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Division of Wildlife Conservation

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BROWN BEAR

Mary V. Hicks, Editor

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Project Title: **Southeast Brown Bear Population Management**

Project Location: Unit 1 (18,600 mi^2)
Southeast Alaska mainland from Dixon Entrance to Cape Fairweather and those islands east of Clarence Strait from Dixon Entrance to Caamano Point and all islands in Stephens Passage and Lynn Canal north of Taku Inlet

Project Objectives and Activities:

1. Maintain an average age of harvested males of at least 6.5 years and a male to female harvest ratio of at least 3:2.

2. Reduce the number of bears killed because of garbage habituation.

Work Accomplished During the Project Segment Period: For the sixth consecutive season, we collected harvest data through mandatory registration permits. We required all permittees to report if they hunted. Successful hunters were required to present hides and skulls for sealing within 30 days of the kill date. We measured skulls from harvested bears and extracted a premolar tooth to determine age. We also collected additional harvest-related data and anecdotal information at the time of sealing.

Progress Meeting Project Objectives: Hunters harvested 32 brown bears from Unit 1 this report period. One of these bears, an adult female, was killed in defense of life and property by a Haines resident in Subunit 1D. An adult male was also killed in Subunit 1D by a nonresident during an undercover law enforcement operation. The harvest of 19 males (59%) and 13 females (41%) was slightly below our 3:2 male to female harvest objective. Harvests by subunit included 4 males and 4 females from Subunit 1A, 5 males from 1B, 2 males and 1 female from 1C, and 8 males and 8 females from 1D.

The average male skull size was 21.8 inches (n = 18), 0.2 inches smaller than the previous season's average. The average size of female skulls was 20.6 inches (n = 12), 0.3 inches higher than the previous season's.

We issued 291 registration permits during this report period. There were 117 unsuccessful permittees, 141 nonhunters, and 3 who did not respond. Nonresident hunters harvested 13 bears and residents took 19 bears. Age data for 1994/95 are not yet available. Average ages for males and females taken during the 1993/94 season were 6.4 years (n = 16) and 3.4 years (n = 5), respectively. This did not meet our objective of maintaining an average of 6.5 years for harvested males.

Project Location: Unit 4 (5,800 mi^2)
Admiralty, Baranof, Chichagof, and adjacent islands

Project Objectives And Activities:

1. Maintain an average age of harvested males of at least 6.5 years with a male to female harvest ratio of at least 3:2.

2. Reduce the number of bears killed because of garbage habituation.

3. Monitor the harvest, seal harvested bears, and analyze harvest data.

4. Monitor use of the Pack Creek viewing area on the Stan Price Wildlife Sanctuary.

Work Accomplished During the Project Segment Period: We issued 501 registration permits to bear hunters. Skull length and width measurements were taken, a premolar was extracted, the hide was examined for evidence of sex, and other pertinent data were noted. Teeth were aged by counting cementum annuli. We tried to reduce brown bear loss to defense of life and property (DLP) incidents through public education and contact with other agencies. Biologists and technicians contacted visitors at Pack Creek throughout July and August to explain regulations of the Stan Price Wildlife Sanctuary, prevent loss of bears to DLP, promote public safety, and provide bear life history.

Progress Meeting Project Objectives: Age data from harvested bears were not available by report time. Preliminary registration permit data documents 111 bears taken by sport hunters in 1994/95 and 6 bears killed in defense of life and property(DLP). The sex ratio for all 117 bears was 87 males and 30 females (a 5.8:2 male to female ratio). Seventeen percent of the year's hunter harvest occurred in the fall. The distribution of the hunter harvest was 49 percent from Chichagof Island, 39 percent from Admiralty Island, and 18 percent from Baranof Island. Twelve hundred eighty-five people visited the Stan Price Wildlife Sanctuary to view brown bears.

Project Location: Unit 5 (5,800 mi^2)
Cape Fairweather to Icy Bay, eastern gulf coast

Project Objectives and Activities:

1. Maintain an average age of harvested males of at least 6.5 years with a male to female harvest ratio of at least 3:2.

2. Reduce the number of bears killed because of garbage habituation.

3. Monitor the harvest, seal harvested bears, and analyze data.

Work Accomplished During the Project Segment Period: Bears were sealed in Yakutat and Anchorage. We analyzed harvest from sealing certificates.

Progress Meeting Project Objectives: Age data for bears taken during the 1994/95 season were not available at the time of this report. For the previous regulatory year, the average Unit 5 brown bear age was 6.7 years, meeting the management objective. The objective of a 3:2 male to female kill ratio was met (7.2:2). Hunters harvested 24 bears (19 males, 5 females), 6 less than the previous year's harvest. 1994 was the second year in a row that harvest decreased. The ratio of females in the harvest fell from 34% in regulatory year 1993 to 21%. The harvest is slightly smaller than the 1986-1992 average of 33. Successful hunters spent 111 days afield, averaging

4.6 days per hunter. Because this subunit is managed as a general hunt, no measure of total hunting effort is available. Only 3 of the 24 kills, all males, were in Subunit 5B; the remainder were from 5A. No bear kills were reported from defense of life and property.

Wildlife Division staff attended a July 1994 planning meeting in Yakutat with Federal land managers to discuss a possible study to estimate the size of the Unit 5 brown bear population. The study was proposed because of a liberalized federal subsistence season. Although a preliminary study was agreed upon, no federal funding was appropriated. No bears were reported taken under the federal season.

