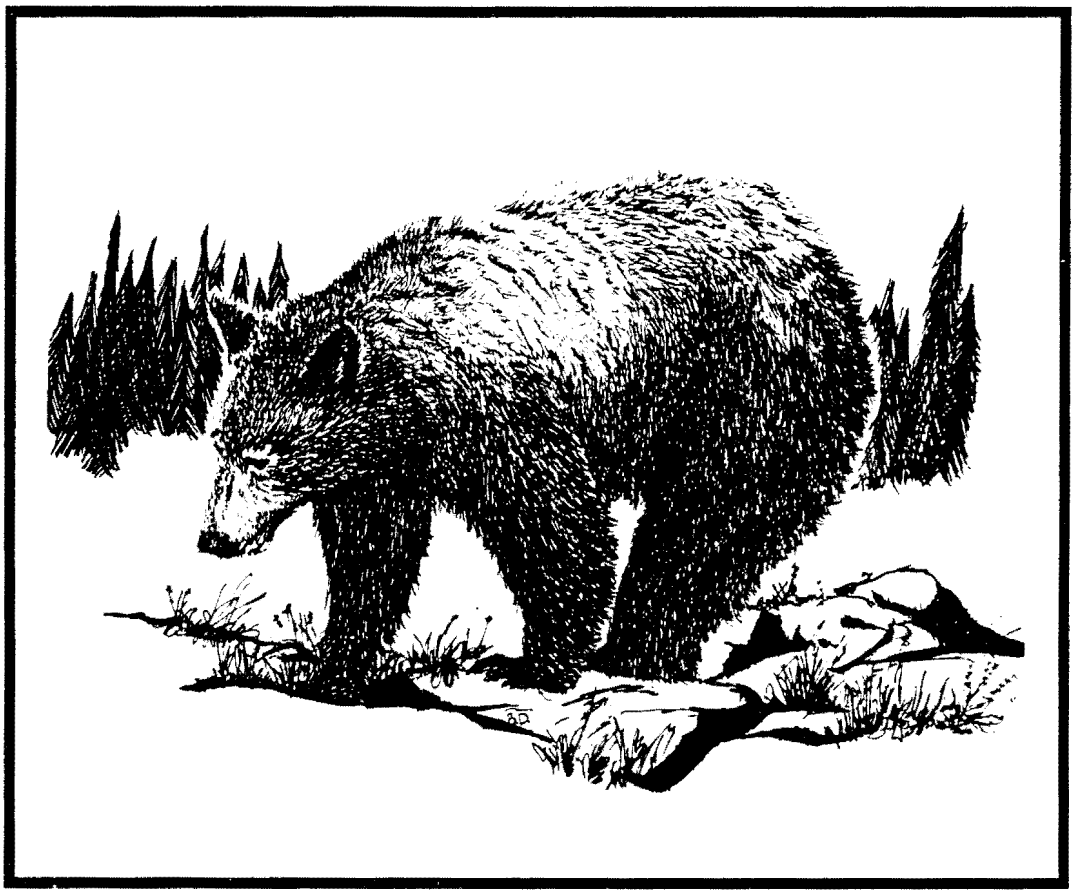
Alaska Department of Fish and Game
Division of Wildlife Conservation

Federal Aid in Wildlife Restoration
Annual Performance Report of
Survey-Inventory Activities
1 July 1992-30 June 1993

BLACK BEAR



Susan M. Abbott, Editor
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Project Title: Southeast Black Bear Population Management

Overview: Black bears are distributed throughout Southeast Alaska except in Unit 4 (Admiralty, Baranof, Chichagof and associated islands). Harvests are low, compared with estimated populations, however, the take is rapidly increasing in some areas.

Project Location: Subunit 1A and Unit 2 (8,900 mi^2)

Subunit 1A - Ketchikan area including the mainland draining into Behm and Portland canals

Unit 2 - Prince of Wales and adjacent islands south of Sumner Strait and west of Kashevarof Passage and Clarence Strait

Project Objectives and Activities:

- Maintain an average spring male skull size of at least 17.2 inches in Subunit 1A and an average spring male skull size of 19.1 inches or a regulatory year average of 18.8 inches for Unit 2.

