	18.4	(8)	16.9	(8)
		Year	70	86	19.0	(50)	17.0	(9)
2	1980	Spring	47	89	19.3	(35)	17.0	(3)
		Fall	26	54	19.0	(13)	17.2	(9)
		Year	73	77	19.2	(48)	17.2	(12)

(n) = Sample Size

APPENDIX III. Chronology of the 1980 Black Bear Hunting Harvest Units 1A and 2.

	Unit 1A	Unit 2
April 1-20		1
April 21-30	1	3
May 1-10	5	13
May 11-20	5	21
May 21-31	6	4
June 1-10	1	1
June 11-20	1	2
June 21-30		2
Sept. 1-10	3	3
Sept. 11-20	2	4
Sept. 21-30		7
Oct. 1-10		4
Oct. 11-20	2	1
Oct. 21-31	1	1
Nov. 1-10		3
Nov. 11-30		3

Prepared by: Robert E. Wood, Game Biologist III

BLACK BEAR

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT 1B

GEOGRAPHICAL DESCRIPTION: Mainland from Cape Fanshaw to Lemesurier Point on the Cleveland Peninsula

PERIOD COVERED: January 1, 1980 - December 31, 1980

Season and Bag Limit

Sept. 1-June 15	One bear, provided that the taking of cubs and females accompanied by cubs is prohibited.

Population Status and Trend

Black bear populations on the mainland appeared to increase during the reporting period.

Population Composition

Field surveys of black bear populations, sex ratios, and reproduction were not conducted during this period. Although tooth samples were collected from bears killed by hunters, definitive age information is not available for 1980. Three males and five females were killed by hunters.

Mortality

Eight bears were harvested in Unit 1B in 1980. Since 1973, the annual harvest has ranged from a low of three (1977, 1979) to a high of 15 (1974). Calipers and steel tape measures are used to obtain skull measurements. Skulls are measured with the hide removed, but are not cleaned. Skulls damaged by bullets are not measured. Only two male and two female skulls were measured. The length and width of the skulls from males were 11-1/2 inches by 7-1/4 inches and 10-5/8 inches by 6 inches. Female skull sizes were 10-1/4 inches by 5-1/4 inches and 10-1/4 by 6/38 inches.

Management Summary and Recommendations

Black bears in Unit 1B appear to be underharvested. Most bears are killed in the vicinity of major logging camps and communities. As more logging camps are developed on the mainland, an increase in bear kills can be expected.

The bag limit in this Unit could be increased without harm to the population and should result in an increased harvest. The bag limit and season length were reduced in 1980 and will be subject to revision in 1982. Field surveys should be conducted to substantiate the need for an increased bag limit or verify the need for the current restrictions.

PREPARED BY:

E. L. Young, Jr.
Game Biologist III

SUBMITTED BY:

Nathan P. Johnson
Research/Management Coordinator

BLACK BEAR

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT 1C

GEOGRAPHICAL DESCRIPTION: Mainland portions of Southeastern Alaska Between Cape Fanshaw and Eldred Rock

PERIOD COVERED: January 1, 1980 - December 31, 1980

Season and Bag Limit

Sept. 1 - June 15	One bear; provided that the taking of cubs or females accompanied by cubs is prohibited.

Population Status and Trend

Data were insufficient to determine a population trend. However, no significant changes are believed to have occurred since 1979.

Population Composition

No data were collected.

Mortality

The black bear harvest (based on sealing documents) in Unit 1C was 39 bears (77% males) which was a decrease of nine bears from 1979, but nearly equal to 1978. Five cinnamon-phase black bears were included in the harvest. Residency of successful black bear hunters in 1980 was 25 (64%) residents and 14 (36%) nonresidents. The reported non-sport kill in 1980 was six bears (5 male, 1 female).

For Unit 1C in 1980, the average skull size was 17.2 inches for 29 males and 15.7 inches for seven females. Age data for bears harvested in 1980 were not available.

Chronology of the 1980 harvest showed 74 percent (n=29) of the black bear harvest in Unit 1C occurred during April, May and June with 54 percent in May alone. Of the remaining 10 bears taken in Unit 1C, nine (23%) were taken in September and one (3%) in October.

Successful hunters spent a total of 121 days hunting black bears in Unit 1C in 1980, down from a total of 176 days in 1979. The average number of days spent hunting per bear taken was 3.1, an increase of 0.8 days over 1979.

Distribution of the harvest in Unit 1C in 1980 showed Berners Bay to Point Bishop as the highest harvest area (n=17), followed by the Chilkat Range and Point Coke to Cape Fanshaw areas with nine and eight bears, respectively.

Modes of transportation used by successful hunters were boat (56%), highway vehicle (20%), foot (8%), aircraft (8%), other (5%), and unknown (3%).

Management Summary and Recommendations

The effects of the reduced bag limit from two bears (1979) to one bear (1980) are not known. Although the 1980 harvest was below the reported harvest in 1979, it was nearly equal to that in 1978.

Bear populations appear to be relatively stable in Unit 1C with current harvest levels.

With the black bear's increasing importance as a game animal, new information through research and S&I activities will be needed in the future to effectively manage the species. No changes in seasons or bag limits are recommended.

PREPARED BY:

David W. Zimmerman
Game Biologist II

SUBMITTED BY:

Nathan P. Johnson
Regional Management/
Research Coordinator

BLACK BEAR

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT 1D

GEOGRAPHICAL DESCRIPTION: Mainland Portions of Southeastern Alaska North of Eldred Rock

PERIOD COVERED: January 1, 1980 - December 31, 1980

Season and Bag Limit

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

Population Status and Trend

Data were insufficient to determine a population trend. However, no significant changes are believed to have occurred since 1979.

Population Composition

No data were collected.

Mortality

Based on sealing documents, the 1980 black bear harvest in Unit 1D was 24 bears (21 males and 3 females), five bears above the 1979 harvest. The previous 5-year average was 20 bears per year. The harvest included six black bears of the cinnamon phase. In 1980 all successful black bear hunters were residents, and two hunters took two bears each.

For Unit 1D in 1980, the average skull size was 16.4 inches for 19 males and 15.3 inches for three females. Ages for bears harvested in 1980 were not available.

Chronology of the harvest showed that 54 percent of the harvest occurred in the spring (46% in May and 8% in June) and 46 percent in the fall (33% in September and 13% in October).

The average number of days spent hunting per bear taken was 1.2, or 1.1 days less than in 1979.

Distribution of the harvest showed that 23 bears were taken in the Chilkat Inlet - Chilkat River area, one in the Chilkoot River area and one in the Skagway River area.

Modes of transportation used by successful hunters were highway vehicle (46%), off-road vehicle (8%), boat (8%), foot (8%), other (17%), and unknown (13%).

Management Summary and Recommendations

Available information did not indicate any significant change in the black bear population in Unit 1D since 1979.

Due to revisions in determining tooth cementum ages of black bears, tooth samples from previous years' harvests are in the process of being reread for data consistency.

With black bears increasing in importance as a game animal, new information through research and S&I activities will be needed in the future to effectively manage the species. No changes in seasons or bag limits are recommended.

PREPARED BY:

David W. Zimmerman
Game Biologist II

SUBMITTED BY:

Nathan P. Johnson
Regional Management/
Research Coordinator

BLACK BEAR

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT 3

GEOGRAPHICAL DESCRIPTION: Islands of the Petersburg, Kake, Wrangell area of Southeast Alaska.

PERIOD COVERED: January 1, 1980 - December 31, 1980.

Season and Bag Limit

Sept. 1 - June 15	One bear, provided that the taking of cubs or females accompanied by cubs is prohibited.

Population Status and Trend

Black bear populations remained high in Unit 3 during the report period. There was a noticeable increase in the number of complaints about nuisance bears around the communities of Kake, Wrangell and Petersburg. This increase was probably attributable to the low salmon return in streams frequented by bears, and also to the continued high bear population.

Population Composition

Sex information was recorded as bears were sealed by biologists. This is not an indication of the sex ratio since hunters are known to be selective for larger bears and sows with cubs are not legal. A total of 30 males, 1 female, and 6 bears of undetermined sex were taken in Unit 3. Bears were listed as undetermined if evidence of sex had been removed.

Mortality

A harvest of 37 black bears was recorded in Unit 3, a 26 percent reduction from the 1979 harvest of 50 bears. Fig. 1 shows annual bear harvests in Unit 3 from 1973-80. Only the fall kill is shown for 1973. Of the bears killed during 1980, 30 percent were taken in the fall, while spring hunting accounted for the remaining 70 percent.

Since fall 1973, successful black bear hunters have been required to present skulls and hides from their kills for sealing. Information collected during sealing includes color phase, sex, skull measurements, transportation means used by hunters, number of days hunted, date and location of kill.

In Unit 3 hunters used the following means of transportation: aircraft -8 percent, boat - 65 percent, other - 27 percent. The

"other" category was used when two-wheel drive vehicles were utilized by hunters. No hunter listed "off-road vehicles" as their transportation means.

Nonresident hunters accounted for 43 percent of the Unit 3 black bear harvest. The 16 successful nonresident hunters spent a total of 70 hunting days for an average of 4.4 days per bear harvested. Residents spent a total of 51 days for an average of 2.4 hunting days per bear harvested. Sixty-nine percent of the nonresident hunters and 86 percent of the resident hunters killed a bear in 3 days or less. Of both groups, 78 percent of the hunters taking a bear were successful within three days. Information was unavailable on the efforts of unsuccessful hunters.

The bear harvest in Unit 3 from 1974-79 was concentrated on Kuiu and Kupreanof Islands. Over half the animals in that period were taken on Kuiu Island. During 1980, however, the kill on Kuiu Island declined to 22 percent of the total harvest. The Mitkof Island kill had been less than 5 percent annually from 1974 through 1979, and increased to 32 percent in 1980 (Table 1). Although most of the resident hunters live in the communities of Petersburg (Mitkof Island) and Wrangell (Wrangell Island), bear hunting pressure has not been historically high on those islands.

Table 1. Annual Percentage of Unit 3 Black Bear Harvests by Island, 1974-80.

Year	Kupreanof	Kuiu	Mitkof	Wrangell	Etolin	Other Islands
1974	18	61	4	10	7	0
1975	25	63	4	4	4	0
1976	33	57	3	2	3	2
1977	15	77	4	0	0	4
1978	29	61	3	0	2	0
1979	31	52	4	4	7	2
1980	40	22	32	3	0	3

Calipers and steel tape measures are used to obtain skull measurements. Skulls are measured with the hide removed, but not cleaned. Damaged skulls are not measured. Teeth are pulled and submitted to the Region II laboratory for aging. Male skulls

ranged in size from 10 1/8 inches (width and length combined) to 21 inches. Male skulls averaged 11.8 inches in length and 6.6 inches in width as compared to 11.5 and 6.7 inches, respectively, in 1979. No age information is available for 1979 or 1980.

Management Summary and Recommendations

Harvest data and physiological measurements are collected through the sealing requirement. The law is subject to interpretation and a few skulls are not brought in by hunters who recover only the meat. A slight change in the wording of the regulation would make sealing mandatory, and will be recommended to the local Advisory Committees.

Although the bag limit was reduced from two bears to one in 1980, the harvest did not decrease appreciably. The average annual kill from 1973 through 1979 was 38 bears as compared to 37 in 1980.

As funds become available, emphasis should be placed on the development of a black bear census technique in Southeast Alaska. Bears are expected to increase in popularity as a game animal in the future. Information needs will increase commensurately.

PREPARED BY:

E. L. Young, Jr.
Game Biologist III

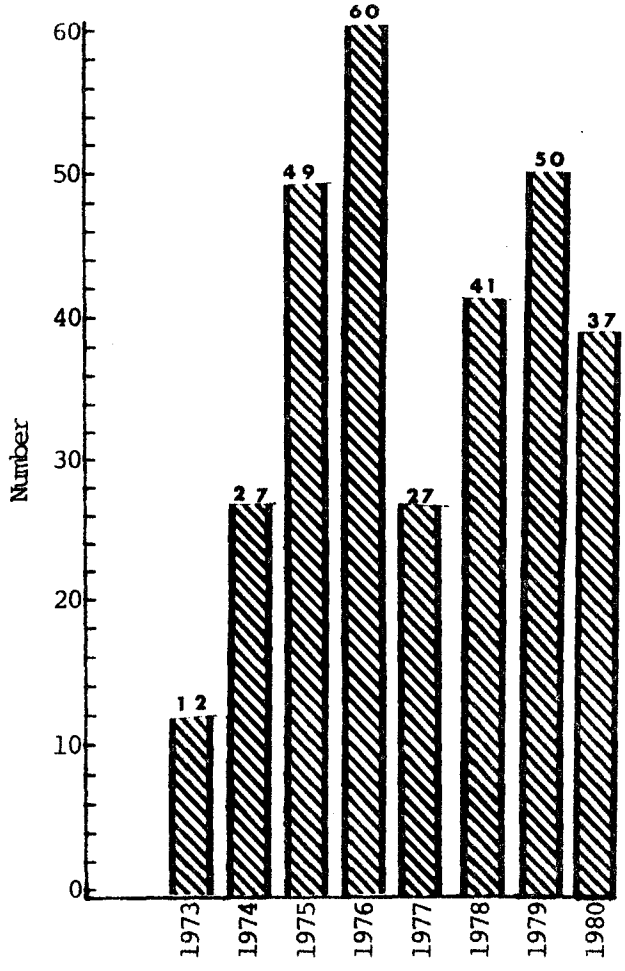
SUBMITTED BY:

Nathan P. Johnson
Regional Management/
Research Coordinator

Figure 1

Unit 3 Annual Black Bear Sport Harvest

1973-1980



BLACK BEAR

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT 5

GEOGRAPHICAL DESCRIPTION: Yakutat and Malaspina Forelands, Russell Fjord, Gulf of Alaska

PERIOD COVERED: January 1, 1980 - December 31, 1980

Season and Bag Limit

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

Population Status and Trend

No data were collected, however, no major changes in the population status have been observed during the report period and unit-wide the black bear population appears to be stable.

Population Composition

No formal surveys or inventories were conducted for black bears during the report period, but bears observed incidentally during other big game surveys were recorded. Based on these general observations and hunter/guide interviews, the black bear population in Unit 5 appears to be stable and production good. Hunters and guides uniformly reported seeing many females accompanied by cubs and a few reported that they had some difficulty finding a "legal" bear.