Segment Period Project Costs:

	Personnel	Operating	Total
Planned	20.6	9.1	29.7
Actual	27.5	12.5	40.0
Difference	-6.9	-3.4	-10.3

Additional staff time was spent analyzing Unit 4 harvest and population data for Board of Game and the Committee on Southeast Bears.

Submitted by:

Bruce Dinneford
Management Coordinator

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

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

Project Objectives: Maintain a brown bear population that will sustain an annual harvest of 35 bears composed of at least 60% males with a minimum average male skull size of 23 inches.

Work Accomplished During the Project Segment Period: Fifteen bears (5 males, 9 females and 1 undetermined sex) were harvested during fall 1994. Preliminary harvest data for spring 1995 indicated an additional 9 bears (7 males and 2 undetermined sex) were taken. Males composed 57% of the harvest that sex was determined, and mean skull size for males was 23.4 inches. Final harvest numbers for spring will be available fall 1995.

Progress Meeting Project Objectives: We achieved population and skull size objectives. However, percent males was slightly below our objective. This occurred because of an unusually high harvest of females in Subunit 6A during fall 1994. Harvest will be closely monitored in this subunit during the next several years to determine if season changes are needed.

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

Project Objectives: Maintain an estimated population of 250 brown bears with a sex and age structure that will sustain a harvest comprised of at least 60% males.

Work Accomplished During the Project Segment Period: Preliminary harvest reports indicated annual harvest levels increased above management objectives. Thirteen bears (7 males and 6 females) were harvested in the fall, including 2 male bears in Unit 7. An additional 8 bears were reported in the spring of 1995 (4 males and 4 females), including 2 females in Unit 7. Final harvest numbers and statistics will be available in November 1995.

Nuisance bears remained a substantial problem on the Kenai. Seven of the 13 bears (54%) reported were taken in defense of life and property. Two nuisance yearling bears were trapped and moved during spring 1994. A third bear was trapped in the Ninilchik area and moved to the Mystery Creek area. All three bears were eventually taken in DLP. Sows associated with these bears did not return to the areas where their young were trapped.

Progress Meeting Project Objectives: Following the reduction in the 1989 season, brown bear harvests declined slightly then increased above objective levels. In 1994 the Board of Game shortened and moved the fall hunting season to 1-25 October. Additionally, we recommended closure of the 1995 fall season by emergency order because of the high proportion of females taken this regulatory year and the increasing trend in DLP mortality.

Logging associated with the bark beetle epidemic will be the major factor affecting brown bear habitat on the Kenai Peninsula. Over 6,000 acres were logged during this reporting period, and additional forested lands will be cut during the next regulatory year.

Project Location: Unit 8 (5,100 mi^2)
Kodiak and adjacent islands

Project Objectives: Maintain a brown bear population that will sustain an annual harvest of 150 bears comprised of at least 60% males.

Work Accomplished During the Project Segment Period: Working cooperatively with the U.S. Fish and Wildlife Service (FWS), we conducted aerial surveys in a 286 km^2 area in the Spiridon Bay and south arm of Uganik Bay drainages during May 1995. We completed 4 replicate surveys and observed an average of 5.4 bears/100 km^2. Compared with the bear density observed in 4 study areas previously surveyed, the Spiridon area ranked slightly above Olga Lakes (5.1 bears/100 km^2) and well below Karluk Lake (29.7 bears/100 km^2). This "intensive aerial survey" (IAS) technique is useful for comparing relative abundance in different areas, and it may be a useful population trend index.

Aerial composition surveys were along selected streams on the Kodiak National Wildlife Refuge by FWS personnel during July and August 1994. Population composition of the 502 bears observed in 5 replicate surveys was 47% single; 17% maternal females; 13% cubs <1-year-old and 22% cubs >1-year-old.

We estimated the bear population in Unit 8 to be 2040 based upon aerial surveys and 2800 by extrapolating from capture-mark-resight studies and intensive aerial surveys. These estimates were approximately 5% higher than a previous estimate in 1987.

We issued hunting permits to 477 people: 187 fall permits and 209 spring permits. During the 1993 fall season, 165 hunters went afield and killed 57 bears. In the spring season, 256 hunters went afield and they killed 98 bears. The annual harvest was 155 bears, 107 males (69%), 48 females (31%). An additional 16 nonsport mortalities were documented as follows: defense of life/property - 9 (4 males, and 5 females); illegal - 4 (2 males, 1 female and 1 undetermined sex); natural/unknown - 3 (1 male and 2 undetermined sex).

Progress Meeting Project Objectives: The 1994-95 harvest of 155 was slightly less than the previous 10-year mean of 163 bears, but slightly above the 150 bear harvest objective. Males composed 69% of the harvest, meeting the objective of 60% males.

Responding to our recommendation that an increasing trend in sport harvest be curtailed, the Board of Game adopted a regulation which encourages guided nonresident hunters to harvest males in a portion of southern Kodiak Island. Under the new regulation, nonresident hunters may harvest any male, but only females with a skull width greater than 9 inches or skull length greater than 15 inches are acceptable. The regulation stipulates that for every female harvested below the

minimum skull size requirement, a permit will be deducted from the nonresident allocation in the following year.

The estimate of 2800 bears is well within the range of previous estimates. We believe the current harvest rate, estimated at 5-6% of the population, is sustainable.