- Monitor the hunt and seal all black bears harvested and presented for sealing.

Work Accomplished During the Project Segment Period: Thirty-six and 201 black bears were reported harvested from Subunit 1A and Unit 2, respectively. Males made up 64% and 78% of the Subunit 1A and Unit 2 harvests, respectively. We obtained skull measurements, identified sex, and extracted a tooth from most bears presented for sealing. We had fall bear teeth aged and sent a letter to each hunter informing her/him of their bear's age. Spring bear teeth are currently being aged.

Progress Towards Meeting Project Objectives: The Subunit 1A objective of maintaining an average skull size of at least 17.2 inches for males taken during spring was met. Skulls from 18 males averaged 17.8 inches. The average for 11 female skulls measured from Subunit 1A during the 1992-93 regulatory year was 16.5 inches, 0.4 inches higher than what we observed during the previous season.

The average skull size for 114 males taken in Unit 2 during spring 1993 was the lowest recorded in 13 seasons. At 18.6 inches, it was 0.5 inches below our objective of 19.1 inches. For the second time in three seasons, our objective of a minimum skull size of 18.8 inches for Unit 2 males was not met. At 18.4 inches, the average was 0.4 inches low. Unit 2 female skulls averaged 16.7 inches, 0.2 inches lower than what was observed during the previous season.

During 1992, ages determined from bear teeth indicated average ages of 6.3 and 9.3 years for 4 males and 12 females taken in Subunit 1A and Unit 2, respectively. Ages of Unit 2 bears averaged 4.6 and 9.0 years for males and females, respectively. This was about 3 years lower for males and 1.5 years higher for females than that observed during the previous regulatory year. However, spring 1993 ages have not been included in these calculations and these values are thus subject to change.

During the coming year, we plan to send about 1,000 teeth from 1984-1989 to Matson's Laboratory in Montana for aging. With these additional age data, we will evaluate trends in the age structure of harvested bears. At present, we believe the Subunit 1A and Unit 2 black bear populations are stable.

Project Location: Subunit 1B and Unit 3 (5,900 mi^2)

Southeast Mainland from Cape Fanshaw to Lemesurier Point and islands of the Petersburg, Kake, and Wrangell area

Project Objectives: Maintain a mean skull size of at least 17.0 inches for males and a male to female ratio of 3 :1 in the harvest.

Work Accomplished During the Project Segment Period: We sealed 177 bears from the this area. Seven of these were non-sport kills. We collected additional anecdotal information from hunters, biologists, Fish and Wildlife Protection officers, and other knowledgeable observers. When possible, we measured skulls and determined the sex of the harvested bear.

Progress Towards Meeting Project Objectives: Twelve and 165 black bears were killed in Subunit 1B and Unit 3, respectively. The male to female ratio was slightly over 3:1 and the average male skull size was 18.4 inches (n=123). Project objectives were exceeded.

The kill by nonresidents was 102, 51 of which were guided; both of these values increased from 1991. The number of non-resident hunters continues to increase even with the recent reduction in black bear bag limit from two to one. For the past few years successful hunters have been asked "How many bears did you see before you killed this one?", and "How many bears did you chose not to kill before you killed this one?" The hunters have averaged seeing 5 bears and passing up 2 before killing a bear. Those hunters seeing a bear prior to killing one saw an average of nine bears (n = 90). Hunters passing up one or more bear saw an average of 6 (n = 51). These data suggest that hunters were slightly less discriminating than in the previous year. The assumption behind these questions is that as bears become less plentiful hunters will be less selective and tend to shoot the first bear seen. If this assumption is correct then the black bear population in Subunit 1B and Unit 3 remains high.

Project Location: Subunit 1C (7,600 mi^2)

Southeast Alaska mainland and islands of Lynn Canal and Stephens Passage lying between Cape Fanshaw and the latitude of Eldred Rock, including Sullivan Island and the drainages of Berners Bay

Project Objectives:

- Maintain a minimum mean skull size of 17.3 inches for males and a male to female harvest ratio of 3:1.