Mortality

Eighteen black bears (13 males, 5 females) were taken by sport hunters during the report period. Sixteen were killed in the spring, and two were shot during the fall hunting season. This level of harvest compared favorably with past seasons' as does the sex ratio, which is weighted heavily toward males. Three of the bears taken (2 males, 1 female) were the blue or "glacier" color phase, a harvest above the average of 1.5/year.

Nonresidents harvested 14 bears (all but one were guided hunts) and residents took the remaining four. Two resident and four nonresident hunters salvaged the meat from their bears. This figure is three times that of last report period, and is interesting because nonresidents very seldom salvage the meat from their bears. It will be important to see if this is the beginning of a trend by hunters to salvage the meat from their black bear trophies.

Management Summary and Recommendation

Generally, the black bear population appears to be stable unit-wide and production appears to be good. The hunting pressure seems to remain fairly constant from year to year, but harvest levels fluctuate considerably. This fluctuation is most likely due to the wide variability in the spring weather and the resultant change in the timing of "leaf out." Guides plan their first hunt to begin about the same time each year. If spring comes early (or late) on any given year it can result in a harvest different from the "average" level.

Based on both formal and informal interviews, most hunters were not really interested in killing more than one black bear a year. Most of them commented that they would take a second black bear only if they saw "a really nice one" or if they "got a shot at a glacier bear."

No change in season or bag limit is recommended.

PREPARED BY:

Ronald E. Ball
Game Biologist III

SUBMITTED BY:

Nathan P. Johnson
Regional Management/
Research Coordinator

Appendix I. Game Management Unit 5 Black Bear Harvest for the period of 1971 through 1980.

Calendar Year	Total Kill	No. Males	No. Females	No. Unknown	Color Phase	
					Black	Blue
1971	3	3	0	0	3	0
1972	17	12	5	0	15	2
1973	19	12	7	0	18	1
1974	9	6	3	0	8	1
1975	12	8	2	2	10	2
1976	19	19	0	0	17	2
1977	13	11	2	0	12	1
1978	8	6	0	2	7	1
1979	22	12	9	1	18	4
1980	18	13	5	0	15	3

BLACK BEAR

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT 6

GEOGRAPHICAL DESCRIPTION: Prince William Sound and North Gulf Coast

PERIOD COVERED: January 1, 1980 - December 31, 1980

Seasons and Bag Limits

Jan. 1-June 30	One bear; provided that the taking of cubs or females accompanied by cubs is prohibited.
Sept. 1-Dec. 31	

Population Status and Trend

Sufficient data to determine current status or trend of black bears in Unit 6 were not available.

Population Composition

No data were available

Mortality

The 1980 Unit 6 black bear harvest was 66 bears, 47 males, 17 females, and 2 of unknown sex.

The spring season accounted for 94 percent of the annual harvest with most of the harvest occurring between May 11 and June 8.

Male skull size averaged 16.6 inches, and females averaged 15.1 inches. The average age of harvested males was 5.9 years compared to 4.9 years for females.

Distribution of black bear harvest is shown in Appendix I.

Management Summary and Recommendations

The harvest of 66 bears was the smallest annual harvest on record. The 7-year average was 106 bears. The 1980 harvest was normal in all respects except for the number of bears taken. The following harvest characteristics were similar to previous years: 1) percent of bears taken during the spring season, 2) percent of males in the harvest, 3) chronology of harvest, and 4) skull size. Average age of males harvested in 1980 was near the 7-year average, but the average age of females harvested was considerably below average. This could be a function of small sample size.

Reduced hunting pressure appeared to be the logical explanation for modest harvests in most portions of Unit 6 in recent years. Also, a series of early springs has made hunter success more difficult because of early leaf emergence which makes bears more difficult to spot.

No regulatory changes were recommended.

PREPARED BY:

Julius L. Reynolds
Game Biologist III

SUBMITTED BY:

Leland P. Glenn
Survey-Inventory Coordinator

Appendix I. Unit 6 Black Bear Harvest Location, 1980.

Unit/ Subunit	Area	Number	Percent
6-01	East of Copper River to Icy Bay	11	16.7
6-02	Cordova to Copper River	1	1.5
6-03	Tatitlek to Cordova	2	3.0
6-04	Valdez Arm	22	33.3
6-05	Esther Island to Valdez Arm	7	10.6
6-06	Port Wells	10	15.2
6-07	Passage Canal to Port Nellie Juan	10	15.2
6-08	Port Nellie Juan to Cape Fairfield	3	4.6
6-10	Unit 6 - Unknown	0	0.0
	Total:	66	100.1

PREPARED BY: Julius L. Reynolds
Game Biologist III

BLACK BEAR

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT 7

GEOGRAPHICAL DESCRIPTION: Eastern Kenai Peninsula

PERIOD COVERED: January 1, 1980 - December 31, 1980

Seasons and Bag Limits

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

Population Status and Trend

An abundance of black bears in Unit 7 was suggested by an increasing number of bear sightings reported by the public and an increasing harvest of bears.

Population Composition

No data were available.

Mortality

A harvest of 70 black bears was recorded in Unit 7 in 1980. Sex composition of the harvest was 42 males (64%), 24 females (36%) and 4 (6%) bears of undetermined sex. Twenty-one and 49 bears were taken during the spring and fall hunting periods, respectively. Differences between sex ratios of spring and fall harvests were not significant ($X^2 = 0.085$, 1 d.f., $P>0.05$), suggesting that there were no major seasonal changes in the vulnerability of either sex to hunting. Successful hunters required an average of 4.1 days to kill a bear. Nonresident hunters killed 11 bears (16%). An historical record of the black bear harvest in Unit 7 was reported by Spraker (1979).

Mean age of male black bears in the 1980 harvest was 4.4 years (n = 34). This is almost identical to the mean age of males in the 1979 harvest, but a year younger than the mean age taken between 1973 and 1979. Mean skull size of males was 16.4 inches (n = 35), which is 0.2 inch larger than the previous 7-year mean. Mean age of female bears in the 1980 harvest was 4.7 years (n = 18) compared to 5.8 years for all females taken since 1973. Mean skull size of females taken during 1980 (15.8 inches, n = 19) did not deviate from the 7-year average.

Management Summary and Recommendations

Unit 7 has sustained a relatively stable year-to-year harvest of black bears since 1973. The 1980 harvest of 70 bears was slightly higher than the annual average kill of 57 bears. Short-term reductions of up to 2 years in the mean age of harvested bears are not interpreted with alarm at this time, since annual variations of this magnitude appear normal. A stable harvest trend and an increasing number of observations of bears indicate that bears are abundant in Unit 7 under the current management system. Consequently, no changes in season or bag limit were recommended.

Literature Cited

Spraker, T. H. 1979. Black Bear Survey-Inventory Progress Report. In R. A. Hinman, ed. Annual Report of Survey-Inventory Activities, Part I, Vol. X. Fed. Aid Wildl. Rest. Rep., Proj. W-17-11, Job No. 17.0, 4.0 and 22.0. Alaska Dept. Fish and Game, Juneau.

PREPARED BY:

Ted H. Spraker
Game Biologist III

SUBMITTED BY:

Leland P. Glenn
Survey-Inventory Coordinator

BLACK BEAR

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT 9

GEOGRAPHICAL DESCRIPTION: Alaska Peninsula

PERIOD COVERED: January 1, 1980 - December 31, 1980

Season and Bag Limit

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

Population Status and Trend

No data were available.

Population Composition

No data were available.

Mortality

Eight bears were reported taken in northern Unit 9 in 1980. Because sealing is not required for black bears taken in Unit 9, this figure does not necessarily reflect actual hunter kill. Some local residents of Unit 9 harvest black bears for personal use of the meat and hide. Estimated total hunting mortality is 15 to 20 bears per year.

No data were available on other causes of mortality.

Management Summary and Recommendations

Hunting pressure has traditionally been light on black bears in Unit 9. Many of the bears are taken incidental to hunts for other species. The meat of most bears was salvaged for human consumption. Existing seasons and bag limits allow flexibility for hunters and do not threaten the bear population.

No changes in seasons or bag limits were recommended.

PREPARED BY:

Christian A. Smith
Game Biologist III

SUBMITTED BY:

Leland P. Glenn
Survey-Inventory Coordinator

BLACK BEAR

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT 11

GEOGRAPHICAL DESCRIPTION: Wrangell Mountains

PERIOD COVERED: January 1, 1980 - December 31, 1980

Season and Bag Limit

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

Population Status and Trend

Field observations and hunter reports indicated an abundance of black bears in Unit 11.

Population Composition

No data were available.

Mortality

Six black bears, 4 males and 2 females, were reported killed in 1980. Successful hunters spent an average of 2.8 days hunting. Five hunters salvaged their bear meat. Only two nonresident hunters were successful in taking bears.

Management Summary and Recommendations

Since National Monument regulations prohibiting sport hunting were still in effect during 1980, the hunting effort did not increase over levels observed in 1979 (Tobey 1980). The low black bear harvest reflects this low hunter participation.

The black bear population can withstand the current level of harvest and no change in season dates or bag limits were recommended.

Literature Cited

Tobey, R. W. 1980. Annual Report of Survey-Inventory Activities. Part I. In R. A. Hinman ed. Alaska Fed. Aid in Wildl. Rest. Proj. W-17-11.

PREPARED BY:

Robert Tobey
Game Biologist III

SUBMITTED BY:

Leland P. Glenn
Survey-Inventory Coordinator

BLACK BEAR

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT 12

GEOGRAPHICAL DESCRIPTION: Upper Tanana and White Rivers

PERIOD COVERED: January 1, 1980 - December 31, 1980

Season and Bag Limit

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

Population Status and Trend

Although no standardized black bear surveys have been conducted, historic harvest data indicate that the black bear population in Unit 12 is stable and of moderate density in suitably forested habitat.

Population Composition

The actual sex and age composition of the population is not known, but since the harvest level was low the composition probably approximates that of unhunted populations.

Mortality

A total of 24 black bears was reported taken by hunters during 1980. This represented a 26 percent increase in harvest from the 7-year average of 19 bears. Based on the number of black bears observed in Unit 12, this level of harvest is considered low.

Ten bears (42%) were taken prior to 1 July and 14 (58%) were taken afterwards. Males (11) comprised 46 percent of the harvest and females (13) 54 percent. Males normally comprise more than 70 percent of the annual harvest in Unit 12. Skull sizes averaged 16.5 inches for males and 15.6 inches for females. The mean skull size for males was virtually unchanged from previous years, but average skull size for females taken increased substantially.

Forty-six percent (11) of the harvest occurred in the Tok-Little Tok River drainages and 42 percent (10) in the main Tanana River valley. One bear was taken in the Nabesna River and one in the Jack Creek drainage in southern Unit 12. Residents accounted for 22 of the 24 bears. Most bears were taken on or near the road system; the more remote portions of Unit 12 were virtually unhunted. Hunters reported salvaging the meat from 19 of 24 bears.

It is interesting that 12 (92%) of 13 females were black and 8 (73%) of the 11 males were of the cinnamon color phase.

Management Summary and Recommendations

The black bear population in Unit 12 is believed to be stable, limited by natural factors. Hunting pressure is low in relation to the bear population and is restricted to areas near the road system. No changes in the existing management scheme are needed at this time.

PREPARED BY:

David G. Kelleyhouse
Game Biologist III

SUBMITTED BY:

Jerry D. McGowan
Survey-Inventory Coordinator

BLACK BEAR

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT 13

GEOGRAPHICAL DESCRIPTION: Nelchina Basin

PERIOD COVERED: January 1, 1980 - December 31, 1980

Season and Bag Limit

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

Population Status and Trend

Field observations and public reports indicate black bears were abundant within suitable habitat in Unit 13. A rough density approximation of 1 bear/4.1 km^2 was obtained within forested areas of the Susitna River (Miller and McAllister 1981). This estimate compares favorably with densities reported in other areas of North America.

Population Composition

Capture and marking of black bears in a portion of Unit 13 was conducted during the spring of 1980 in conjunction with the Susitna Hydroelectric Project (Miller and McAllister 1981). The sex ratio for 27 captured black bears was 15 males and 12 females. Of the 12 females captured, 5 were accompanied by 11 yearlings, 3 were accompanied by 4 cubs, and 4 were unaccompanied.

Mortality

Eighty-three black bears, 60 males, 20 females, and 3 unknown sex were reported killed in Unit 13 during 1980. This is the largest harvest reported since the initiation of the sealing requirement. The mean skull size for males harvested was 16.6 inches and for females was 15.4 inches, a slight increase 1979 (Tobey 1980).

Forty-three hunters (52% of successful hunters) indicated they were hunting specifically for black bears and their take was not incidental. The meat was salvaged by 58 (70%) of the successful hunters.

Management Summary and Recommendations

The number of bears taken by hunters specifically hunting for a black bear has increased. The number of hunters salvaging the meat for human consumption remained high. The black bear in Unit 13 is becoming a more popular game species and is receiving more attention from hunters.

The black bear population appears capable of maintaining this level of harvest. Skull measurement data indicated adult animals comprised a majority of the harvest. Research data indicated that a good age distribution exists in captured bears from the studied portions of Unit 13. Reproduction appeared adequate. No changes in bag limits or season dates were recommended.

Literature Cited

Miller, S. D. and D. C. McAllister. 1981. Alaska Power Authority, Susitna Hydroelectric Project, Environmental Studies Annual Progress Report. Subtask 7.11 Big Game. Alaska Dept. of Fish and Game.

Tobey, R. W. 1980. Annual Report of Survey-Inventory Activities. Part I. In R. A. Hinman ed. Alaska Fed. Aid in Wildl. Rest. Proj. W-17-11.

PREPARED BY:

Robert Tobey
Game Biologist III

SUBMITTED BY:

Leland P. Glenn
Survey-Inventory Coordinator

BLACK BEAR

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT SUBUNITS 14A and 14B

GEOGRAPHICAL DESCRIPTION: Upper Cook Inlet

PERIOD COVERED: January 1, 1980 - December 31, 1980

Season and Bag Limit

No closed season

Three bears; provided that the taking of cubs or females accompanied by cubs is prohibited.

Population Status and Trend

Observations of bears by Department staff, sightings by the public, and complaints of nuisance bears indicated an abundance of black bears in Subunits 14A and 14B.