Project Location: Units 9 and 10 (37,500 mi^2)
Alaska Peninsula and Unimak Island

Project Objectives: Maintain a high brown bear density with a sex and age structure that will sustain a harvest comprising 60% males with at least 50 males 8 or more years old taken during the combined fall and spring season.

Work Accomplished During the Project Segment Period: The interagency Black Lake study continued during this reporting period with routine monitoring of radiocollared bears. Four replicate stream surveys were conducted at Black Lake in 1994. An average of 204 bears (range 185-223) was seen per survey. Single bears composed 36% of 816 bears classified.

The EVOS study of impacts of the 1989 oil spill continued and evolved into a cooperative study between the department and the National Park Service to evaluate the population dynamics of a high density unhunted bear population. Radiotelemetry monitoring was ongoing.

The brown bear hunting season in Unit 9 was closed during the 1994-95 regulatory year. On Unimak, 4 bears were taken during the fall 1994 season, and 3 bears were harvested during the spring 1995 hunt. In the Naknek drainage, registration permittees killed 10 bears during the fall season and 2 during the spring.

Progress Meeting Project Objectives: Harvest statistics from the 1993-94 season were well within the desired range. The 1993 and 1994 harvests were below recent annual harvests that averaged 275 bears. The extrapolated bear population for areas open to hunting in Unit 9 was 5680, and harvests over the past 4 years represented a harvest rate of 4.5%. Permit hunts were meeting their management objective. However, increased participation in the Naknek registration hunt by nonresidents and military affiliated sportsmen, combined with improved means of transportation, have led to concern that more nonproblem bears were being taken in remote portions of the hunt area.

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

Project Objectives: Maintain a brown bear population largely unaffected by human harvest, with annual harvest averaging less than 30 bears. Human-use objectives are to allow limited human harvests when they do not conflict with management goals for the unit or objectives for the population.

Work Accomplished During the Project Segment Period: We monitored the brown bear harvest in Unit 11 by sealing the hides and skulls of all bears killed. We interviewed hunters at the time of sealing to determine hunting method, means, and effort.

Preliminary harvest data for the 1994-95 season indicated 6 brown bears were killed in Unit 11, well below the 10-year average of 8 bears per year. This harvest total could increase since spring 1995 certificates were still being processed. Nonlocal Alaska residents killed 4 bears and nonresidents killed 2 bears. Successful bear hunters reported using aircraft (3) and 3/4 wheelers (3) as a method of transportation. Successful hunters reported spending an average of only 3 days in the field.

Progress Meeting Project Objectives: Bear harvests in Unit 11 were much lower than the estimated sustainable harvest and did not have a negative effect on unitwide bear population. The proportion of males in the harvest met the 50% minimum in the management guidelines for brown bear harvest in this unit. Although population data for brown bears in Unit 11 were not available, staff and public field observations of bears indicated a relatively abundant and well-distributed population of brown bears. The low harvests of the past 14 years were attributed to increased restrictions on sport hunting and access for subsistence hunting by the National Park Service since 1979, when all of the unit was included in Wrangell St. Elias National Park and Preserve. Recent federal regulations closed subsistence brown bear hunting in Unit 11.

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

Project Objectives: Maintain a population of 800 to 1000 brown bears, as estimated from trend data in intensive study areas. The human-use objective is to maintain an average harvest of less than 6% of the extrapolated population estimate.

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

Preliminary harvest data for the 1994-95 hunting season indicated 99 brown bears were taken by hunters. This preliminary figure was 33 bears more than taken in 1993-94 and above the 1989-93, 5-year average. There were 61 bears (49% males) taken during the fall of 1994 and 27 (71% males) in the spring of 1995. This spring harvest figure could increase as sealing certificates were still being processed. Males composed 58% of the overall harvest. Unit residents killed 10 bears, other Alaska residents took 57 animals, and nonresidents harvested 32 bears. During the fall, hunters used aircraft (32%), 3/4 wheelers (30%), and horses (13%) as methods of transport. Hunters used snowmachines (32%), highway vehicles (24%), and aircraft (22%) during the spring hunt. Skull size and age data of harvested bears were not available for this report.

Progress Meeting Project Objectives: Preliminary harvest figures for the 1994-95 season indicate the number of brown bears taken in Unit 13 increased from the previous year's kill.

Although the harvest increased, it was below the record high harvests of the mid to late 1980s. The percentage of males exceeded that of females in the yearly harvest, but females exceeded males in the 1994 fall harvest. Historically, females have composed a higher proportion of the bears taken early September by hunters primarily seeking moose and caribou.

Determining a population trend and sustainable harvest rate for brown bears in Unit 13 has been difficult. Brown bear density estimates from 2 study areas in Subunit 13E had differing results. In accessible portions of 13E, bear density estimates declined. However, in more remote portions of 13E, density estimates showed no change. Recent brown bear harvests in Subunit 13E have exceeded calculated sustainable rates. Based on calculated population reductions in 13E, due to high harvests, the recent density estimate was expected to decline. Because bear numbers did not decline in remote portions of heavily harvested 13E, it is possible the recent harvest level may be sustainable in all but the most accessible and heavily hunted areas of Subunit 13E.

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

Project Objectives: Maintain a population of at least 160 brown bears and a sex and age structure that will sustain a harvest of at least 60% males.