- Reduce by 50% the number of nuisance bear problems resulting from improper refuse handling and disposal.

Work Accomplished During the Project Segment Period: We collected harvest data through the mandatory sealing process. We measured skulls, determined sex of the harvested bears, collected harvest-related data and anecdotal information at the time of sealing. We solicited additional information from hunters and other observers.

We captured Juneau area black bears that were repeatedly involved in garbage-related incidents. We relocated 5 bears to remote areas, ADF&G staff killed one re-captured bear, and Juneau Police Department staff shot one aggressive bear. Released bears were ear-tagged to monitor movements and document subsequent problems. One bear that we relocated to Pt. Couverden was equipped with a radio collar. We continued educational and enforcement efforts aimed at reducing garbage availability and subsequent habituation of black bears to human foods.

Progress Towards Meeting Project Objectives: Sixty-two black bears were harvested in Subunit 1C during the regulatory year and management objectives were met. Skull sizes for males averaged 17.6 inches, and males composed 83% of the hunter harvest. Hunters expended an average of 3.2 hunter days per bear. Nuisance bear problems in Juneau decreased from the previous year. One illegal kill would have been a legitimate defense of life or property (DLP) kill had it been handled correctly by the hunter. One other illegal kill was found in the Montana Creek drainage, and a female cub was struck and killed by a car near Peterson Creek. Although bear incidents were fewer this year, no substantive changes in garbage storage and handling were made; more effort needs to be directed toward making garbage unavailable to bears.

Gustavus area residents reported an unusual number of black bears during summer 1992 and several kills resulted. Most were taken on hunting licenses, but at least one was reported as a DLP kill. We also received complaints of garbage attracting bears in the Excursion Inlet area.

Project Location: Subunit 1D (2,700 mi^2)

Southeast Alaska mainland lying north of the latitude of Eldred Rock, excluding Sullivan Island and the drainages of Berners Bay

Project Objectives: Maintain a population capable of sustaining an annual harvest of at least 25 black bears.

Work Accomplished During the Project Segment Period: We collected harvest data through the mandatory sealing process. We also gathered harvest-related data and anecdotal information at that time. Staff measured skulls at the time of sealing, and determined the sex of the harvested bears when possible.

Progress Towards Meeting Project Objectives: Black bear harvest met the management objective. Twenty-nine bears (28 hunted and one DLP) were killed compared to 28 in regulatory year 1991 and 35 in 1990. Male bears continued to comprise most of the harvest (86%). Average skull size for males was 17.5 inches, a slight increase from the previous year. Hunters took an average of 2.2 hunter days to bag each non-DLP bear.

Project Location: Unit 5 - (6,235 $miles^2$)

Cape Fairweather to Icy Bay, eastern Gulf of Alaska coast

Project Objectives and Activities:

- Maintain a 3:1 male to female harvest ratio and a population capable of supporting an annual harvest of at least 20 bears.
- Monitor the hunt and seal all black bears harvested and presented for sealing.

Work Accomplished During the Project Segment Period: We sealed black bears in Yakutat, Juneau, and Anchorage.

Progress Towards Meeting Project Objectives: Although the black bear population still appears capable of sustaining harvest objectives, goals were not met this year. The male to female ratio in the harvest was 1.1:1, substantially lower than the objective. A total of 19 bears were killed, much lower than the 31 taken the previous year, and below the 5-year mean of 25. One blue-colored bear was taken; this compares to the 7 taken in 1990 and none in 1991. All black bears were taken in Subunit 5A.

Segment Period Project Costs:

	Personnel	Operating	Total
Planned	$45.4	$7.3	$52.7
Actual	$45.4	$7.3	$52.7
Difference	0	0	0

Submitted by:

Bruce Dinneford
Regional Management Coordinator

Project Title: **Southcentral Black Bear Population Management**

Project Location: Unit 6 (10,150 mi^2)
Prince William Sound and north Gulf Coast

Project Objective: Maintain a black bear population that will sustain a 3-year average annual harvest of 200 bears composed of at least 75% males and a minimum average male skull size of 17 inches.