Population Composition

No data were available.

Mortality

Eighty-nine black bears were killed during 1980, 52 in Subunit 14A and 37 in Subunit 14B. Four bears were taken in defense of life or property. Nine successful hunters were nonresidents.

The sex composition and the mean skull size (in inches) of the black bears killed in Subunits 14A and 14B were as follows:

	Spring			Fall		
Sex	Males	Females	Unk.	Males	Females	Unk.
Harvest	19	10	2	35	16	7
Skull Size (n)	15.5(18)	14.8(8)	-	15.6(32)	14.4(14)	-

Management Summary and Recommendations

The 1980 harvest of 89 bears was 2.4 times larger than the 1979 level. In spite of the increased harvest, the mean skull sizes in all categories varied less than 0.9 inches from 1979. Recalculation of the mean skull size of male black bears harvested in Subunits 14A and 14B during fall 1979 revealed an error in the 1979 Survey-Inventory Report (Didrickson and Steen, 1980). The corrected mean is 16.5 inches instead of the 17.3 inches reported. The 1980 mean skull sizes for males in

spring and females harvested in fall increased 0.2 and 0.1 inches, respectively. For females harvested in spring and males harvested in fall, the mean skull size decreased 0.8 and 0.9 inches, respectively. The relatively stable skull size presumedly indicates a stable age structure, suggesting that hunting is having little impact on the black bear population.

No changes in season or bag limit were recommend.

Literature Cited

Didrickson, J. C. and N. C. Steen. 1980. Annual Report of Survey-Inventory Activities. Part I. In R. A. Hinman ed. Alaska Fed. Aid in Wildl. Rest. Proj. W-17-12.

PREPARED BY:

Jack C. Didrickson
Game Biologist III

and

Nicholas C. Steen
Game Biologist II

SUBMITTED BY:

Leland P. Glenn
Survey-Inventory Coordinator

BLACK BEAR

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT 15

GEOGRAPHICAL DESCRIPTION: Western Kenai Peninsula

PERIOD COVERED: January 1, 1980 - December 31, 1980

Season and Bag Limit

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

Population Status and Trend

Harvest statistics suggested that bears are abundant in Unit 15. This assumption was supported by the results of research which is being conducted in portions of Subunit 15A. The results of this research indicated that a relatively high density of black bears, 1.5-1.6/km^2, has existed in suitable habitat in the study area since 1979 (Schwartz et al. 1981).

Population Composition

No data were available.

Mortality

Hunters killed 161 black bears in Unit 15 during 1980. This was the highest recorded kill in this unit since the Department of Fish and Game began sealing bears (1973). Sex composition of the harvest was 96 males (60%), 61 females (38%), and 4 (2%) bears of undetermined sex. Fifty-six and 105 bears were taken in the spring and fall periods, respectively. Differences between sex ratios of spring and fall harvests were not significant (X^2 = 0.020, 1 d.f., P>0.05), suggesting that there were no major seasonal changes in the vulnerability of either sex to hunting. Successful hunters required an average of 3.3 days to kill a bear. Nonresident hunters were responsible for 22 percent of the 1980 harvest. See Spraker (1979) for a historical record of the black bear harvest in Unit 15.

Mean age of male black bears in the 1980 harvest was 4.5 years (n = 55). This represents a decline in age of 1.7 years and 0.8 years from the 1979 mean age and the previous 7 year mean age, respectively. Mean size of male skulls was 16.3 inches (n = 82), which is the same as the previous 7 year mean. Mean age of females harvested was 4.8 years (n = 38) in 1980, compared to the 1979 mean age of 5.3 years and the previous 7 year mean age of

5.8 years. The 1980 mean skull size of females (15.0 inches, n = 46) was 0.3 inches smaller than the previous 7 year mean.

Management Summary and Recommendations

The harvest of 161 black bears represents a 91 percent increase over the mean annual harvest since 1973. The preliminary findings of Schwartz et al. (1981) and the steadily increasing number of bear observations by the general public strongly suggest that this increase in harvest reflects the current overall high density of black bears in Unit 15. In my opinion, sportsmen have responded to the density phenomenon by greater interest in and awareness of the black bear resource. Moderate reductions in the mean age of bears have been noted in recent years, but are not considered a management problem at this time. In this instance, such an effect is likely the result of greater recruitment of young bears into the population, since the frequency of older bears ($\geq$5 years) remains reasonably high (42% of harvested males and 43% of harvested females). In consideration of the relatively high number of bears in Unit 15, no change in season or bag limits was recommended.

Literature Cited

Schwartz, C. C., A. W. Franzmann, and D. C. Johnson. 1981. Black Bear Predation on Moose. Fed. Aid Wildl. Rest. Rep., Prog. Rep. Proj. W-17-11 and W-21-1. Alaska Dept. of Fish and Game, Juneau. 16pp.

Spraker, T. H. 1979. Black Bear Survey-Inventory Progress Report. In R. A. Hinman, ed. Annual Report of Survey-Inventory Activities. Part I, Vol. X. Fed. Aid Wildl. Rest. Rep., Proj. W-17-11, Job No's. 17.0, 4.0 and 22.0. Alaska Dept. Fish and Game, Juneau.

PREPARED BY:

Ted H. Spraker
Game Biologist III

SUBMITTED BY:

Leland P. Glenn
Survey-Inventory Coordinator

BLACK BEAR

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT 16

GEOGRAPHICAL DESCRIPTION: West side of Cook Inlet

PERIOD COVERED: January 1, 1980 - December 31, 1980

Season and Bag Limit

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

Population Status and Trend

Observations of bears by Department staff, the public, and complaints of nuisance bears indicate an abundance of black bears in Unit 16.

Population Composition

No data were available.

Mortality

Two-hundred and forty-three black bears, 140 males, 76 females and 27 sex unknown were killed in 1980. This is a 200 percent increase from 1979, and the largest harvest since the bear sealing program was initiated in 1973.

A summary of the spring (January 1-June 30) and fall (July 1-December 31) black bear harvest by subunit follows:

	Spring			Fall		
Subunit	Males	Females	Unknown	Males	Females	Unknown
16A	7	2	0	23	10	8
16B	16	9	4	93	55	15
Unknown	0	0	0	1	0	0

The mean skull size and the mean age for black bears harvested in Unit 16 were as follows:

	Spring		Fall	
Sex	Male	Female	Male	Female
Skull Size in Inches (n)	16.1(21)	15.0(6)	15.2(100)	14.8(51)
Age in Years (n)	-	-	4.5(107)	5.9(55)

Sealing records indicated that 24 percent of the black bears killed during the spring and 55 percent of those killed during the fall were taken incidental to other hunting activities. Sixty-four percent (155) of the total black bear harvest occurred during the September moose season. An additional eight black bears were harvested on August 31, 1980, the day prior to the opening of moose season.

Management Summary and Recommendations

The black bear harvest has fluctuated since 1973, the first year that kill figures were recorded.

A comparison of average skull sizes shows that male bears killed during the 1980 spring season were 0.3 inches larger, and those killed during the 1980 fall season were 0.1 inches smaller, than those killed during 1979. Historically, mean skull sizes of black bears killed in Unit 16 have never fluctuated more than 0.4 inches. Hunting, therefore, does not appear to be adversely affecting the black bear population even though the 1980 harvest is the highest on record.

The fall kill of black bears was higher than the spring kill because black bears are often killed opportunistically by hunters who are primarily hunting for moose.

No changes in season or bag limit were recommended.

PREPARED BY:

Jack C. Didrickson
Game Biologist III

and

Nicholas C. Steen
Game Biologist II

SUBMITTED BY:

Leland P. Glenn
Survey-Inventory Coordinator

BLACK BEAR

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT 17

GEOGRAPHICAL DESCRIPTION: Northern Bristol Bay

PERIOD COVERED: January 1, 1980 - December 31, 1980

Season and Bag Limit

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

Population Status and Trend

No data were available to evaluate the status and trend of the black bear population in Unit 17. Most observations of black bears were reported in the upper Nushagak River drainages and along the western Alaska Range in the headwater drainages of the Mulchatna River. Black bears were reported as far southwest as the Weary River and were occasionally seen in the Wood-Tikchik Lake system as far south as Aleknagik. No black bears have ever been reported in the Togiak drainage (Subunit 17A).

Population Composition

No data were available.

Mortality

Sealing of black bears is not required in Unit 17. One black bear killed in Subunit 17B was voluntarily presented for sealing during 1980. Fresh skulls of a female and cub were found along the upper Nushagak River near the mouth of the King Salmon River in September 1980. It was assumed they were shot by moose hunters from Koliganek or New Stuyahok.

The estimated annual harvest for this unit is between 10 and 20 black bears and is probably increasing proportionately with the increase in hunting pressure on moose and caribou.

No data were available on other causes of mortality.

Management Summary and Recommendations

Data necessary for management of the Unit 17 black bear population are nonexistent. Regulation 5AAC 81.180(e) which requires sealing of bear skins and skulls should be amended to

include black bears in Unit 17. A hunter questionnaire should be utilized to collect harvest and hunting pressure data until sealing data become available.

PREPARED BY:

Kenton P. Taylor
Game Biologist III

SUBMITTED BY

Leland P. Glenn
Survey-Inventory Coordinator

BLACK BEAR

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT 20

GEOGRAPHICAL DESCRIPTION: Central Tanana Valley

PERIOD COVERED: January 1, 1980 - December 31, 1980

Seasons and Bag Limits

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

Population Status and Trend

Standardized surveys to determine black bear population status, sex and age composition, and trend are not conducted in Game Management Unit 20. Although harvest data, including sex and age composition, were collected through the black bear sealing program, it is not known if these data reflect changes in the bear population.

Mortality

According to information derived from sealing documents, 134 black bears were taken in Unit 20 during 1980. This figure includes 17 nonsport kills. The 1980 harvest compares to a take of 93 in 1979, 146 in 1978, 201 in 1977, 158 in 1976, 112 in 1975, and 97 in 1974. It is not known whether fluctuations in annual harvests are related to bear density, weather, hunting effort, or other factors. Interest in black bear hunting is high, particularly in urban areas and among military personnel.

Other black bear harvest data for 1980 are as follows:

	Sex Ratio in Harvest				Mean Age		
Unit	M	F	Unk	Total	M	F	Both Sexes
20A	10	5	0	15	5.2	3.5	4.9
20B	28	13	0	41	6.1	5.4	5.9
20C	40	19	2	61	5.7	6.6	6.1
20D	7	2	0	9	5.1	7.5	5.5
20E	7	1	0	8	7.3	5.5	7.0
Total	92	40	2	134	5.8	5.8	5.8

Over half of the harvest occurred prior to July, perhaps an indication of interest in spring bear hunting in the Interior.

The harvest was about evenly divided between bears taken incidental to other activities, and those taken while the hunter was specifically seeking bears. Meat was salvaged from 92 percent of the bears harvested; similar salvage rates were reported in recent years.

The mean age of black bears harvested in Unit 20 has not changed appreciably since these data were first collected in 1975. It has ranged from 5.3 years (1975) to 6.3 years (1978).

The nonsport harvest was one of the highest reported in recent years. In part, this resulted from fire fighting activities during May and June 1980 in Unit 20A near Blair Lakes. At least seven, and possibly more, bears were taken in defense of life and property during that period.

There was some unreported harvest in Unit 20, particularly in rural areas where nuisance bear kills are seldom reported. Although the magnitude of such harvests is unknown, it may be significant in some areas.

Management Summary and Recommendations

Although the black bear population in Unit 20 is believed to be essentially stable, black bear population dynamics are poorly understood in Interior Alaska. Black bear populations appear to fluctuate independent of hunting, although hunting has certainly affected local populations. Nevertheless, there are few data available to indicate the effects of varying levels of harvest on bear populations. In addition, little is known about basic biology, movements, and population status of black bears in Unit 20. Black bears should be managed responsibly as a big game animal and not as another nuisance species. With the continuing high interest in black bear hunting and the increased hunting pressure in the Interior, biological information on black bears is of increasing importance and should be collected.

PREPARED BY:

Larry B. Jennings
Game Biologist III

SUBMITTED BY:

Oliver E. Burris
Regional Management Coordinator

BROWN/GRIZZLY BEAR

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT 1

GEOGRAPHICAL DESCRIPTION: Southeastern Alaska Mainland

PERIOD COVERED: January 1, 1980 - December 31, 1980

Season and Bag Limit

Sept. 15 - May 31	One bear every four years; provided that the taking of cubs or females accompanied by cubs is prohibited.

Population Status and Trend

No survey or inventory data were collected. However, limited information indicates no significant changes in bear populations since 1979.

Population Composition

No survey or inventory data were collected.

Mortality

Based on brown bear sealing documents, the 1980 sport kill in Unit 1 was 14 bears (11 males and 3 females). One additional bear was taken in defense of life and property in Unit 1C. The 1980 harvest was six bears below the 1979 harvest, but nearly equal to the previous 19-year average of 15.4 bears per year. Resident hunters accounted for 11 bears and nonresidents accounted for three.

Chronology of the harvest showed that five bears (all males) were taken during the spring season and nine bears (six males and three females) during the fall season.

For males, a mean age of 7.8 years (n=11) and the mean skull size of 22.5 inches (n=11) was somewhat lower than the 9.3 years and 24.0 inches for bears taken in 1979.

Management Summary and Recommendations

Harvest levels have not significantly changed over the past several years. The exceptionally high harvest of seven bears reported for 1979, occurring in Unit 1A, dropped to one bear for 1980. The 1980 Unit 1A harvest was below the 9-year harvest

average (prior to 1979) of 2.1 bears. Hunting pressure is expected to increase throughout Unit 1 as hunting pressure increases in other units in Southeastern Alaska, thus it must be closely monitored to assure proper harvest levels.

No season or bag limit changes are recommended at this time.