Work Accomplished During the Project Segment Period: During this reporting period, we sealed 9 brown bears in Unit 14. Hunters killed 5 bears, 4 in Subunit 14A and 1 in Subunit 14B. No bears were killed in Subunit 14C. The harvest was composed of 60% female bears. Four bears (3 in 14A and 1 in 14B) were killed DLP; all were males. Males composed 67% of the reported kill.

Progress Meeting Project Objectives: We believe the Unit 14 brown bear population is near objective levels. Though hunter harvest failed to reach 60% male bears, total bear kill did exceed that level when DLP bears were added. Bears killed DLP composed 44% of reported mortality. Ever expanding development throughout the unit will likely make DLP a larger component of the total kill. Educating the public on bear behavior and increasing public awareness that garbage, livestock, salmon streams, bee hives and dog food attract bears should be included in overall division objectives.

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

Project Objectives: Maintain a brown bear population that seems largely unaffected by human harvest. Human-use objectives are to allow optimum opportunity to hunt brown bears while sustaining a 3-year average harvest of 50 to 60 bears which includes less than 2 females, less than 2 years-old from Subunit 16A, and less than 17 females, less than 2 years-old from Subunit 16B.

Work Accomplished During the Project Segment Period: We sealed 49 brown bears from Unit 16. This included 7 bears taken in Subunit 16A and 42 in Subunit 16B. Seventy-eight percent of the harvest was males. The harvest included 3 females in Subunit 16A and 11 females from Subunit 16B. Ages of females were not available.

The 1992-94 average harvest was 57.3 bears. If all females sealed this year were older than 2-years-old, the 3-year average would be 18.7 females >2-years-old.

Progress Meeting Project Objectives: Status of the brown bear population in Unit 16 was uncertain: harvest trends indicated a declining availability to hunters, yet several hunters and residents of the unit reported increased abundance of bears.

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

Project Objectives: Maintain a brown bear population that will sustain an annual harvest of 50 bears comprising at least 50% males.

Work Accomplished During the Project Segment Period: Preliminary data indicate a reported harvest of 40 brown bears, including 22 males (55%) and 18 females (45%) during the 1994-95 season. Average skull size was 21.2 inches for males and 21.4 inches for females. Nonresident hunters reported killing 34 bears (85%), nonlocal residents killed 2 bears (5%), and unit residents killed 4 bears (10%). Most successful hunters used aircraft for access (83%).

Thirty-six bears (18 males, 18 females) were killed during the fall 1994 season, and 4 males were killed during spring 1995. Three bears (females) were killed in Subunit 17A, 27 (15 males, 12 females) in Subunit 17B, and 10 (7 males, 3 females) in Subunit 17C.

Seven brown bears (4 males, 2 females and 1 undetermined sex) were killed in defense of life or property during this reporting period. Four bears were killed within villages, 2 at remote camps and 1 was killed by a caribou hunter. Two were killed in Subunit 17B and 5 in Subunit 17C.

Progress Meeting Project Objectives: Objective data were not available on the population density of brown bears in the unit. There is also a scarcity of information on bears shot in defense of life or property and illegal kills. Subjective evidence indicated the unitwide population of brown bears was stable.

A joint ADF&G/FWS research project was started during the spring of 1992 and continued during this reporting period. The objectives of this project are to estimate bear densities, collect baseline population data, and to delineate habitat-use patterns for brown bears in portions of the Togiak and Yukon Delta National Wildlife Refuges (Subunit 17A and 18). Bears radiocollared in 1993-94 were tracked at least twice per month. The 1995 collaring project was canceled because of ethical concerns raised by the Association of Village Council Presidents (AVCP). The future of this project in uncertain. The department, FWS, and AVCP have formed a brown bear

management team to explore ways to achieve the objectives of the project while being sensitive to traditional Yupik customs.

During this reporting period, I continued monitoring bears using the Dillingham dump. Forty-one individual bears were identified at the dump during the summer of 1994. The dump is scheduled to be closed within the next two years. I have been working with the City of Dillingham to devise ways to reduce bear use of the dump and minimize detrimental effects on bears and local citizens by the closure.

In an effort to reduce nuisance bear complaints and illegal kills, a public education effort has been initiated in the unit. Radio announcements, public meetings, and a weekly newspaper article are being used to teach rural residents about bear behavior and to disseminate advice on how to deal with bear problems. The department is working with local city and village government representatives and Dillingham city police to enforce regulations when bear problems are caused by improper food or garbage storage.

Segment Period Project Costs:

	Personnel	Operating	Total
Planned	103.7	16.3	120.0
Actual	103.7	16.3	120.0
Difference	0	0	0

Submitted by:

Jeff Hughes
Management Coordinator

Project Title: **Region III Brown Bear Population Management**

Project Location: Unit 12

Project Objectives and Activities:

1. Manage harvests so the 3-year mean harvest does not exceed 24 bears and has at least 55% males in the harvest.

2. Seal bears; analyze harvest data.

Work Accomplished During the Project Segment Period: During FY95, the preliminary reported harvest was 15 grizzly bears (8 males and 7 females) in Unit 12. The harvest was comparable to the 5-year annual average (16). Males composed 53% of the harvest. Eleven (73%) were taken during fall and 4 during spring (27%). Most harvest occurred in the Wrangell/Nutzotin Mts. in the Mentasta Mts. within the Tetlin or Little Tok River drainages, or in the Alaska Range within the Tok River drainage. One additional bear was taken in defense of life or property.