Work Accomplished During The Project Segment Period: Sixty-nine black bears (41 males and 26 females, and 2 unknown sex) were harvested during fall 1992. Preliminary harvest data indicated 143 (106 males, 32 females, and 5 unknown sex) were taken during spring 1993. Final harvest numbers for spring will be available during fall 1993.

Progress Towards Meeting Project Objectives: The preliminary harvest (212) approached the average harvest for the previous 3 years (230). However, percent males in the take (69%) was substantially less than the average for the previous 3 years (76%). Available data are inadequate to determine if this drop in proportion of males indicates the population is unable to sustain the current take.

Project Location: Units 7 and 15 (8,400 mi^2)
Kenai Peninsula

Project Objective: Maintain a black bear population that will sustain a 3-year average annual harvest of 200 bears composed of at least 60% males.

Work Accomplished During The Project Segment Period: Only preliminary black bear harvest reports were available. Final harvest data will be available during fall 1993. The 1992 fall harvest appeared to be above average. Numbers of bears sealed in Peninsula offices indicate that most fall bears are harvested incidental to moose hunting.

The spring bear harvest also appeared higher than normal partly because of an early warm spring and high hunter participation.

Progress Towards Meeting Project Objectives: Current regulations allowing a spring baiting season with a bag limit of 3 bears (females with cubs and cubs being protected) appears acceptable with a management objective to maintain the existing bear population.

We observed an increased spring harvest of black bears on the lower portion of the Kenai Peninsula partly because of an increase in licensed transporters operating out of Homer. Use of boats as a means of transportation may increase on the Lower Kenai. Many halibut

charter boat operators that are idle during May have expressed interest in transporting bear hunters.

Project Location: Unit 11 (12,800 mi^2)
Wrangell Mountains

Project Objective: Maintain existing populations of black bears with a sex and age structure that will sustain a harvest composed of at least 60% males.

Work Accomplished During The Project Segment Period: We monitored the black bear harvest by sealing the hides and skulls of all bears killed. We interviewed hunters at the time of sealing to determine hunting methods, means and effort.

Hunters took 12 black bears and one was killed in defense of life or property in Unit 11 during the 1992-93 season. The hunter harvest was equal to the 5-year (1987-91) average of 12. Harvest data for the 1992-93 season are preliminary, as sealing certificates for spring 1993 are still being processed. The harvest during the fall portion of the 1992-93 season was 10 bears. Of the 9 bears of known sex, 7 (78%) were males and 2 (22%) females. Five of the fall harvest were bears taken incidentally while hunting other big game species. Two black bears were taken on guided hunts.

Progress Towards Meeting Project Objectives: The black bear harvest in Unit 11 has remained low over the past 11 years. Unit 11 has some good black bear habitat and frequent sightings suggest bears are abundant. The low harvest reflects a lack of hunting pressure rather than low bear numbers. The proportion of males in the harvest was well above the 60% management guideline set for this unit. No changes in season dates and bag limits were proposed as current guidelines are being met.

Project Location: Unit 13 (23,400 mi^2)
Nelchina Basin

Project Objective: Maintain existing populations of black bears with a sex and age structure that will sustain a harvest composed of at least 60% males.

Work Accomplished During The Project Segment Period: The black bear harvest was monitored by sealing the hides and skulls of all bears killed. We interviewed hunters at the time of sealing to determine hunting methods, means, success and effort.

Preliminary harvest data for the 1992-93 hunting season indicated 77 black bears were taken by hunters. The 5-year (1987-91) average harvest was 75 bears. Harvest data for the entire 1992-93 season were preliminary as the hunting season is open year-round and sealing certificates were still being processed. Sixty bears (70% males) were taken during

fall 1992 and 17 (75% males) taken to date in spring 1993. Males comprised 71% of the overall harvest. During the fall season unit residents took 17 of 60 bears (28%), other Alaskan residents took 40 (67%), and nonresidents took 3 (5%) bears. During fall, highway vehicles were the most popular method of transport (38%) followed by aircraft (20%) and 3-4/wheelers (13%). Highway vehicles were also the most important (41%) transportation method during the spring hunt, followed by aircraft (24%). Skull size and age data were not available for this report. Subunits 13D and 13E remain the most important black bear hunting locations accounting for 51% and 26% of the unitwide take. Guided hunting has decreased to where only 4 bears were taken on guided hunts for the 1992-93 season.