PREPARED BY:

David W. Zimmerman
Game Biologist II

SUBMITTED BY:

Nathan P. Johnson
Regional Management/
Research Coordinator

BROWN/GRIZZLY BEAR

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT 4

GEOGRAPHICAL DESCRIPTION: Admiralty, Baranof, Chichagof, and adjacent Islands

PERIOD COVERED: January 1, 1980-December 31, 1980

Seasons and Bag Limits

Unit 4, Chichagof Island south and west a line which follows the crest of the island from Rock Point (58¼00' N, 136¼21' W), to Rogers Point (57¼35' N, 135¼33' W) including Yakobi and other adjacent islands. Baranof Island south and west of a line which follows the crest of the island from Nismeni Point (57¼34' N, 135¼25' W), to the entrance of Gut Bay (56¼44' N, 134¼38' W), including the drainages into Gut Bay and including Kruzof and other adjacent islands.	Sept. 15-May 31	One bear every four regulatory years; of provided that the taking of cubs and females accompanied by cubs is prohibited.
Remainder of Unit 4	Sept. 15-May 20	

Population Status and Trend

Based on reported observations of hunters, guides, and Department personnel, the Unit 4 brown bear population is probably at average levels, except perhaps for those areas where habitat alterations have influenced bear numbers or behavior.

Population Composition

Hunter questionnaires, guide interviews, aerial surveys, and observations by Department personnel resulted in the classification of 147 bears in 1980. Cubs of all ages represented 38 percent of the sample. Similar classification counts in previous years have shown a range of 20 to 30 percent cubs of all ages. Litter size for cubs-of-the-year was 1.82 in 1980 compared to a range of 1.75 to 2.10 for previous years.

The average ages of bears in the 1980 harvest were slightly above the 13-year average for males (8.1 years vs. 7.8) and 1 year greater than the previous 11-year average for females (8.7 years vs. 7.7). In addition to average ages in the harvest, the range of ages of bears is worth noting. Of the 39 bears aged in the spring, 14 were over 10 and nine were over 13 years. In the fall, 11 of the 31 bears aged were over 10 years and seven were over 13 years, including four bears aged 15, 16, 20 and 25 years. There was an inordinately high incidence of human-bear encounters in fall 1980. Most involved very young bears (with a preponderance of females) recently abandoned by their dams. Several of these bears were shot by resident hunters who were engaged in other hunting activities. These young animals reduced the mean fall age significantly.

Mortality

The sport harvest in 1980 from Unit 4 was 66 bears. Sex and age characteristics of the harvest were well within the standards that have evolved for the area except the percent kill occurring in the fall was much higher. As noted above, that was mainly the result of an above average number of deer hunter-bear encounters in which the bears were taken on the hunter's sport license/tag. Harvest figures are given in Appendix I.

The reported nonsport kill in 1980 was eight bears, one in the spring and seven in the fall. In addition, two orphaned cubs were destroyed by the Department of Public Safety at the Hoonah city dump. The high number of nonsport kills reported during the fall was the result of several human-bear encounters as noted above.

Management Summary and Recommendations

Good production and survival, as indicated by cubs representing 38 percent of all bears classified, in conjunction with good numbers of older aged adults in the harvest suggests the Unit 4 bear population is biologically sound. The number of old animals in the harvest tends to refute the opinion of some persons that hunting has significantly reduced the bear population. The high incidence of human-bear encounters that occurred during the fall of 1980 is also an indication that bears are plentiful.

The current seasons open to hunting are quite restrictive with closures during the spring and fall periods when bears are most vulnerable to hunting. In spite of the limited hunting opportunity, the 1980 harvest of 66 and at least 10 defense of life/property kills, approached the upper limit of the desired harvest level of 60-80 bears. Therefore, with the shortened

season and restricted hunting opportunity we are obtaining the desired harvest. Liberalization of hunting is not recommended at this time.

PREPARED BY:

Loyal J. Johnson
Game Biologist III

SUBMITTED BY:

Nathan P. Johnson
Regional Management/
Research Coordinator

Appendix I. Brown bear sport harvest, calendar years 1961 through 1980, Game Management Unit 4.

Calendar Year	Total Kill	% Kill in Spring	% Males	% Nonresident Kill	Mean Skull Size Male*	Mean Cem. Lines** Male	Female
1961	39	72	80	59			
1962	44	73	66	66			
1963	27	67	74	56			
1964	55	72	67	44			
1965	64	67	67	52			
1966	75	65	63	67			
1967	62	66	69	48	22.7		
1968	50	72	76	36	22.3	8.0(10)	
1969	66	67	77	52	22.7	7.1(32)	
1970	66	85	73	55	22.0	7.8(40)	
1971	77	78	64	52	22.7	8.3(44)	8.1(15)
1972	77	66	75	53	22.5	8.8(55)	6.4(17)
1973	99	72	68	40	21.6	7.7(63)	8.5(32)
1974	84	74	73	51	22.2	7.6(57)	7.7(21)
1975	105	72	69	57	22.2	8.1(66)	6.4(29)
1976	141	79	64	60	22.4	9.4(90)	8.6(50)
1977	66	83	70	55	21.6	7.5(44)	8.6(17)
1978	67	73	75	52	21.5	7.5(49)	7.8(16)
1979	49	71	67	74	21.0	6.4(31)	6.9(15)
1980	66	60	57	53***	22.2	8.1(46)	8.7(23)****

* Length plus width given in inches.
** Sample size given in parenthesis.
*** Includes two nonresidents guided by second degree kindred.
**** Ages include nonsport kills.

BROWN/GRIZZLY BEAR

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT 5

GEOGRAPHICAL DESCRIPTION: Yakutat and Malaspina Forelands, Russell Fjord, Gulf of Alaska

PERIOD COVERED: January 1, 1980 - December 31, 1980

Season and Bag Limit

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

Population Status and Trend

No data were collected. However, based on hunter/guide interviews, stream surveys, and general observations the brown/grizzly bear population in Unit 5 appears to be stable. Bears and/or their sign are commonly observed along the salmon streams and the beach when the wild strawberries are ripe. Based upon the number of young bears observed, cub survival appears to be fairly good.

Population Composition

Four drainages with anadromous fish runs in Unit 5A (Sockeye Creek, Humpie Creek, the Situk River drainage, and the Italio River) were surveyed to determine bear utilization. The first three areas all have a fairly good data base available for comparison because they have been routinely surveyed by the Commercial Fisheries Division, while the Italio River was surveyed via boat for only the second time this year. All past surveys on the Italio were by aerial reconnaissance.

Sockeye Creek was surveyed on July 15, 1980. Bear sign was abundant and three bears were observed fishing in the stream. Based on past data, more bears or their sign were observed during the report period than on any survey in recent years. The Commercial Fisheries personnel who have routinely conducted surveys over the years, indicate bear utilization is increasing and may soon rival past periods when bear densities were considered high unit-wide.

The Italio River was the second drainage surveyed (August 7 through August 9, 1980). No bears were observed, but sign was abundant, particularly at the falls area where sockeye congregate in the shallows prior to moving into Italio Lake.

The third area surveyed was the Upper Situk River - Mountain Stream drainage. On August 24, 1980, a survey was conducted on Mountain Stream and the upper two and one half miles of the Situk River, from Situk Lake down stream. No bears were observed, but sign was abundant and was comparable to surveys in recent years.

The fourth drainage surveyed was Humpie Creek, which flows into Yakutat Bay. On August 27, 1980 a survey was conducted on foot, but no bears were observed. Sign was abundant, as in past years.

No surveys were conducted in Unit 5B.

In addition to stream surveys, the city land fill was periodically monitored for bear activity. Ten individual bears consistantly frequented the dump. They included three separate adults (one with 3 yearlings), three unaccompanied yearlings, and two larger sub-adults. An additional three yearlings frequented the small boat harbor in early spring and a second adult female with three yearlings created a nuisance at the Department of Fish and Game and Fish and Wildlife Protection housing area.

Unit-wide, cub production appeared to be good with triplets common.

Mortality

Non-sport mortality for the report period included two of the three yearlings from the boat harbor. Both had to be destroyed in defense of property because they could not be discouraged from raiding a commercial fish camp on the Akive River. A third bear was illegally taken and confiscated.

Twenty-three brown bears were taken by sport hunting during the report period. Twelve were harvested in the spring (9 males, 2 females, 1 unknown) and 11 were killed during the fall (6 males, 4 females, 1 unknown). Hunting pressure appeared to be about the same as in previous years. The average age for all males was 4.9 years (range 1.8 to 15.4) with a mean skull size of 20.8 inches. Females harvested averaged 3.7 years of age (range 1.8 to 4.8) with a mean skull size of 19.6 inches.

Summary and Management Recommendations

Currently, the brown/grizzly bear population in Unit 5 appears to be stable and may be increasing. Cub production appears to be high, but their long-term survival and subsequent recruitment to the population is somewhat questionable. It appears at this time (through observation of marked bears at the landfill), that at least some intentional abandonment of yearling age cubs may be occurring. An inordinate number of unaccompanied yearlings have been observed roaming the immediate Yakutat area and frequenting the landfill. They are often in what appear to be sibling groups and display close bonds.

The local landfill is improperly managed and receives heavy bear utilization. Due to its close proximity to the community (less than 3/4 mile), these same bears often depredate the housing areas, frequently raiding smoke houses and garbage cans. The number of bear/human confrontations remains high, but fortunately no human injuries or deaths have occurred in recent years. These conflicts do, however, create management problems and a lot of time is spent chasing bears trying to discourage them, and trying to prevent the unnecessary destruction of animals. Until the landfill is better managed and the resultant food source is eliminated, the problem will persist and the resource will continue to suffer losses.

No change in the season or bag limit is recommended.

PREPARED BY:

Ronald E. Ball
Game Biologist III

SUBMITTED BY:

Nathan P. Johnson
Regional Management/
Research Coordinator

BROWN/GRIZZLY BEAR

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT 6

GEOGRAPHICAL DESCRIPTION: Prince William Sound and North Gulf Coast

PERIOD COVERED: January 1, 1980 - December 31, 1980

Seasons and Bag Limits

May 10-May 25 Oct. 10-Oct. 31	One bear every four regulatory years; provided that the taking of cubs and females accompanied by cubs is prohibited.

Population Status and Trend

Sufficient data to determine current status or trend of brown bears in Unit 6 were not available.

Population Composition

No data were available.

Mortality

The Unit 6 brown bear sport harvest was 29 bears: 11 males, 16 females, and 2 unknown sex. Sport hunting accounted for all bears reported killed in 1980.

Seventeen bears were taken in the spring and 12 in the fall. Nonresident hunters accounted for 41 percent of the harvest and most of the nonresident harvest occurred during the spring season.

The hides of male bears taken in 1980 averaged 13.6 feet; the skulls averaged 22.4 inches; and the average age was 6.0 years. The respective figures for females were 12.7 feet, 20.7 inches, and 5.3 years.

Distribution of the brown bear harvest was as follows:

2 - Montague Island
6 - Hinchinbrook Island
4 - Valdez to Cordova
2 - West Copper River Delta
15 - East of Copper River

Management Summary and Recommendations

The 1980 harvest of 29 brown bears was slightly below the 20-year average of 31 bears. More females were killed than males. The female harvest was four bears above the 20-year average, whereas the male harvest was seven below the 20-year average. The number of bears taken during the spring and fall seasons was about average.

Hide size, skull size and age data for both sexes were slightly below average, but well within the normal annual fluctuation for Unit 6.

Analysis of the 1980 brown bear harvest, compared to harvest data collected since statehood, indicated that the current level of harvest and hunting pressure was not adversely affecting bear populations in Unit 6.

No changes in seasons or bag limits were recommended.

PREPARED BY:

Julius L. Reynolds
Game Biologist III

SUBMITTED BY:

Leland P. Glenn
Survey-Inventory Coordinator

BROWN/GRIZZLY BEAR

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT 7 and 15

GEOGRAPHICAL DESCRIPTION: Kenai Peninsula

PERIOD COVERED: January 1, 1980 - December 31, 1980

Seasons and Bag Limit

Unit 7	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.
Unit 15	May 10-May 25 Sept. 1-Oct. 10	

Population Status and Trend

Research to determine brown bears density in Units 7 and 15 has not been conducted. However, from incidental observations during annual surveys for other species and sightings reported by the public, it appeared that the bear population was increasing.

Population Composition

No data were available.

Mortality

Data collected from sealing certificates indicated that 14 bears were killed on the Kenai Peninsula during the 1980 season. The harvest by unit, sex, and season were: Unit 7, three females were killed during the spring season; Unit 15, one female and 2 males were killed during the spring season and 5 females and 3 males were killed during the fall season.

Residents of the Kenai Peninsula reported killing 12 bears and nonresidents of Alaska killed 2. Historical harvest data for the Kenai Peninsula since 1961 was reported by Spraker (1980).

Management Summary and Recommendations

The 1980 harvest of 14 brown bears on the Kenai Peninsula was the highest recorded since 1961. The average annual harvest from 1961-79 was six bears. Contributing to this higher kill was the fact that the 1980 spring season in Unit 7 was opened for the first time since statehood.

Brown bears are relatively abundant in parts of Units 7 and 15, but there has been little interest in hunting them because of thick timber and brush cover. Additionally, the fall bear season opens nine days after the opening of moose season in Unit 7, resulting in a reduction of incidental kills by hunters primarily after moose.

I recommend that the fall season in Unit 7 be opened nine days earlier (Sept. 1) to allow additional bear hunting opportunity.

Literature Cited

Spraker, T. H. 1980. Annual Report of Survey-Inventory Activities. Part I. In R. A. Hinman ed. Alaska Fed. Aid in Wildl. Rest. Proj. W-17-12.

PREPARED BY:

Ted H. Spraker
Game Biologist III

SUBMITTED BY:

Leland P. Glenn
Survey-Inventory Coordinator

BROWN/GRIZZLY BEAR

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT 8

GEOGRAPHICAL DESCRIPTION: Kodiak and Adjacent Islands

PERIOD COVERED: January 1, 1980 - December 31, 1980

Seasons and Bag Limits

Unit 8, that portion of Kodiak Island south and west of a line from Hidden Basin Creek to the mouth of Kizhuyak River, and Uganik and Amook Islands.	Oct. 25-Nov. 30 Apr. 1-May 15	One bear every four regulatory years by drawing permit only; provided the taking of cubs and females accompanied by cubs is prohibited. See 5 AAC 81.055 and separate permit hunt supplement.
Unit 8, that portion of Kodiak Island north and east of a line from the mouth of Hidden Basin Creek to the mouth of Kizhuyak River and including Spruce Island.	Oct. 1-Nov. 30 Apr. 1-May 31	
Remainder of Unit 8	Oct. 25-Nov. 30 Apr. 1-May 15	

Population Status and Trend

The sex and age composition of the brown bears harvested in Unit 8 has shown little change for several years. Continued selectivity for males and proportionately lower kills of females should maintain a stable population.