Progress Meeting Project Objectives: The 3-year mean harvest average was 19 bears, and the percentage of males in the harvest has been 59% which meets the management objective. Harvest density has been excessive in several of the most popular hunting areas and has caused a population decline. Overall, most of the unit is seldom used for grizzly bear hunting, and the population is remaining stable. Future grizzly bear harvest in Unit 12 is expected to remain comparable to the FY95 harvest as long as access into the unit remains the same.

Project Location: Unit 19

Project Objectives and Activities:

1. Manage grizzly bear populations to provide a mean annual harvest of 30 bears with a minimum of 50% males in the harvest.

2. Increase legal harvests of grizzly bears in and around villages, fish camps, and other human habitations during open seasons to reduce human-bear conflicts during closed seasons.

3. Monitor harvest, seal bears, and analyze harvest data.

Work Accomplished During the Project Segment Period: Final data are not yet available concerning the harvest of brown bears from the area for the 1994-95 regulatory year. Data available as of late 1995 for the 1993-94 grizzly bear harvest in Unit 19 indicate a harvest of 44 bears. This is consistent with the predictions, given the increased season length.

Area Fish and Wildlife Protection Officers have noted an increase in defense of life and property (DLP) problems resulting in an increase in bears being dispatched. During summer 1995, two 2-year old grizzlies were shot in McGrath. During summer 1995, an additional sow with a yearling has been sighted several times in the village. This is the first time in over 40 years that long-term residents have noted grizzlies in McGrath, perhaps indicating an increase in bear populations in the vicinity.

Progress Meeting Project Objectives: We continued monitoring Unit 19 harvest by sealing harvested bears. Efforts have continued in area villages and fish camps to educate residents to alleviate chronic DLP problems.

Project Location: Units 20A, 20B, 20C, 20F, and 25C

Project Objectives and Activities:

Unit 20A Mountains:

1. Decrease harvest rates until at least 1995 by managing for a 3-year mean annual (calendar year) harvest of no more than 3% of the adult females (≥6 years old) and no more than 6% of the grizzly bears ≥2 years old.

2. Cooperate in a new research project (W-24-1, Study 4.25) having these objectives:
   a. To determine the recovery or stabilization time for a reduced grizzly bear population following reductions in human-caused mortality rates.
   b. To measure the recovery responses in the dynamics of the population, especially female population size, total population size, and production and survival of offspring.

Unit 20B East: (East of a line drawn north from Fairbanks through Haystack Mountain)

1. Manage total human-caused grizzly mortality to provide a stable population with a 3-year mean annual (calendar year) harvest of up to 6 bears ≥2 years old, with an average of at least 55% males in the harvest by hunters.

Units 20A Flats, 20B West, 20C, 20F, and 25C Combined:

1. Manage harvest to provide stable grizzly bear populations with a 3-year mean annual (calendar year) human-caused mortality of up to 26 grizzly bears ≥2 years old, with an average of at least 55% males in the harvest by hunters.

2. Manage the 3-year mean annual (calendar year) grizzly bear harvests from individual areas with the following quotas: 3 from Unit 20A Flats, 3 from Unit 20B West, 7 from Unit 20C, 7 from Unit 20F, and 6 from Unit 25C.

All Units:

1. Minimize human-bear conflicts by providing information and assistance to the public and agencies.

Work Accomplished During the Project Segment Period: Preliminary counts of sealing certificates indicate in fall 1994 we sealed 6 grizzly bears from Unit 20A Mountains (2 males and 4 females); 2 from Unit 20B East; 8 from Unit 20C; 1 from Unit 25C; and none from Units 20A Flats or 20F. We do not yet have any reported harvest from spring 1995 or any cementum ages from any bears taken during the 1994-95 regulatory year. To analyze our objectives, we examined harvest by calendar year, rather than regulatory year, to avoid combining age data from several cohorts in one regulatory year.

Progress Meeting Objectives:

Unit 20A Mountains: Our spring 1992 estimate of the grizzly bear population in Unit 20A Mountains included 33 adult females (6 years or older) and 111 bears 2 years or older. Our objectives were to limit the 3-year mean (calendar year) harvest to no more than 1 adult female (3%) and 7 bears 2 years or older (6%). Although we do not yet have ages for bears killed during fall 1994, we probably met our objective to limit the mean harvest to 1 adult female. Two adult females were killed in 1992, and none were killed in 1993 or 1994, although ages for the 4 females killed in fall 1994 are not yet available.

The 3-year mean harvest of 12.2 bears 2 years or older is nearly twice as high as our objective of 7 bears. Twenty bears 2 years and older were killed in 1992, 9 in 1993, and 8 in 1994 (although ages for the 6 bears taken in fall 1994 are not available yet). We assumed that all bears of unknown age are 2 years or older.

We did several things to reduce the harvest, especially of adult females. We submitted a proposal to the Board of Game to shorten the fall grizzly bear hunting season in Unit 20A by 9 days. The board adopted the proposal and, beginning in fall 1994, the hunting season opened Sept. 10 instead of Sept. 1. In addition, we solicited the public's help in reducing the harvest of adult females. We printed and distributed small decals reminding hunters to "take a closer look" to determine the sex of bears they want to harvest. The decals describe physical and behavioral characteristics of adult males. These characteristics are explained in detail in a video we recommend called *Take a Closer Look*. We also designed and printed wallet-sized cards illustrating the differences between grizzly bears and black bears, including profiles, tracks, etc.