Progress Towards Meeting Project Objectives: The known 1992-93 black bear harvest is presently 12% greater than the previous year's take of 69. The black bear harvest in 1991-92 decreased by 22% over the 1990-91 year's take of 88 bears. Overall, black bear harvests in Unit 13 are considered within sustainable levels, as black bears are considered relatively abundant in forested areas. Subunits 13D and 13E have the highest black bear numbers because of the extensive areas of forest habitat. Preliminary composition data for the 1992-93 season indicates the proportion of males in the harvest in the harvest was well above the 60% management guideline for Unit 13. No changes in season dates and bag limits were proposed as current guidelines are being met.

Project Location: Unit 14 (6,600 mi^2)
Upper Cook Inlet

Project Objectives: The population objective is to maintain a black bear population of a size that appears largely unaffected by human harvest. The human-use objective is to provide liberal opportunities to hunt black bears with annual average harvests of less than 80 bears.

Work Accomplished During The Project Segment Period: During this report period, we sealed at least 82 black bears for all of Unit 14. Forty-six bears were killed in Subunit 14A, 16 in Subunit 14B, and 20 in Subunit 14C. Four bears were killed in defense of life or property, 2 in Subunit 14A and 2 in Subunit 14C. One bear was killed illegally in Subunit 14A. Sex was identified for 78 bears; 73% were males.

A minimum of 126 hunters registered at least 1 black bear bait station for the spring season in Subunit 14A; 26 persons registered bait stations in Subunit 14B. A minimum of 18 bears (including 12 males) were reported killed over bait.

Progress Towards Meeting Project Objectives: Black bear harvest slightly exceeded the objective, probably because of an early spring and mild weather. During the last 3 regulatory years the harvest has averaged 72 bears. We estimate that Unit 14 contains 750-1,350 black bears, therefore the 3-year average harvest is less than 10% of the low

estimate (750). The percentage of males (73%) in the harvest, especially in Subunit 14A, has increased in recent years. With long seasons and spring baiting opportunity, both the population and human-use objectives are being met.

Project Location: Unit 16 (12,300 mi^2)
West side of Cook Inlet

Project Objective: Maintain existing populations of black bears with a sex and age structure that will sustain a harvest composed of at least 60% males.

Work Accomplished During The Project Segment Period: During this period, we sealed 44 black bears for Subunit 16A and 64 for Subunit 16B. Of Subunit 16A bears, 69% were males and of Subunit 16B bears, 77% were males. Fifteen bears were reported killed over bait in Subunit 16A, while 18 were taken over bait in Subunit 16B.

No activities were conducted specific to black bears, however, numerous land use permits were evaluated for impacts on black and brown bears.

Progress Towards Meeting Project Objectives: The 1992-93 black bear harvest was estimated to be below sustainable levels. Overall harvest composition at 74% males was well above the objective level of 60%. Status of the bear population in Unit 16 is considered to be moderate to high density with an uncertain trend.

New population and human-use objectives were drafted for the next 5-year period. The population objective would be to maintain black bear population of a size that is largely unaffected by human harvest. Human-use objectives would be to provide liberal opportunities to hunt black bears with an annual average harvest of less than 160 bears which includes less than 12 female bears from Subunit 16A and less than 50 female bears from Subunit 16B.

Project Location: Unit 17 (18,800 mi^2)
Northern Bristol Bay

Project Objective: Maintain existing populations of black bears with a sex and age structure that will sustain a harvest composed of at least 60% males.

Work Accomplished During The Project Segment Period: Hunters were not required to report or seal black bears harvested in Unit 17. Consequently, we have no way of assessing the number of bears killed, the sex or age composition of the harvest, or the distribution of harvest.

Progress Towards Meeting Project Objective: No objective data were available on the population density of black bears in the unit. Incidental observations during moose and caribou surveys, and anecdotal reports by local residents suggest the black bear population along upper Nushagak River drainages is declining. Little is known about black bear populations in other portions of the unit.