Population Composition

Aerial composition surveys of selected streams and alpine habitat were conducted by the U.S. Fish and Wildlife Service. Females with cubs-of-the-year were poorly represented and comprised only 4 percent of the bears observed. Average litter size for 13 females with cubs-of-the-year was 2.1. Females accompanied by yearlings comprised 10 percent of the observations and the average litter size was 2.0.

Mortality

Hunters killed 127 bears in 1980: 73 males (57%), 53 females (42%), and 1 animal of unknown sex (1%). Eighty-nine of these bears (49 males, 39 females and 1 bear of unknown sex) were killed during the spring season, and 38 (24 males and 14 females) were killed during the fall season. The distribution of the harvest is shown in Appendix I. Overall hunter success was 35 percent. The 260 resident hunters took 51 bears for 20 percent success, and the 96 nonresident hunters took 76 bears for 79 percent success. A total of 451 drawing and registration permits was issued. Three hundred and fifty-six permittees reported hunting with a 94 percent report return.

Mean age of 73 males was 6.1 years and mean age of 52 females was 6.7 years. Of these bears, 35 males (48%) and 28 females (53%) were adult bears 5 years of age or older.

Thirteen bear mortalities were documented from sources other than sport hunting. Eight bears were killed in defense of life or property, 4 bears were killed illegally, and 1 bear was found dead of unknown causes. The sex composition of these bears was 3 males, 4 females, and 6 bears of unknown sex.

Unconfirmed reports were received that several bears were killed in defense of life or property in the village of Larsen Bay.

Six incidents of wounded bears were tallied from permit reports. Two additional reports of wounding losses were received from deer hunters not involved in the wounding incidents.

The total recorded mortality from all sources was 140 bears.

Management Summary and Recommendations

The brown bears harvested by sport hunters declined slightly from 139 bears in 1979 to 127 bears in 1980. A decline in hunting pressure occurred with only 356 hunters reporting in 1980 compared to 407 hunters in 1979. Participation in the registration hunt was stable with 164 reporting hunters in 1980 compared to 167 hunters in 1979. Participation in the drawing hunt declined from 240 hunters in 1979 to 192 hunters in 1980.

Bear harvests by area were near the recommended levels, having exceeded by one animal in Subunit 2-NE Kodiak Island. Females comprised 68 percent of the harvest in Subunit 5-NW Kodiak Island, the only Subunit where more females than males were killed. If the proportionally high take of females continues, permit numbers for Subunit 5 should be reduced.

The 1980 sport harvest was below the maximum recommended level. Mean ages of both males and females were within the range of mean ages recorded during the previous 12 years.

No changes in seasons or bag limits were recommended.

PREPARED BY:

Roger B. Smith
Game Biologist III

SUBMITTED BY:

Leland P. Glenn
Survey-Inventory Coordinator

Appendix I. Distribution of brown bear harvest, Unit 8, 1980.

Harvest Subunit No.	Males No.	Males %	Females No.	Females %	Unknown Sex No.	Unknown Sex %	Total No.	Recommended Max. Ann. Harvest
1-Afognak, Raspberry & Shuyak Islands	9	69	4	31	--	--	13	20
2-NE Kodiak Island	11	69	5	31	--	--	16	15
3-SE Kodiak Island	13	72	5	28	--	--	18	20
4-SW Kodiak Island	33	60	22	40	--	--	55	55
5-NW Kodiak Island	7	28	17	68	1	4	25	30
	73	57	53	42	1	1	127	140

PREPARED BY: Roger B. Smith, Game Biologist III

BROWN/GRIZZLY BEAR

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT 9

GEOGRAPHICAL DESCRIPTION: Alaska Peninsula

PERIOD COVERED: January 1, 1980 - December 31, 1980

Seasons and Bag Limits

Unit 9C, the drainages of the Naknek River only.	Sept. 1-Oct 31 May 1-June 30	One bear every four regulatory years by registration permit only provided that the taking of cubs and females accompanied by cubs is prohibited. See 5AAC 81.055 and separate permit hunt supplement.
Unit 9D, that portion south and west of a line from Moffett Point to the eastern side of the eastern entrance of Kinzarof Lagoon and north of a line from the base of Cape Glazenap to Frosty Peak thence to the mouth of Old Man's Lagoon.	Oct. 1-Oct. 31 May 1-June 30	
Remainder of Unit 9	**Oct. 7-Oct. 21 May 10-May 25	One bear every four regulatory years; provided that the taking of cubs or 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.

Population Status and Trend

No data were collected on population size or trend. Nevertheless, casual observation and local residents' comments lead to the conclusion that this population is highly productive and stable.

Population Composition

No data were collected during this report period.

Mortality

Sport hunters killed 203 bears in 1980. Males comprised 69 percent of the take (Appendix I) which is normal for a spring harvest. Of the total kill, 175 bears were taken south of the Naknek River.

In addition to the take by sport hunters, five bears were reported killed in defense of life and property. The number of unreported defense kills is estimated at 9 to 12. Thus, the total hunter kill of bears was approximately 220.

No other mortality was documented during this report period.

Management Summary and Recommendations

The registration permit hunt on the Naknek River was designed to minimize bear-human conflicts in the most heavily settled portion of Unit 9. This hunt has been held for 5 years and appears to be working well. Hunters take an average of five to six bears per year from the drainage during the 162-day season and the non-sport kill has averaged about two bears per year. The population is healthy and bears are well distributed, but potential problem bears that frequent residential areas are quickly removed from the population.

The registration permit hunt in the Cold Bay area provides similar protection to that community. Unlike the Naknek hunt, however, the number of permits and possible harvest at Cold Bay are rigidly controlled. The Department and the U.S. Fish and Wildlife Service cooperatively issue a total of 10 permits, valid at any given time and have agreed to consider closing the season by emergency order when four bears have been taken.

During spring 1980, eight resident hunters obtained permits and killed four bears, three females and one male. As the fourth bear was taken only a few days prior to the end of the season, no emergency closure was invoked. During the fall season, nine resident hunters obtained permits for a total of 105 permit days. No bears were taken.

That portion of Unit 9 north of the Naknek drainage has traditionally been lightly hunted due to the limited access. Passage of the Alaska Lands Bill, however, has significantly altered land status in areas that formerly supported bear hunting. The result may be a concentration of effort in remaining portions of the unit. In addition, several unethical guides have begun working out of the Iliamna airport. Harvest statistics for this area should be monitored closely.

The balance of Unit 9 south of the Naknek River is divided into three Subunits, 9-02 through 9-04 from north to south, for analysis of brown bear data. This is the area where the Board of Game has established a harvest guideline of 150 bears per year.

If this harvest is evenly distributed on the basis of surface area, the total kill in the subunits would be 68, 27 and 55 bears, respectively, and would result in an average harvest intensity of 0.68 bears per 100 square miles per year.

Fig. 1 illustrates the past 11 years' harvest intensity relative to the 0.68 guideline level. From these graphs it can be seen that hunter kill accelerated throughout the area in the early 1970's prior to restrictive seasons and regulations on use of aircraft. Harvest intensity declined overall from 1973 to 1975 (except in Subunit 9-04 in 1975 when it was the only part of the Peninsula with an open season in the spring), but total kill was only held within the guideline by emergency closure of the spring season for several years.

Following the establishment of alternate year openings in 1976-77, the harvest intensity fluctuated at or below the guideline level in Subunit 9-02. The harvest intensity in 9-04 exceeded the guideline in 1976, but declined to sub-guideline levels from 1977 through 1979. These relatively lower harvests compensated for the harvest intensity in Subunit 9-03 which has remained above the guideline level since 1976. Thus, overall, the guideline was not greatly surpassed prior to 1980.

During the current reporting year, Subunit 9-02 was again "under-hunted" and 9-03 "over-hunted." A major change in 9-04 from "under-hunted" to "over-hunted" resulted in a total kill that was 16.7 percent (i.e. 25 bears) above the guideline. Previous seasons' harvests that were below the guideline level provide some flexibility in managing a long-lived species such as brown bears, and, therefore, no immediate regulatory reaction to this year's higher kill is mandated. Nevertheless, it is important to review the impact of this year's kill on harvest statistics and the long-range direction of harvest management in the Alaska Peninsula.

Appendix II summarizes the harvest statistics for Subunits 9-02 through 9-04 for the past three spring seasons. With only three data points for each category, some of which are highly variable, it is difficult to ascertain trends or significant differences. Some patterns do exist, though. For example, in Subunit 9-02, total kill has steadily increased, while the percent males in the harvest, mean age of males, percent males over 5 years old and apparently, mean skull size have decreased. Conversely, female skull size and mean age have increased. In Subunits 9-03 and 9-04, harvests have varied widely with no significant trends in sex ratio, skull sizes or ages despite the relatively higher harvest intensity in these areas.

These statistics imply that despite lower harvest intensity, the population in Subunit 9-02 may be altered more by hunting than the populations in 9-03 and 9-04. This may be the result of differences in quality of habitat inasmuch as wet, low tundra comprises a greater proportion of Subunit 9-02 than 9-03 or 9-04.

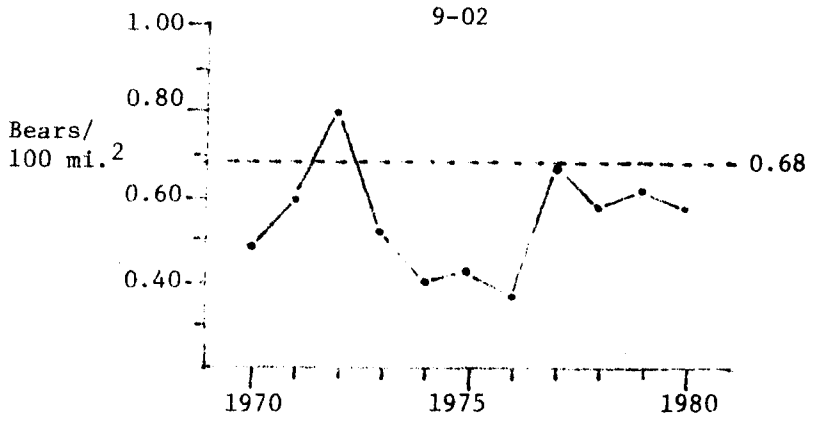
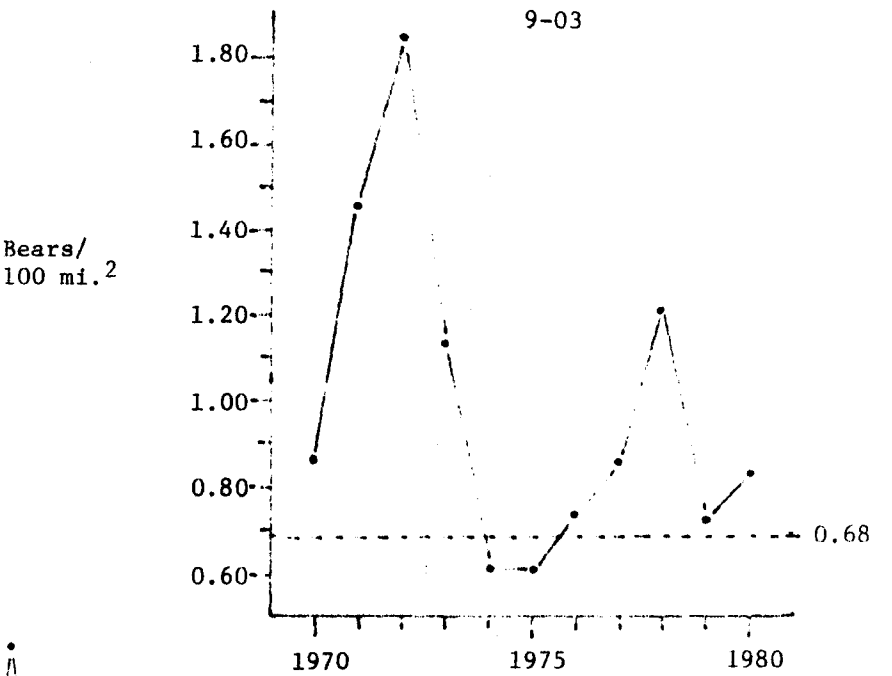
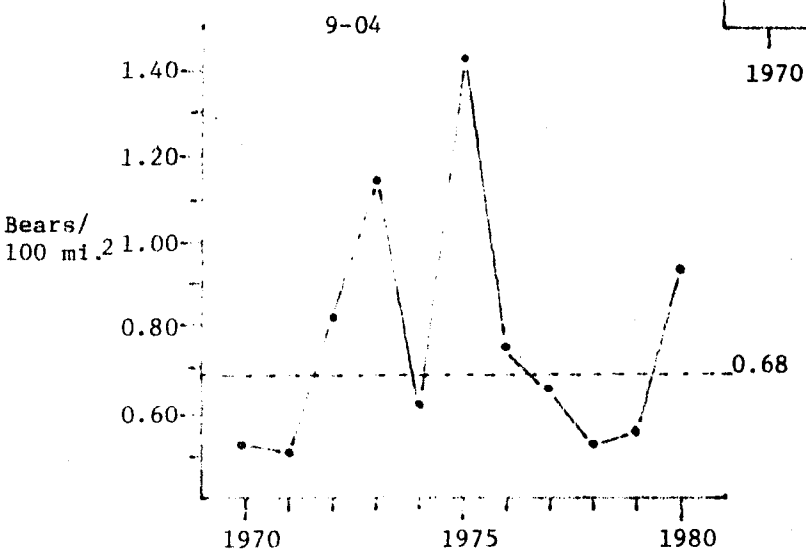


Figure 1. Harvest intensity (Bears/100 mi.^{2}) for subunits 9-02 to 9-04, 1970-1980.





Other factors may be involved and future harvest statistics should be closely watched to determine what trends and relationships develop. In addition, it may be appropriate to review the 150 bears per year overall guideline and develop a more finely tuned harvest system that is responsive to habitat, harvest and population parameters on a subunit basis.

The 1980 harvest of 175 bears south of the Naknek River indicates that existing hunting pressure is capable of taking more than the current guideline allows. Weather conditions have been the major controlling factor in recent years; if weather had been optimal in May 1980, this year's harvest would have been greater. Although all the sex and age statistics from this year's harvest reflect moderate pressure with a wide range of mature bears available to hunters, the results of the 1981-82 seasons will be critical in assessing the need to install a permit system to hold the kill within the scope of the current guideline.