During the next reporting period, we will work with the research biologist to modify this objective slightly to identify what population estimate will be used to estimate percent harvested.

Unit 20B East: The 3-year mean (1992-1994) human-caused mortality of 5 grizzly bears in Unit 20B East met our objective for up to 6 bears. In addition, 62% (8/13) of bears harvested by hunters were males, so we met our objective for at least 55% males.

Units 20A Flats, 20B West, 20C, 20F, and 25C: Assuming that all bears of unknown age were at least 2 years old, we met our objective to manage for a 3-year mean harvest of up to 26 bears 2 years or older in these combined units. From 1992-94, 33 grizzly bears 2 years or older were harvested here, which is a 3-year mean of 11 bears per year and less than half of our objective. In addition, 72% (18/25) of the harvest by hunters were males, meeting our objective for at least 55% males.

The 3-year mean annual human-caused mortality for individual areas included 3.3 from Unit 20A Flats, 1.7 from Unit 20B West, 4.7 from Unit 20C, 1 from Unit 20F, and 1.3 from Unit 25C. This harvest only exceeded our quota in Unit 20A Flats, which had an objective of 3 bears. The objective was met in the 20A Flats mainly due to one incident in which 5 bears were killed illegally.

We recommend the objective for decreasing harvest rates in the Unit 20A Mountains be revised to continue until at least 1997. By then, we should have updated population estimates to use in reevaluating the population dynamics.

Project Location: Unit 20D

Project Objectives and Activities:

1. In Unit 20D south of the Tanana River, manage a stable bear population to provide a mean annual harvest not to exceed 5% of the estimated population >2 years old, with a minimum of 60% males in the kill.
   a. Monitor harvest, seal bears, and analyze harvest data.

2. In Unit 20D north of the Tanana River, increase the mean annual harvest of grizzly bears to 8-10% of the estimated population >2 years old until moose calf survival increases in the area to at least 30 calves:100 cows for 3 consecutive years.
   a. Monitor harvest, seal bears, and analyze harvest data.

Work Accomplished During the Project Segment Period: Preliminary reported harvest is 6 grizzly bears in Unit 20D during the 1994-95 regulatory year. All 6 bears were taken south of the Tanana River and consisted of 3 males and 3 females.

The Alaska Board of Game adopted regulations implementing intensive management of predators and prey in Unit 20D. Grizzly bear hunting seasons and bag limits were liberalized in portions of Unit 20D to implement this program.

Progress Meeting Project Objectives: We sealed bears and analyzed harvest data. The overall harvest objective was met in southern Unit 20D, but harvest continues to be below the objective for northern Unit 20D. Intensive management of predators and prey includes liberalizing grizzly bear hunting seasons and bag limits in portions of Unit 20D.

Project Location: Unit 20E

Project Objectives and Activities:

1. Manage to effect temporary reductions in the grizzly bear population or extent of bear predation where bear predation is limiting moose population growth (e.g., fall calf:cow ratios <30:100).

2. Manage the grizzly bear population in this unit at a level capable of sustaining a harvest of 25 bears annually.

3. After moose populations increase to desired levels, reduce bear harvests to stop or reverse bear population declines.

Work Accomplished During the Project Segment Period: During FY95, the preliminary reported harvest was 11 grizzly bears (7 males and 4 females) in Unit 20E below the 5-year average of 14 bears. Males represented 64% of the harvest. Ten bears (91%) were taken in the fall and 1(9%) during the spring. No bears were taken in defense of life or property, but 2 yearling cubs were harvested illegally. The hunters responsible for this illegal harvest were apprehended and cited.

Progress Meeting Project Objectives: The majority of the grizzly bear harvest occurs in the central portion of the unit. Harvest density in this area has ranged between 1.9 and 4.4 bears/1000 mi^2 and has averaged 3.34 between 1982 and 1993. The bear population is estimated to have declined by 38% since the enactment of liberal bear hunting regulations in 1981. In the remainder of the unit, the harvest density averaged 0.2/1000 mi^2 and probably has had little effect on population trend. The percentage of males in the bear harvest the past 3 years has averaged 54. The harvest objective of sustaining a harvest of 25 grizzly bears can still be met, but it will require hunters to pioneer new areas in Unit 20E difficult to access. Through public contact, we are trying to distribute hunters more evenly throughout the season and shift some of the fall pressure to the spring season.

We have evaluated the effects of the grizzly bear population reduction in the central portion of the unit on moose calf survival. To date, the reduction has not been adequate to cause an increase in moose calf survival. We are now starting to evaluate the possible effects of a low-density moose population, few alternate prey, and the effects of wolves on the amount of bear population reduction necessary to benefit moose calf survival. I recommend we continue the liberal season and bag limits for a couple more years to investigate further the effects of a harvest-caused bear reduction on calf survival. If by 1998 we find this method does not work adequately under the environmental conditions in Unit 20E, we will recommend the grizzly bear management objectives become more restrictive.

Project Location: Unit 21

Project Objectives and Activities:

1. Manage a grizzly population which will sustain a minimum annual harvest of 10 bears.

2. Monitor harvest, seal bears, and analyze harvest data.

3. Reduce nuisance bear interactions and the unreported harvest of those bears at fish camps during summer by increasing the legal harvest during the open season.