We have little data on harvests because there are no reporting or sealing requirements for black bears harvested in Unit 17. During this report period 1 black bear was sealed (male), 1 was reported but not sealed (female), and 1 was killed and reported under defense of life or property provisions (male).

Without adequate population data or harvest data it is difficult to manage this bear population. The Department should propose to the Board of Game either a sealing requirement or some other method for hunters to report their harvest of black bears from the unit.

Segment Period Project Costs:

	Personnel	Operating	Total
Planned	30.6	9.3	39.9
Actual	30.6	9.3	39.9
Difference	0	0	0

Submitted by:

Jeff Hughes
Survey-Inventory Coordinator

Project Title: Region III Black Bear Population and Habitat Management

Project Location: Units 12 and 20

Unit 12

Project Objectives and Activities:

1. Manage for a black bear population capable of maintaining a sustainable average harvest of at least 30 bears, of which at least 55% are males.

    1a. Seal bears, analyze harvest data.

Work Accomplished During the Project Segment Period:

1a. Hunters reported taking 30 black bears (22 males, 7 females, and 1 unknown) in Unit 12 during FY93 exceeding the 5-year mean of 23 black bears. Males represented 73% of the harvest which exceeds the 5-year mean of 67%. Seventy-seven percent (23) of the bears were harvested during spring.

Progress Towards Meeting Project Objectives: The project objectives are being met. Initially after the Tok Fire, the number of hunters that hunted black bears over bait declined and the overall harvest subsequently declined. Several local bear hunters said that hunters are pioneering new areas to bait bears and the harvest has increased.

Subunit 20E

Project Objectives and Activities:

1. Manage for a black bear population capable of sustaining annual harvests of at least the current annual average of 14 bears/year.

    1a. Seal bears, analyze harvest data.

Work Accomplished During the Project Segment Period:

1a. Hunters reported taking 14 black bears (10 males, 3 females, and 1 unknown) in Subunit 20E during FY93. Eight (57%) were taken during fall. Males represented 71% of the harvest. One male black bear was taken in a DLP incident.

Progress Towards Meeting Project Objectives: Black bear hunting pressure in Subunit 20E is normally light. Annual harvests below the project objective are more indicative of hunting pressure than the trend of the subunit's black bear population. The number of

incidental sightings of black bears in the subunit by department personnel and by the public and the average percent male in the harvest (60%) indicate that the black bear population is capable of sustaining a harvest of 14 bears annually.

Subunits 20A, 20B, 20C, and 20F

Project Objectives and Activities:

1. Subunit 20A: Manage for a harvest of black bears that maintains 55% or more males in the combined harvests of the most recent 3 years.

   1a. Seal bear hides and skull, age teeth, analyze data.

2. Subunit 20B: Manage for a sustained annual harvest of ≤150 black bears, of which at least 55% are males.

   2a. Seal bear hides and skull, age teeth, analyze data.

   2b. Determine the sustainable harvest for Subunit 20B based on harvest data and research findings.

3. Subunits 20C and 20F: Manage for a harvest of black bears that maintains 50% or more males in the combined harvests from both subunits from the most recent 3 years.

   3a. Seal bear hides and skull, age teeth, analyze data.

Work Accomplished During the Project Segment Period: Preliminary counts of sealing certificates indicate the following:

1. In Subunit 20A, 65% (88/136) of black bears of known sex harvested from 1990-91 through 1992-93 were males. Most (66%, 90/137) of the harvest was taken in spring.

2. In Subunit 20B, reported harvest for 1992-93 thus far (162) is about twice that reported for 1991-92 (81) and is similar to the 1990-91 harvest (157). Fifty-nine percent (73/123) of the bears of known sex harvested in Subunit 20B in 1992-93 were males. Preliminary counts of overlays indicate that 561 hunters registered in Fairbanks to hunt black bears over a bait station in spring 1993.