No changes in seasons or bag limits were recommended.

PREPARED BY:

Christian A. Smith
Game Biologist III

SUBMITTED BY:

Leland P. Glenn
Survey-Inventory Coordinator

Appendix I. Game Management Unit 9 annual bear sport harvest 1970-1980.

Year	Total Kill	No. of Males	No. of Females	% Males
1970	158	103	50	67%
1971	195	122	63	66%
1972	279	154	119	56%
1973	242	138	98	58%
1974	141	75	66	53%
1975	224	120	96	56%
1976	154	108	41	72%
1977	189	108	77	58%
1978	183	133	47	74%
1979	167	109	55	66%
1980	203	139	62	69%
*Totals	3,634	2,325	1,208	64%

* Totals include all bears taken since 1961.

PREPARED BY: Christian A. Smith
Game Biologist III

Appendix II. Southern portion of Unit 9 - spring season harvest statistics for 1976-1980.

Year	Total Kill	% Males	% by Nonres.	Mean Skull Size		Mean Age		% >5 Years Old	
				Male (N)	Females (N)	Male (N)	Female (N)	Male	Female
Subunit 9-02									
1976	40	82	58	24.5 (30)	21.2 (7)	7.7 (31)	5.5 (7)	65	57
1978	61	75	62	24.5 (45)	21.5 (14)	7.6 (44)	7.3 (15)	61	73
1980	64	62	78	23.6 (36)	22.2 (19)	7.5 (40)	7.6 (22)	58	62
Mean	55	73	66	24.2	21.6	7.6	6.8	61	62
Subunit 9-03									
1976	30	77	67	25.3 (23)	21.4 (7)	7.4 (23)	5.7 (7)	70	43
1978	49	67	82	24.9 (36)	22.5 (11)	7.0 (36)	8.3 (11)	69	64
1980	36	77	81	25.6 (24)	22.4 (10)	7.3 (24)	5.7 (12)	71	50
Mean	38	74	77	25.3	22.1	7.2	6.6	70	52
Subunit 9-04									
1976	60	71	58	24.2 (41)	21.4 (17)	6.8 (35)	7.6 (15)	57	53
1978	42	68	67	24.4 (26)	20.6 (11)	6.1 (28)	4.4 (12)	50	42
1980	75	72	72	24.9 (53)	22.0 (20)	6.5 (53)	6.8 (21)	60	33
Mean	59	70	66	24.5	21.3	6.5	6.3	56	43

PREPARED BY: Christian A. Smith
Game Biologist III

BROWN/GRIZZLY BEAR

SURVEY-INVENTORY PROGRESS REPORT

BEAR MANAGEMENT UNIT 10

GEOGRAPHICAL DESCRIPTION: Unimak Island

REPORT PERIOD COVERED: January 1, 1980 - December 31, 1980

Season and Bag Limit

May 10-May 25	One bear every four regulatory years; provided that the taking of cubs and females accompanied by cubs is prohibited.
Oct. 1-Oct. 21	

Population Status and Trend

Due to small sample sizes, available data are inadequate to assess brown bear status or trend.

Mortality

Four bears were reported taken by hunters on Unimak Island in 1980. Three of these bears were males: 2 adults and 1 sub-adult. The female was aged at 3.8 years. No data were available on other causes of mortality.

Management Summary and Recommendations

Brown bear hunting on Unimak Island is limited by State permits and by Federal regulations limiting aircraft use to beaches and existing runways. The State issues seven permits for the spring season and eight for the fall season.

In 1980, two of the seven spring permittees reported hunting. These hunters averaged 2.5 days in the field and saw 43 bears during their hunts. Only one hunter took a bear. Five of the eight fall permittees reported hunting. These hunters averaged 5.2 days in the field, saw 21 bears during their hunts, and took four bears.

Under the existing permit system and Federal regulations, Unimak Island will continue to offer a high quality wilderness experience with a chance to harvest large bears.

No changes in season or bag limits were recommended.

PREPARED BY:

Christian A. Smith
Game Biologist III

SUBMITTED BY:

Leland P. Glenn
Survey-Inventory Coordinator

BROWN/GRIZZLY BEAR

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT 11

GEOGRAPHICAL DESCRIPTION: Wrangell Mountains

PERIOD COVERED: January 1, 1980 - December 31, 1980

Seasons and Bag Limits

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

Population Status and Trend

Inadequate data prevented an assessment of brown bear status and trend.

Population Composition

No data were available.

Mortality

Five brown bears, four males and one female, were reported killed in Unit 11. This is the lowest reported harvest since 1961 (Tobey 1980).

Management Summary and Recommendations

The low harvest of brown bears reflects the decrease in hunting pressure observed over the past 2 years. In 1978, most of Unit 11 was included in the Wrangell-St. Elias National Monument and regulations developed by the National Park Service prohibited sport hunting.

No regulatory changes were recommended.

Literature Cited

Tobey, R. W. 1980. Annual Report of Survey-Inventory Activities. Part I. In R. A. Hinman ed. Alaska Fed. Aid in Wildl. Rest. Proj. W-17-11.

PREPARED BY:

Robert Tobey
Game Biologist III

SUBMITTED BY:

Leland P. Glenn
Survey-Inventory Coordinator

BROWN/GRIZZLY BEAR

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT 12

GEOGRAPHICAL DESCRIPTION: Upper Tanana and White River Drainages

PERIOD COVERED: January 1, 1980 - December 31, 1980

Seasons and Bag Limit

Apr. 1 - May 31	One bear every four regulatory years; provided that the taking of cubs or females accompanied by cubs is prohibited
Sept. 1 - Nov. 30	

Population Status and Trend

Grizzly bears are moderately abundant throughout Unit 12. Although no standardized surveys are conducted, reports from local outdoorsmen indicate that the grizzly population has increased in recent years and is now stable.

Mortality

Despite the 152-day season, the reported harvest of 17 grizzly bears equaled the 20-year average but was lower than the 1979 take of 24 bears. Males (12) comprised 71 percent of the harvest and females (5) 29 percent. Sows normally comprise about 54 percent of the annual take. Nonresident hunters killed nine bears--53 percent of the harvest. No bears were reported taken during the spring season.

The average skull size for 11 males was 20.3 inches and 18.0 for five females. The average age of bears taken was 7.6 years (11 males) and 3.2 years (5 females). The mean skull size of 20.3 inches for male grizzlies approximated the 20-year average of 20.9 inches. Average age of males slightly exceeded the 20-year average of 7.4 years. Because of the small number of females in the 1980 harvest, no comparison of mean skull size and age to historical averages has been made.

The bear harvest was well distributed throughout Unit 12. Three bears each were taken in the Nabesna, Chisana, and Little Tok River drainages. Two bears each were taken in the White River, Snag River, and Stuver Creek drainages, and one bear each was recorded taken in the Tok River, Mt. Neuberger, and Wrangell Mountains areas.

Management Summary and Recommendations

Based upon harvest statistics and reports from local outdoorsmen, the grizzly population in Unit 12 appears to be moderately abundant and relatively stable.

Lengthened seasons have provided more hunting opportunity, but have not resulted in greater harvests. A slightly longer spring season may result in an increased harvest because the season would be open during a time when bears occupy lower, more accessible areas.

PREPARED BY:

David G. Kelleyhouse
Game Biologist III

SUBMITTED BY:

Oliver E. Burris
Regional Management Coordinator

BROWN/GRIZZLY BEAR

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT 13

GEOGRAPHICAL DESCRIPTION: Nelchina Basin

PERIOD COVERED: January 1, 1980 - December 31, 1980

Seasons and Bag Limits

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

Population Status and Trend

A density of one brown bear/16-24 mi^2 was estimated for portions of Unit 13, during 1979 (Ballard et al. 1980). The estimate of the brown bear density in Unit 13 was lower than that reported for the Alaska Peninsula and Kodiak Island, but higher than density reported for Brooks Range grizzly populations (Miller and Ballard 1980). Based on these comparisons brown bears appeared to be relatively abundant in Unit 13, assuming that the above density was representative of the entire Unit. This assumption was supported by frequent observations of bears made by Department personnel and members of the public.

Population Composition

Data from Unit 13 research programs suggested that the Unit 13 brown bear population is young and has a high reproductive rate. The average age of both sexes of bears 3 years of age or older, which were captured during spring, was 7.4 years in 1979, and 6.3 years in 1980 (Miller and McAllister 1981). Of 48 bears captured in 1979, 16 (33%) were under 3 years of age. Eight (53%) of 15 captured females 3 years of age or older were accompanied by yearlings or cubs-of-the-year.

Mortality

The Unit 13 brown bear harvest in 1980 was 84 bears: 42 males, 39 females, and 3 unknown sex. Males comprised 52 percent of the harvest (50% fall, 60% spring) in 1980, which was close to the previous 10-year average of 56 percent (fall season only). Fifteen bears were taken during the spring season and 69 in the fall. Nonresidents killed 25 bears (30% of the harvest) .

The mean age for both sexes in the harvest was 5.4 years, a decline from 7.2 years in 1979 (Tobey 1980). The mean age of males in the harvest was 5.0 years. This is well below the 6.5-year mean in 1979. The mean age of males in the spring harvest was 8.1 years and in the fall harvest was 4.1 years. The mean skull size was 20.9 inches for males and 19.1 inches for females, which was lower than the 1979 average skull size (21.1 and 19.7, respectively).

Management Summary and Recommendations

Density estimates and reproductive data indicated that the Unit 13 bear population is capable of withstanding the current level of harvest. Presently, public demand is for more liberal seasons and bag limits in Unit 13. Resident hunters appear to be less selective for large adult males, and seem more willing to take any bear.

The 1980 brown bear harvest was 1.5 times higher than the average kill for the previous 10 years. The first spring season ever held in Unit 13 was conducted during 1980. Hunter success for the spring season was less than anticipated, due to limited access resulting from unfavorable weather and snow conditions. The spring hunting season should be lengthened to allow hunters reasonable access.

The average age of bears in the 1980 harvest decreased from previous years. The spring kill was predominantly older males; in the fall, the average age of harvested males dropped dramatically. The age structure observed in the harvest could have been a result of adult males being overharvested and, therefore, occurring in very low numbers in the population. Alternatively, hunters may be unable to select for older males. The age structure of future harvests should be monitored closely to detect unfavorable trends in age structure.

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Ballard, W. B., S. D. Miller, and T. H. Spraker. 1980. Moose Calf Mortality Study. Fed. Aid in Wildl. Rest. Proj. W-17-9, W-17-10, W-17-11 and W-21-1. Job 1.23R. Final Report.

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Tobey, R. W. 1980. Annual Report of Survey-Inventory Activities. Part I. In R. A. Hinman, ed. Alaska Fed. Aid in Wildl. Rest. Proj. W-17-11.

PREPARED BY:

Robert Tobey
Game Biologist III

SUBMITTED BY:

Leland P. Glenn
Survey-Inventory Coordinator

BROWN/GRIZZLY BEAR

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT 14

GEOGRAPHICAL DESCRIPTION: Upper Cook Inlet

PERIOD COVERED: January 1, 1980 - December 31, 1980

Seasons and Bag Limit

Unit 14A and 14C except that portion of 14C in Chugach State Park.	Sept. 1-Oct. 10	One bear every four regulatory years; provided that the taking of cubs and females accompanied by cubs is prohibited.
Unit 14B	Sept. 1-Oct. 10 May 10-Oct. 25	
Unit 14C in Chugach State Park.	No Open Season	

Population Status and Trend

No data were available.

Mortality

Eight brown bears (4 males and 4 females) were killed in Unit 14 during this reporting period. One female bear was killed during the spring season and four males and three females killed during the fall season. Nonresident hunters accounted for 25 percent of the total harvest.

Management Summary and Recommendations

A spring brown bear season was held for the first time in Subunit 14B and hunting pressure was less than expected. The season dates, May 10-May 25, corresponded with seasons in surrounding Game Management Units, several of which have established reputations for excellent brown bear hunting. Game Management Unit 14, however, has never experienced a large brown bear

harvest. Between 1961 and 1972, the average annual harvest was 9.5 brown bears. From 1973 through 1980, the average annual harvest was 5.7 brown bears.

No changes in seasons or bag limits were recommended.

PREPARED BY:

Jack C. Didrickson
Game Biologist III

and

Nicholas C. Steen
Game Biologist II

SUBMITTED BY:

Leland P. Glenn
Survey-Inventory Coordinator

BROWN/GRIZZLY BEAR

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT 16

GEOGRAPHICAL DESCRIPTION: West Side of Cook Inlet

PERIOD COVERED: January 1, 1980 - December 31, 1980

Seasons and Bag Limit

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

Population Status and Trend

Field observations, nuisance reports, and hunter sightings indicated an abundant population of bears in Unit 16.

Population Composition

No data were available.

Mortality

Twenty-three brown bears were reported killed in Unit 16 during the 1980 season. One female was killed during the spring season and 10 males, 11 females, and 1 sex unknown were killed during the fall season.

The mean skull sizes and ages of the brown bears killed in Unit 16 during 1980 are as follows (sample size in parentheses):

	Spring		Fall	
	Male	Female	Male	Female
Skull Size (n)	0	19.8 (1)	20.6 (4)	20.9 (9)
Age (n)	0	3.4 (1)	4.4 (9)	7.7 (10)

Management Summary and Recommendations

The mean skull size of males (20.6 inches) was a decline of 2 inches from the 1979 mean of 22.6 inches. Fluctuation of this level was believed to be a reflection of the small sample size and not an indication of a declining brown bear population. Numerous comments and complaints were received during 1980 regarding brown bear sightings and human/bear conflicts. These reports may indicate an expanding bear population.

We recommended that the season dates for brown bear hunting in Unit 16 be changed to May 1-May 31 and September 1-October 31.