4. Visit schools and fish camps to educate people on bear conservation.

Work Accomplished During the Project Segment Period: During this report period, 4 male and 4 female bears were taken, 4 of which were harvested during fall. Reporting of bears taken in defense of life or property is usually poor in the unit, and an additional 3 to 5 bears may have been taken.

We made progress on unreported harvest through conservation education during school visits.

Progress Meeting Project Objectives: Management is based on harvest data. We made minimal progress on changing the objectives and activities for the unit. During 1996, a new objective will be added to determine the unreported harvest to see if it affects conservation of bears in the unit.

Project Location: Unit 24

Project Objectives and Activities:

1. Manage a grizzly population which will sustain a maximum annual harvest of 18 bears in the northern portion of the unit and a maximum harvest of 13 bears in the remainder of the unit.

2. Monitor harvest, seal bears, and analyze harvest data.

3. Reduce nuisance bear complaints, increase sealing compliance, and reduce the unreported harvest of bears in the unit.

4. Visit schools and fish camps to educate people on bear conservation.

5. Determine bear density throughout the unit.

6. Work with the U.S. National Park Service and U.S. Fish and Wildlife Service to initiate a survey plan if funding is available.

Work Accomplished During The Project Segment Period: During the report period, 7 male and 9 female bears were harvested. All but one were taken in the northern portion of the unit. Thirteen bears were taken during fall

Progress on unreported harvest was made through conservation education during school visits. We issued permits for hunting within the Northwest Arctic Bear Management Area; participation and harvest information is reported under Unit 23.

No funding was available to survey bears in the unit.

Progress Meeting Project Objectives: Management is based on harvest data, and harvests are below unit objectives. We made no progress in determining bear density. Progress on unreported harvest was made through conservation education during school visits and regulation changes allowing for subsistence use of bears under the Northwest Arctic Bear Management system.

Project Location: Units 25A, 25B, and 25D

Project Objectives and Activities:

1. Evaluate the effect of liberalized nonresident seasons on the brown bear harvest in Unit 25A.
   a. Communicate with guides to assist them in voluntarily maintaining a harvest in Unit 25A that does not exceed the sustainable harvest of 29 bears while maintaining a minimum of 60% males in the harvest.
   b. Monitor harvest, seal bears, and analyze harvest data.

Work Accomplished During the Project Segment Period: Final harvest figures are unavailable for Units 25A, 25B, and 25D, but harvest levels will probably continue to be well below the maximum. An effort was made, involving discussions with USFWS and guides, to reevaluate the need for and status of the drawing permit hunt in Unit 25A. This led to a department proposal to eliminate the nonresident permit hunts in Units 25A and 26C. The Board of Game approved the proposal effective in regulatory year 1994-95. The permit requirement was replaced with increased communication with guides so we do not exceed a conservative sustainable harvest. This approach is working, and the 1994-95 harvest will be well within sustainable limits. We sent a letter detailing the status of harvest relative to limits to all guides following the fall 1994 season.

Progress Meeting Project Objectives: The population harvest objective has been consistently met during the past 5 years. We revised population estimates, but no large-scale enumeration efforts were possible. We made substantial progress in simplifying hunting regulations, opening lines of communication with guides, and building a more appropriate management program commensurate with bear population status. The existing project objectives and activities are suitable for the next fiscal year.

Project Location: Units 26B and 26C

Project Objectives and Activities:

1. Establish new harvest goals in view of revised population estimates.

2. Evaluate the possibility of a cautious liberalization of harvest by nonresident hunters in Unit 26A through revised permit quotas, establishing a registration permit system, or discontinuing the use of a permit system.

3. Monitor harvest, seal bears, and analyze harvest data.

Work Accomplished During the Project Segment Period: Final harvest figures are unavailable for Units 26B and 26C, although fall harvest was well within harvest goals. In recent years harvest has generally been less than the maximum desired, except in Unit 26B where the harvest goal has been occasionally exceeded by a small amount. We reevaluated the drawing permit system for nonresidents because of changes in federal guide area assignments and revised bear population estimates and the spring 1994 Board of Game's deletion of the permit requirement for nonresidents in Unit 26C. This regulation took effect in FY95.

Major activities during this period included monitoring the fall 1994 harvest and advising guides on the status of harvest relative to sustainable levels so future hunts can be planned.

Progress Meeting Project Objectives: The population harvest objective has been consistently met during the past 5 years. Population estimates have been revised, but no large-scale enumeration efforts were possible. We made substantial progress in opening lines of communication with guides and building a management program more appropriate to the bear population status. Suggested revised management objectives are as follows:

1. Monitor harvest, seal bears, and analyze harvest data for Unit 26B.
2. Evaluate the effect of liberalized nonresident seasons on the brown bear harvest in Unit 26C.
    a. Communicate with guides to assist them in voluntarily maintaining a harvest in Unit 26C that does not exceed the sustainable harvest of 19 bears, while maintaining a minimum of 60% males in the harvest.
    b. Monitor harvest, seal bears, and analyze harvest data.

Segment Period Project Costs:

	Personnel	Operating	Total
Planned	49.2	.5	49.7
Actual	41.5	.4	41.9
Difference	7.7	.1	7.8

Explanation: Additional staff time was necessary for preparing and editing brown bear management reports.