   To better understand the population dynamics and distribution of black bears in Interior Alaska, we assisted on a research project to study black bears on the Tanana Flats. During fall 1992, we located radiocollared denning bears with aerial

radio telemetry to help locate bears in spring for the recollaring aspect of the project. In March 1993, we deployed 11 new radiocollars; 8 replacements on previously collared bears, and 3 on previously unmarked bears (adult female and 2 of her female offspring). We eartagged 3 additional unmarked bears (2 yearlings, 1 male two year-old from the new adult females' litter). After this spring, functioning radiocollars were on 11 black bears.

This research project indicates that Interior Alaska black bears have lower reproductive rates than bears in other areas. Although female black bears at lower latitudes usually wean their young as yearlings, females in this study weaned their young at an older age. We captured 2 adult females that shared their den with their yearling offspring. Another adult female denned with her three 2-year-olds, and reused her 1990-91 den.

The age of first reproduction for black bears in this area may be higher than we thought. Our documentation of the age of first reproduction included a 6-year-old female that had 2 cubs, a 7-year-old female that had 3 cubs, and an 8-year-old female was still barren. Based on the difference between the number of cubs documented in the dens in 1991-92 and the number of yearlings in dens the following year, we assume at least 2 of 5 cubs died in 1992. Body weights were higher in spring 1992 than in spring 1993 for some females. One female weighed 140 pounds in spring 1992 with 3 yearlings, but only weighed 98 pounds when she was recollared in spring 1993 with 3 2-year-olds. This information about population dynamics will be used to examine harvest regimes more thoroughly.

3. In Subunits 20C and 20F combined, 71% (110/152) of the bears of known sex harvested from 1990-91 through 1992-93 were males. The total harvest during this 3-year period included 156 bears.

Progress Toward Meeting Project Objectives: We are meeting our objectives for black bear management in Subunits 20A, 20C, and 20F. Harvests continue to be light, relative to the area's size, and the percent males in the harvest is well-above our objectives.

We are not meeting the harvest objectives for Subunit 20B. The high harvests in 1990-91 (157) and 1992-93 (162) exceeded our objective for ≤150 bears and have raised concern about sustainable harvest. The percentage of males in the 1992-93 harvest (59%) met our objective for at least 55% males but was the lowest we have recorded since at least 1985-86. During the next report period, we plan to examine black bear harvest more thoroughly in light of new research findings about reproductive rates to ensure that high harvests of black bears do not compromise the population.

We recommend adding the following to the objectives and activities for this unit:

2c. Monitor black bear baiting with registration permits.

2d. Cooperate with the research project to study the population dynamics of black bears on the Tanana Flats.

4. Provide information and assistance to the public and to agencies.

Subunit 20D

Project Objectives and Activities:

1. Manage for a harvest not to exceed 15 black bears south of the Tanana River, and 15 black bears north of the Tanana River. Reevaluate harvest goals when estimates of black bear density are available.

   1a. Seal bears and analyze harvest data.

Work Accomplished During the Project Segment Period:

1. The preliminary reported harvest was 17 black bears during the 1992-93 regulatory year. Ten bears were taken south of the Tanana River and consisted of 6 males, 3 females, and 1 unknown. Seven bears were taken north of the Tanana River, and consisted of 6 males and 1 unknown.

Progress Towards Meeting Project Objectives: Management objectives were met during this report period. Harvest did not exceed objectives, harvested bears were sealed and harvest was analyzed.

Segment Period Project Costs:

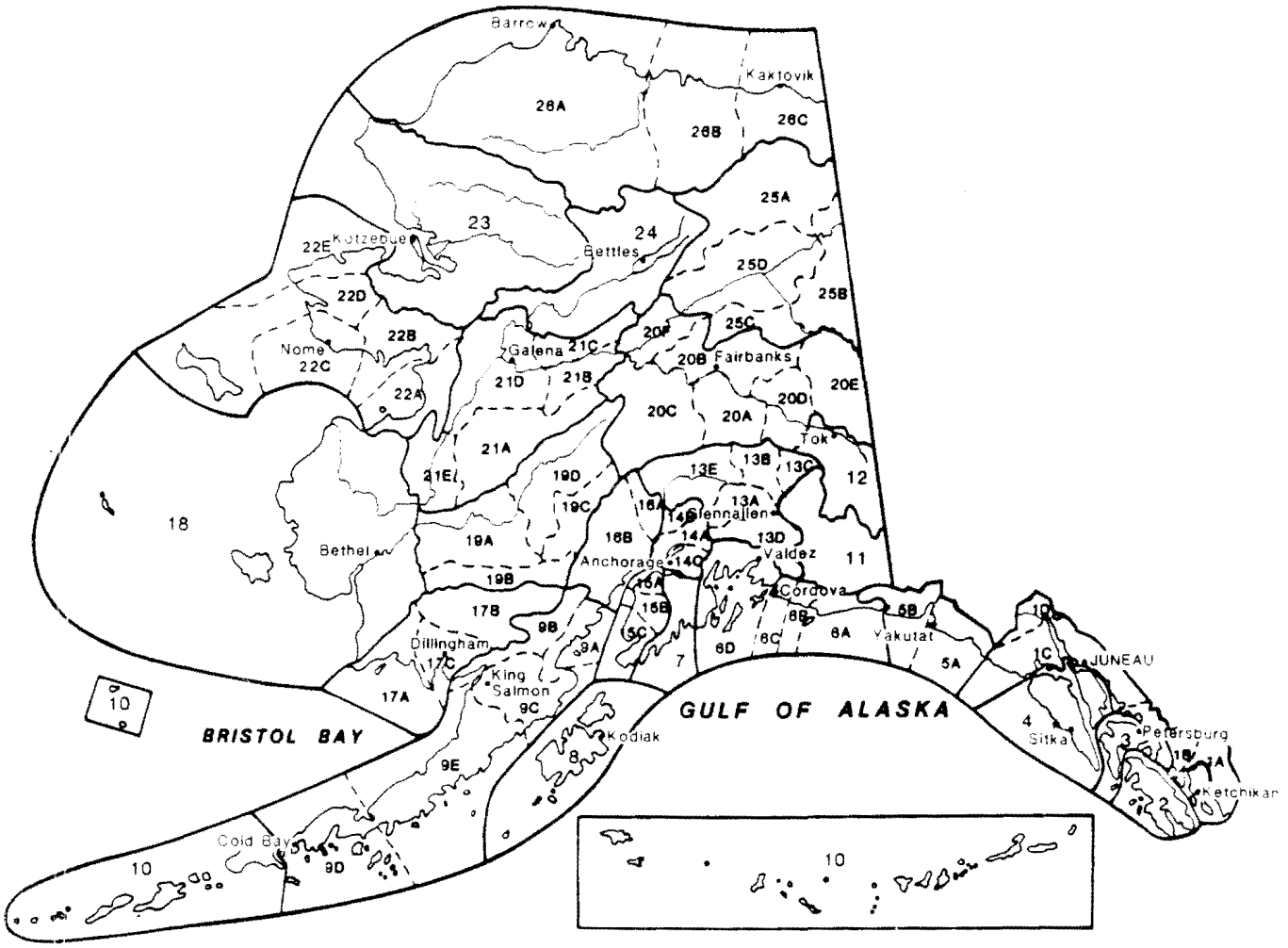
	Personnel	Operating	Total
Planned	27.3	2.0	29.3
Actual	13.7	1.5	15.2
Difference	13.6	0.5	14.1

Explanation: Reductions in budget allocation resulted in less personnel funds available for black bear work.

Submitted by:

Kenton P. Taylor
Regional Management Coordinator

Alaska's Game Management Units



Federal Aid in Wildlife Restoration

The Federal Aid in Wildlife Restoration Program consists of funds from a 10% to 11% manufacturer's excise tax collected from the sales of handguns, sporting rifles, shotguns, ammunition, and archery equipment. The Federal Aid program then allots the funds back to states through a formula based on each state's geographic area and the number of paid hunting license holders in the state. Alaska receives 5% of the revenues collected each year, the maximum allowed. The Alaska Department of Fish and Game uses the funds to help restore, conserve, manage, and enhance wild birds and mammals for the public benefit. These funds are also used to educate hunters to develop the skills, knowledge, and attitudes necessary to be reponsible hunters. Seventy-five percent of the funds for this project are from Federal Aid.