PREPARED BY:

Jack C. Didrickson
Game Biologist III

and

Nicholas C. Steen
Game Biologist II

SUBMITTED BY:

Leland P. Glenn
Survey-Inventory Coordinator

BROWN/GRIZZLY BEAR

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT 17

GEOGRAPHICAL DESCRIPTION: Northern Bristol Bay

PERIOD COVERED: January 1, 1980 - December 31, 1980

Seasons and Bag Limit

May 10-May 25	One bear every four regulatory years; provided that the taking of cubs and females accompanied by cubs is prohibited.
Oct. 7-Oct. 21	

Population Status and Trend

Although data are limited, incidental observations and sightings of brown bears during aerial surveys of salmon spawning streams indicated a productive bear population of moderately high density throughout the coastal portion of Unit 17. Shepherd (1980) expressed concern for the population in the Nushagak Hills areas which includes the northernmost interior portion of this unit. Nonresident hunting pressure has increased greatly in this area since 1975, and he thought the resulting trend had been toward an increased percentage of young bears in the population.

Population Composition

No data were available.

Mortality

The total kill of brown bears by sport hunters in 1980 was 25; 15 were taken during the spring season and 10 during the fall. No bears taken in defense of life and property were reported. Males comprised 76 percent of the total kill, which is well above average. Twelve bears (48%) were taken in the Nushagak Hills/ Mulchatna River area.

The mean age of 18 males was 8.3 years. The mean age of females was 7.4 years. The mean age of each sex was within the range recorded during the previous 10 years, and was higher than those reported from most other units in the state. The trend since 1975 indicated a slight decline in mean age for all males and adult males (over 5 years old) with no apparent trend for females.

Management Summary and Recommendations

The annual take of brown bears has fluctuated between 23 and 46 bears since 1970, and the 1980 take probably would have been substantially higher if poor weather during the fall season had not greatly limited hunting effort.

The spring brown bear season will be closed in Unit 9 until 1982. As a result of this closure, an increase in guiding activity and hunting effort is expected in Unit 17. While hunting pressure has been light in most of the unit, it has been moderate to heavy in the Nushagak Hills/Mulchatna River area which is an important guiding area. The Nushagak Hills will not be an "exclusive" guiding area in 1981 and will probably be heavily hunted by guides from adjacent areas.

I recommend increased efforts by Fish and Wildlife Protection to monitor guide activity in Unit 17 during the spring season. Additionally, information on movements and population density of brown bears in the Nushagak Hills/Mulchatna River area is desirable to adequately manage this resource.

In past years, it has been suspected that some guides do not accurately report the unit in which their clients take bears. This is especially true during the fall when season dates in Unit 17 and 19 are different. Fall season dates in Subunits 19A and 19B should be changed to October 7-October 21 to conform with Units 9 and 17.

Literature Cited

Shepherd, P. E. K. 1980. Annual Report of Survey-Inventory Activities. Part I. In R. A. Hinman ed. Alaska Fed. Aid in Wildl. Rest. Proj. W-17-12.

PREPARED BY:

Kenton P. Taylor
Game Biologist III

SUBMITTED BY:

Leland P. Glenn
Survey-Inventory Coordinator

BROWN/GRIZZLY BEAR

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT 18

GEOGRAPHICAL DESCRIPTION: Yukon-Kuskokwim Delta

PERIOD COVERED: January 1, 1980 - December 31, 1980

Seasons and Bag Limit

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

Population Status and Trend

No data were available.

Population Composition

No data were available.

Mortality

The harvests of 14 bears in 1980 and 11 in 1979 are the only significant reported harvests in Unit 18 since statehood (Table 1). In 1979, hunters of three guides accounted for eight (73%) of the bears taken, while in 1980 four guides' hunters took 13 (95%) of the 14 reported taken.

Table 1. 1980 Brown Bear Harvest Unit 18.

Season	Total Harvest	Male #	Female #	Mean Age	# Nonresident Hunters
Spring	5	3	2	12.2	5
Fall	9	4	5	4.7	8
Total	14	7	7	7.9	13

Ages of male bears ranged from 3 to 19 years, averaging 15.1 in the spring and 5.3 in the fall season and 9.5 for both seasons combined. Female bears ranged in age from 2 to 10 years, averaging 7.9 during the spring season, 4.2 in the fall and 5.3 overall.

The harvest locations were similar to those of 1979, but with distinct seasonal differences. All spring bears were taken from the Andreafsky watershed, while eight of nine bears taken in the

fall came from the Kisaralik system (the one exception was taken on the Kanektok River).

Mortality from causes other than sport hunting was not well documented during 1980, however, reports were received of several illegally taken grizzly bears from watersheds south of the Kuskokwim River.

Management Summary and Recommendations

For the second year in a row, the harvest of grizzly bears from Unit 18 has set a record. The increased harvests appear to be entirely related to guides moving into the area.

These activities should be monitored since most of the bears have been taken from a limited portion of the Unit. Efforts should be continued to document the rumored, unreported harvest.

PREPARED BY:

W. Bruce Dinneford
Game Biologist III

SUBMITTED BY:

Robert E. Pegau
Regional Supervisor

BROWN/GRIZZLY BEAR

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT 19

GEOGRAPHICAL DESCRIPTION: Middle and Upper Kuskokwim River

PERIOD COVERED: January 1, 1980 - December 31, 1980

Seasons and Bag Limit

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

Population Status and Trend

Grizzly bear sightings suggest that the population has been stable in most of Unit 19 during the last several years. However, in Subunits 19A and 19B (particularly the Nushagak Hills portions) hunting has reduced grizzly numbers.

Population Composition

Sealing data indicate that since 1976 the age composition of the Unit 19 grizzly population has shifted toward younger bears. The mean age of males taken in Unit 19 declined from 9.9 years in 1975 to 5.9 years in 1980; ages of females showed a similar decline. This trend has been especially evident in the Nushagak Hills.

During 1980, 44 percent (23) of the bears taken in Unit 19 were females, compared to the 1961-80 average of 41 percent. However, the average number of females taken during the period 1976-80 was 26, compared to 15 for 1971-75, and 7 from 1961-70. This increase in proportion of females taken annually may reflect declines in production.

Mortality

Hunters killed 55 bears in Unit 19 during 1980 and one bear was killed in defense of life and property. Of the hunter-killed bears, 10 were taken during the spring season and 45 during the fall.

As in previous years, most of the Unit 19 harvest occurred in the Nushagak Hills. In 1980, 37 bears (67%) were from this area. Moreover, during the last 5 years, the Nushagak Hills accounted for 51 percent of the 149 bears killed in Unit 19. This compares to harvests of 96 and 19 bears for the periods 1971-75 and 1961-70, respectively.

Hunting by guided nonresidents is primarily responsible for the high harvests recorded for the Nushagak Hills in recent years. In addition to at least 14 exclusive guide areas in the Hills, there is evidence that other guides use the area for bear hunting without sanction of the Guide Licensing and Control Board. During 1980, 95 percent of the bears taken in the Hills were by guided, nonresident hunters. Competition among guides for bears, as well as illegal use of aircraft during hunts by some guides, has contributed to declines in numbers of adult male bears. Another factor contributing to larger harvests is the alternate-year closure regulation for brown bears in nearby Unit 9. This results in a shift in hunting pressure to the Nushagak Hills during years when Unit 9 is closed.

Management Summary and Recommendations

Sealing data indicate that, with the exception of the Nushagak Hills, hunter take of grizzly bears is within acceptable limits in Unit 19. However, 1980 data suggest that the harvest of grizzly bears has exceeded the long-term productivity of bear populations in the Nushagak Hills portions of Subunits 19A and 19B. This trend began in 1973 and has become more serious since, especially during the last 3 years. Heavy hunting by guided nonresidents apparently is not decreasing despite convictions of several guides for violations of airborne hunting regulations. The creation of exclusive guide areas has helped, but some guides regularly hunt outside their areas. In addition, during the December 1980 meeting of the Guide Licensing and Control Board a substantial portion of the Nushagak Hills was left unassigned. The presence of these unassigned areas means that any of the 139 guides eligible to hunt in Unit 19 could book hunters for the 1981 spring season. Obviously, not all eligible guides will book hunts in the area, but a situation exists whereby hunting pressure could increase in an area where harvests are presently too high.

To reduce harvests in the Nushagak Hills, a permit system should be established. If the harvest is evenly dispersed throughout the Hills, an annual take of 20 bears should allow the bear population to recover within 5 years. Concurrently, a program should be initiated to determine the population characteristics of bears in the area to allow more effective management strategies.

If management of bear populations in this area is to be successful, similar management plans and regulations should be adopted for those portions of the Nushagak Hills in Units 17 and 19.

PREPARED BY:

Harry V. Reynolds
Game Biologist III

SUBMITTED BY:

Oliver E. Burris
Regional Management Coordinator

BROWN/GRIZZLY BEAR

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT 20

GEOGRAPHICAL DESCRIPTION: Central Tanana Valley

PERIOD COVERED: January 1, 1980 - December 31, 1980

Seasons and Bag Limit

Sept. 1 Nov. 30 Apr. 1 - May 31	One bear every four regulatory years; provided that the taking of cubs or females accompanied by cubs is prohibited.

Population Status and Trend

Although data regarding the population status of grizzly bears in Unit 20 are lacking, casual observations and other indices suggest that the population is moderate in size and increasing slowly in most areas.

Mortality

According to information from bear sealing certificates, the grizzly bear sport harvest in Unit 20 increased from 37 bears in 1979 to 49 in 1980. The 19-year mean harvest for Unit 20 is 31 bears. In addition, one bear was taken in defense of life or property during 1980. Although the spring harvest of 16 bears (11 males and 5 females) was identical to the spring 1979 take, it represented a considerable increase over the 17-year mean of about 7 bears taken during spring seasons in Unit 20. The fall harvest of 33 bears (22 males, 11 females) was also an increase over both the previous year's harvest and the 17-year mean of 24 bears.

Residents took 34 grizzlies - 69 percent of the 1980 harvest. During 1979, residents accounted for 81 percent of the take. Male bears comprised 67 percent of the harvest, about the same as in 1979. Males have averaged 59 percent of the harvest since 1961, and that value has not changed significantly in recent years. The mean age of bears killed during 1980 was 6.7 years, and ranged from 1.8 to 19.8 years for males (mean 6.9) and from 2.8 to 16.8 years for females (mean 6.3 years). Since 1969, the average age of grizzly bears harvested in Unit 20 has been 6.8 years.

The 1980 grizzly bear harvest by Subunit was as follows:

Subunit	Spring	Fall	Total
20A	5	9	14
20B	1	5	6
20C	7	17	24
20D	0	2	2
20E	3	0	3

The increased 1980 harvest occurred primarily in Subunits 20B and 20C; the kill declined slightly in Subunit 20A. Harvests in Subunits 20D and 20E were essentially the same as in 1979.

Management Summary and Recommendations

Although harvest levels in Subunit 20C increased substantially since 1979, no indication of overharvest is evident. As intended, the expanded season length during 1980 resulted in an increased kill. Harvest data indicate that most of the harvest occurred along rivers and other access points. Unfortunately, no increase occurred in Subunit 20E where larger bear harvests are desired. Changes in season length appear to have little effect on the Subunit 20E harvest. Subunit 20E is largely inaccessible and supports little grizzly hunting effort.

While the Subunit 20A harvest declined slightly from 17 in 1979 to 14 during 1980, the harvest may be higher than the population can sustain. At this time, however, traditional indicators of overharvest are not apparent (declining average age, decreased proportion of males in the harvest). Assuming the sustainable harvest level is 4 percent or less, a population of at least 380 bears would be required to support harvests recorded for 1979 and 1980. The Subunit 20A grizzly population probably numbers less than 380.

Liberal seasons should be continued in most of Unit 20 where grizzly predation may be a significant source of ungulate calf loss. Studies to determine the grizzly bear population status in Subunit 20A should continue. Meanwhile, grizzly harvests should not increase in Subunit 20A.

PREPARED BY:

Larry Jennings
Game Biologist III

SUBMITTED BY:

Oliver E. Burris
Regional Management Coordinator

BROWN/GRIZZLY BEAR

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT 21

GEOGRAPHICAL DESCRIPTION: Middle Yukon

PERIOD COVERED: January 1, 1980 - December 31, 1980

Seasons and Bag Limit

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.

Population Status and Trend

Population status and trend of grizzly bear populations in Unit 21 are unknown. However, observations during surveys for other species indicate that numbers range from very low at low elevations along the Yukon River to moderate in alpine areas and the western sections of the Unit.

Mortality

Eleven grizzly bears were taken by sport hunters during 1980, four during the spring season, and seven during the fall season. During 1961-79 the number of bears taken annually by hunters ranged from 0 to 7, averaging 2 bears per year. Although the number of bears reported taken in 1980 was the highest on record, a much greater harvest could occur without adversely affecting the population.

Of the 11 bears killed during 1980, 4 were males, 6 were females, and the sex of 1 was unknown. All bears were killed by Alaska residents; six were taken by Unit 21 residents.

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

Management Summary

Since 1961, annual harvests have had an insignificant impact on the Unit 21 grizzly population. A much greater harvest could be sustained in this Unit, but present interest in bear hunting is not great.

PREPARED BY:

Harry V. Reynolds
Game Biologist III

SUBMITTED BY:

Oliver E. Burris
Regional Management Coordinator

BROWN/GRIZZLY BEAR

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT 22

GEOGRAPHICAL DESCRIPTION: Seward Peninsula

PERIOD COVERED: January 1, 1980 - December 31, 1980

Seasons and Bag Limits

April 25-May 25 Resident: Sept. 1-Oct. 31	One bear every four regulatory years; provided that the taking of cubs and females accompanied by cubs is prohibited.
Nonresident: Sept. 1-Oct. 31	One bear every four regulatory years by drawing permit only; provided that the taking of cubs or females accompanied by cubs is prohibited. 20 permits will be issued; 14 in fall season. See AAC 81.055 and separate permit hunt supplement.

Population Status and Trend

The grizzly bear population in Unit 22 probably increased slowly during the last 2 decades (or longer). Bears occupied most of the suitable habitat on the Seward Peninsula, and it appeared the density in many areas was near carrying capacity. A sharp increase in the number of hunters during the 1979 and 1980 hunting seasons reduced bear densities in a few drainages.

Population Composition

No composition and productivity surveys were conducted during the report period, but bear observations were noted in the course of other field work. From these data and past surveys, bear density was estimated to be on the order of one animal per 40 to 60 square miles. If this crude estimate was valid, the bear population numbered between 350 and 525 animals. Based on sightings and past hunting success, the higher figure was probably more accurate.

Mortality

No cases of natural mortality were observed; hunting was the only known source of mortality. Hunters took 31 bears during calendar year 1980; 25 during the "general" spring season and 6 during the fall season (under the implementation of a "new" permit system). Nonresidents accounted for 61 percent (19 bears) of the 1980

harvest, and took 15 bears during the spring season at a time when permits were not required. In contrast, 11 nonresidents applied for a total of 14 fall permits, and they only took 4 bears. Residents harvested 12 bears during the year.

The sex composition ofthe harvest was 24 males, 5 females, and 2 of unknown sex. Table 1 illustrates the number of bears taken by residents and nonresident during the 1980 hunting season.

Table 1: Grizzly bear harvest in Unit 22

1980 Spring Harvest (permits not in effect)

	Males	Females	Unknown	Total Harvest
Residents	8	2		10
Nonresidents	12	1	2	15
	20	3	2	25

1980 Fall Harvest (permits required for nonresidents only)*
*14 available, 11 issued

	Males	Females	Unknown	Total Harvest
Residents	1	1		2
Nonresidents	3	1		4
	4	2		6

Total 1980 Harvest

	Males	Females	Unknown	Total Harvest
Residents	9	3		12
Nonresidents	15	2	2	19
	24	5	2	31

The chronology of the 1979 and 1980 spring harvests is illustrated below. The first half of the season is broken into 5-day increments, and the second half is represented as a single block of time because the harvests were low.

	HARVEST FIRST HALF OF SEASON								HARVEST SECOND HALF OF SEASON	
	April 25-30		May 1-5		May 6-10		Total		May 11-25	
	No.	%	No.	%	No.	%	No.	%	No.	%
1979	13	32%	11	28%	9	22%	33	82%	7	18%
1980	8	32%	11	44%	2	8%	21	84%	4	16%
	Total: 16 days								Total: 15 days	

These data are nearly identical for the two seasons, suggesting that bears are more vulnerable to hunting early in the spring.

Note that 82 and 84 percent, respectively, of the 1979 and 1980 harvest occurred in the first 16 days of the season, and nearly a third of the kill occurred in the first 5 days of the season. Only 18 percent (or less) of the harvest was taken during the second half of the spring season (May 11-25).

The reported distribution of the 1980 harvest by drainage was as follows:

Location	Male	Female	Unknown	Total
Koyuk River	8	0	1	9
Ungalik River	3	1		4
Unalakleet River	2	1		3
Kuzitrin River	3	0		3
Nome River	1	2		3
Feather River	2	0		2
Shaktoolik River	1	0	1	2
Cripple River	0	1		1
Kwiniuk River	1	0		1
Penny River	1	0		1
Serpentine River	1	0		1
Tisuk River	1	1	2	1
	24	5	2	31

The accuracy of the kill location is questionable in some cases. A portion of the Seward Peninsula was open to hunting by any registered guide, and other areas were assigned to guides for their exclusive use. If guides did not have exclusive use of an area, they often reported bear kills in "open" areas. Despite inaccuracies in the reported data, it is probable that all the bears came from either Units 21, 22, or 23.

Many local residents, particularly those living in villages, consider grizzly bears nuisance predators and/or a serious threat to their personal safety. Each year a number of bear/human confrontations result in bears being killed (usually unreported). At least three to six bears were probably taken in this manner.

If the grizzly bear population were harvested heavily, one would expect a decline in the mean age of the bear population over time. During 1979 and 1980, the mean age of males over 5 years of age was 9.3 and 10.2 years, respectively. The mean age of all male bears over 5 years of age taken prior to 1979 was 13.0 years. If the data are representative, it appears there was some decrease in the mean age of the Unit 22 population (13.0 years versus 10.2 years), but due to the small sample sizes, it would be inappropriate to draw a definite conclusion.

Management Summary and Recommendations

Miners and reindeer herders exerted heavy hunting pressure on grizzly bears during the early 1900's. The population probably reached its lowest level several decades ago. From this point the grizzly population underwent a number of years of sustained growth and eventually occupied most of the suitable habitat. The size of the population is unknown at this time, but it is crudely estimated at 350 to 525 animals. The higher figure is probably more accurate.

During 1979, the harvest of bears took a dramatic jump; 50 were taken, a figure 11 times the 18-year average. Nonresidents accounted for 76 percent of the harvest. In light of these facts, the Board of Game limited nonresident participation in two ways; 1) they eliminated the early part of the spring season and made it identical to most of the other Units (May 10th-May 25th), and 2) they established an allocation of 20 permits for nonresidents (14 in the fall season and 6 in the spring).

The annual harvest under a permit system is difficult to predict at this time because the fall season was the only period for which permit data are available. If all applicants in the 1981 spring season were successful (which is unlikely), nonresidents will harvest an estimated total of 10 bears for the two permit seasons (4 fall and 6 spring). The resident bear kill for the last 2 years has been 12 annually. Using these figures, an estimate of the 1981 harvest would be 20 to 25 bears.

Harry Reynolds (personal communication) indicated an annual kill of 4 percent was a safe management objective for grizzly bears in the western Brooks Range. The productivity of bears on the Seward Peninsula is undoubtedly higher because of better food resources. A sustainable harvest of 5 percent is probably not unrealistic for a long range management goal. If one assumes there are 600 bears in Unit 22 (which may be a liberal estimate), then the maximum annual harvest would be 30 bears.

If the estimates of the 1981 harvest are accurate (20 to 25 bears), it appears some increase in the allocation of nonresident permits may be in order. Yet, the permit system has not been in effect for one entire hunting season, and the estimates may prove to be incorrect. The present regulations should be retained for at least 1 more regulatory year to evaluate their impact.

During the last 2 years, hunting pressure from residents as well as nonresidents has increased substantially. Due to the open terrain on the Seward Peninsula, the bear population is extremely vulnerable to hunters especially in the spring season. The status of the bear population on the Seward Peninsula is not well known. Estimates have been made on size and productivity, but unfortunately there are few supporting data. In spite of the data void, management decisions have been relatively easy to make because hunting pressure was low, but this is no longer the case.

A research study should be initiated in northwestern Alaska to determine important population characteristics and other biological parameters. Without this information, it will be extremely difficult to make precise management recommendations.

PREPARED BY:

Carl A. Grauvogel
Area Game Biologist

SUBMITTED BY:

Robert E. Pegau
Regional Game Supervisor

BROWN/GRIZZLY BEAR

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNIT 23

GEOGRAPHICAL DESCRIPTION: Kotzebue Sound

PERIOD COVERED: January 1, 1980 - December 31, 1980

Seasons and Bag Limits

Resident: Sept. 1-Oct. 10 May 10 - May 25	One bear every four regulatory years; provided that the taking of cubs and females accompanied by cubs is prohibited.
Nonresident: Sept. 1-Oct. 10 May 10 - May 25	One bear every four regulatory years by drawing permit only; provided that the taking of cubs or females accompanied by cubs is prohibited. 25 permits will be issued. See 5AAC 81.055 and separate permit hunt supplement.

Note: Boundary of permit area was different during the spring season and permits were also required of residents.

Population Status and Trend

No information was available.

Population Composition

No information was available.

Mortality

The total reported brown/grizzly bear harvest for Unit 23 during 1980 was 23 bears, down from 58 in 1979. During the spring season, four males and one female were taken. The reported fall harvest was 18 bears (7 male, 10 female and 1 sex unknown). The age and skull size data of the bears harvested in both the spring and fall are close to the 20-year average (Table 1).

Table 1. Comparison of age and skull size of bears taken in 1980 with the overall 20-year average.

	Skull size		Age	
	1980	20-year Average	1980	20-year Average
Spring Male	22.3	22.7	8.1	8.5
Fall Male	21.8	21.7	6.2	8.4
Fall Female	19.7	19.4	7.9	7.2

Nonresidents took less than half as many bears in 1980 (14) than in 1979 (37). This was due, in part, to the fact that brown bear hunting was open in the spring of 1980 on the Alaska Peninsula where many guides operate. For the fall season, nonresidents were required to obtain permits to hunt anywhere in Unit 23. The guided hunt take of 12 bears in 1980 was one-third that reported in 1979 (36) and is reflected in the area breakdown of the harvest (Table 2).

Table 2. Brown/Grizzly bear 1979 and 1980 harvest by location, Unit 23.

Location	Spring		Fall		Total	
	1979	1980	1979	1980	1979	1980
Cape Lisburne to Noatak	4	2	17	8	21	10
Noatak drainage	2	0	4	6	6	6
Kokuk drainage	0	2	2	2	2	4
Selawik drainage	1	1	4	0	5	1
Seward Peninsula	6	0	16	2	22	2
Unknown	1	0	1	0	2	0
Total	14	5	44	18	58	23

The boundary for the area in which a permit was required was different for the spring 1980 season than for the fall season. The spring permit system included both resident and nonresident hunters while in the fall 1980 season, permits were required only for nonresident hunters. The boundary for the earlier permit system (fall 1979 - spring 1980) was, "that portion of Unit 23 including the Squirrel River drainage, the Noatak River drainage below its confluence with the Kelly River, the Wulik River drainage, and all that portion of Unit 23 north and west of the Wulik River drainage." Thirty-two permits were issued for the above permit area. Twenty-two permits were available for hunters during the 1979 fall season and 10 permits were available for the spring 1980 season. Two of 10 permittees took bears during the spring 1980 season.

Twenty-five permits (18 fall, 7 spring season) were available for the 1980-81 nonresident permit season. Thirteen of the 18 permits were issued to hunters for the fall 1980 season, 11 of whom took bears.

Management Summary and Recommendation

The brown/grizzly bear harvest was lower in 1980 than 1979. The unit-wide implementation of the permit drawing system for only nonresident hunters seemingly reduced the take of bears in fall 1980. However, the harvest should continue to be monitored closely.

An earlier opening of the spring brown/grizzly bear season should be considered. The current spring season opens May 10 when access is difficult for Unit residents using surface transportation. Several Unit residents have suggested an earlier opening in April. Resident take has never exceeded 21 bears and is usually much lower.

PREPARED BY:

David A. Johnson
Game Biologist III

SUBMITTED BY:

Robert E. Pegau
Regional Supervisor

BROWN/GRIZZLY BEAR

SURVEY-INVENTORY PROGRESS REPORT

GAME MANAGEMENT UNITS 24-26

GEOGRAPHICAL DESCRIPTION: Brooks Range

PERIOD COVERED: January 1, 1980 - December 31, 1980

Seasons and Bag Limits

Units 24-26 (permit areas only; see regulation booklet for area descriptions)	May 10 - May 25 Sept. 1 - Oct. 10	One bear every four regulatory years by drawing permit only; provided that the taking of cubs or females accompanied by cubs is prohibited.
Units 24 and 25 (nonpermit areas)	May 10 - May 25 Sept. 1 - Oct. 10	One bear every four regulatory years; provided that the taking of cubs or females accompanied by cubs is prohibited.

Population Status and Trend

Research conducted in the Brooks Range showed that grizzly bear density within this large area ranges from 1 bear/17-300 mi^2, with an average density of about 1 bear/100 mi^2. Based on these densities and food availability within various areas, the Brooks Range Units are estimated to have a minimum population of 2,000-2,400 grizzlies. However, because of the very low reproductive capacity of these bears, only about 2 percent of the population (40 to 50 bears) should be harvested annually. To reduce the chance of overharvest, the Board of Game passed regulations establishing permit hunts for grizzlies in the Brooks Range and coastal plain portions of these Units beginning with the 1977-78 regulatory year.

Grizzly populations in Subunits 26B and 26C are likely beginning to recover from previous overharvests. Population trends in Units 24, 25, and eastern 26A are probably stabilized or growing; in the western portion of Subunit 26A numbers are probably increasing.

Population Composition

Recent population composition data are available only for the western Brooks Range near the headwaters of the Utukok

and Kokolik Rivers. In that area, approximately 40 percent of bears over the age of 1 year were males and 60 percent were females. The sex ratio of cubs and yearlings was probably equal but may slightly favor females. Percentages of bears by age classes were: cubs, 13.0 percent; yearlings, 10.7 percent; 2-year-olds, 13.7 percent; 3- and 4-year-olds, 10.7 percent; and those over 5 years of age, 51.9 percent.

Quantified parameters of grizzly bear reproductive capacity for the eastern Brooks Range (1973-75 data) and western Brooks Range (1977-80 data) are as follows (listed as eastern and western Brooks Range, respectively): mean age at production of first litter of 10.1 and 8.5 years, mean litter size of 1.82 and 2.03 cubs, reproductive intervals of 4.24 and 4.03 years, and mean reproductive rates of 0.420 and 0.503 cubs/adult female/year.

Mortality

During 1980, 36 grizzlies were taken in Unit 26 and the portions of Units 24 and 25 where permits were required (Table 1). A large portion of the Gates of the Arctic National Park is within the Unit 24 permit hunting area. Sport hunting is not allowed within the Park, and, as a result, hunting pressure in the remainder of the Unit was relatively high. Despite this situation, the grizzly take in portions of Unit 24 open to hunting was not considered excessive.

Table 1. Sport hunting take of grizzly bears in Units 24-26, 1977-80.

Unit	1977[1]			1978			1979			1980		
	S	F	T	S	F	T	S	F	T	S	F	T
24, permit area	6	4	10	0	10	10	0	2	2	2	6	8
24, remainder	NA	NA	NA	0	2	2	0	4	4	0	12	12
25, permit area excluding ANWR[2]	5	8	13	0	4	4	2	8	10	2	6	8
25, remainder	NA	NA	NA	1	6	7	5	9	14	3	6	9
26, all permit	9	10	19	2	8	10	5	6	11	7	15	22
Totals	20	22	42	3	30	33	12	29	41	14	45	59

[1] Note: S designates spring; F, fall; T, total harvest.
[2] Arctic National Wildlife Range

Management Summary

The grizzly bear harvest in the Brooks Range was within levels appropriate for the populations in the various Units. The harvest was relatively high in the permit hunting area in Unit 24 outside the newly established Gates of the Arctic National Park. In Unit 25, the take has increased due to additional guides establishing exclusive guiding areas in the Unit, but the harvest was not excessive. The western portion of Subunit 26A has received only light hunting pressure but has a relatively high

bear population. A greater harvest could be sustained in this area, especially during spring seasons when females are less vulnerable to sport hunting. Harvest in areas outside the permit areas in Units 24 and 25 were within sustainable levels.

PREPARED BY:

Harry V. Reynolds
Game Biologist III

SUBMITTED BY:

Oliver E. Burris
Regional Management Coordinator