Project Title: **Western Alaska Brown Bear Population Management**

Project Location: Unit 18 (42,000 mi^2)
Yukon-Kuskokwim Delta

Project Objectives and Activities:

1. Maintain brown bear populations at existing densities in Unit 18.
   a. Monitor harvests through the sealing program, the Western Alaska brown bear registration system, and contacts with the public.
   b. Improve compliance with bear harvest reporting requirements.
   c. Improve information about brown bear populations and densities in Unit 18 through a cooperative capture-recapture research project with the U. S. Fish and Wildlife Service (FWS) and the Bureau of Land Management (BLM) in the Kilbuck Mountains.
   d. Improve communication with the public to reduce the magnitude of illegal, unreported, and defense-of-life-or-property kills.

2. Minimize adverse interactions between bears and the public.
   a. Assist the public with nuisance bear problems at villages, camps, dumps, and industrial developments.

3. Develop updated population management objectives in consultation with the public and other agencies.

Work Accomplished During the Project Segment Period: We contacted local residents by telephone, mail, radio and television announcements, and newspaper articles to explain hunting season dates and bag limits, bear tag fees and sealing requirements, and other regulations for brown bears in Unit 18. Brown bear management and improved harvest reporting by local residents was discussed at public meetings. We contacted community leaders, hunters, and law enforcement personnel in an effort to minimize bear-human conflicts at camps and landfills. Public notices were posted at communities explaining different ways to reduce adverse encounters between bears and people.

Formal and informal meetings occurred among representatives of the Association of Village Council Presidents (AVCP), FWS, Subsistence Division, local advisory committees, and local IRA councils to discuss the Western Alaska Brown Bear Management Area (WABBMA), subsistence brown bear registration permit system, harvest information improvement, liberalization of seasons and bag limits, and the ongoing cooperative brown bear research project.

The Department, FWS, and BLM began a cooperative project to capture brown bears and radio-track these animals over a period of 6 years to develop a brown bear density estimate south of the Kuskokwim River. Sealing of harvested bears and reporting by subsistence hunters occurred at

villages, at the Department office in Bethel, and at hunters' residences. Department and AVCP staff interviewed some subsistence hunters concerning their hunting activities.

Progress Meeting Project Objectives: Public notices about bear/landfill problems have improved public awareness of the need to clean these areas. No bears were reported taken in defense of life or property during this regulatory year, even though some bears were frequenting several landfills.

Public announcements, village meetings, and instructions to license vendors, emphasizing the need to purchase resident bear tags or obtain Western Alaska brown bear permits has improved compliance with hunting regulations. Allowing subsistence hunters to register for permits in lieu of the $25 tag and sealing requirements was initially very successful and 99 permits were issued throughout the Yukon-Kuskokwim delta villages during 1992-93. A harvest of 7 male bears was reported. It is hoped that use of these permits, along with elimination of the tag fee and sealing requirements in the WABBMA, will make regulations less intrusive to subsistence hunters and improve our ability to gather harvest information. During the 1993-94 season, we issued 67 Western Alaska Brown Bear Management Area permits.

Final harvest records from the 1992-93 regulatory year indicate 7 bears were reported taken in the WBBMA and 5 bears were sealed under the general hunting regulations. All 7 of the subsistence brown bears were male bears. The general hunt harvest consisted of 1 male bear and 4 female bears. Harvest data for the 1993-94 season will not be finalized until receipt of harvest survey postcards from each hunter.

Community harvest surveys by FWS, AVCP, and a contract anthropologist indicate that subsistence brown bear harvest for the WABBMA was 29 bears. However, this report is still preliminary and includes harvest data from Units 17 and 19 as well as from Unit 18.

Forty-one brown bears were captured and marked during the June 1993 brown bear capture-recapture study in the Kilbuck Mountains. Of these 41 bears, 26 were instrumented with conventional VHF radiocollars. Currently, 21 collars are still active on female bears. A premolar tooth was extracted, blood samples were collected, and measurements and weights were taken from most of the 41 bears captured. Continued monitoring and a second capture is proposed for 1994. We plan to conduct a census and develop a density estimate during June 1995.

During June 1994, the second phase of the mark-recapture project was scheduled to begin. We planned to recapture 8 juvenile bears for refitting their collars and to collar an additional 24 bears. However, recent litigation and an impending injunction in Federal Court forced the project to be delayed for one year. In the meantime, the department, FWS, and village governments held cooperative management planning meetings to emphasize an information/education program for bear management and to consider alternate methods to estimate bear densities with a reasonable level of confidence.

Protection of sensitive and important habitats used by bears is being achieved through comments provided to Habitat Division and to the FWS Refuge Management Planning Team.

Project Location: Unit 22 (25,230 mi^2)
Seward Peninsula and that portion of the Nulato Hills draining west into Norton Sound.

Project Objectives And Activities:

1. Maintain brown bear numbers at existing densities.
   a. Assess harvest through the sealing program.
   b. Collect specimens as needed from hunter-killed bears.
   c. Improve compliance with bear harvest reporting.
2. Minimize adverse interaction between bears and the public.
3. Develop updated management objectives in consultation with the public, interested local organizations, and other agencies.

Work Accomplished During the Project Segment Period: Known human-induced mortality during the reporting period was 45 bears. Hunters took 11 bears (5 males, 5 females, and 1 of unknown sex) during fall 1994, and 27 bears (20 males, 7 females) during spring 1995. One bear was taken in defense of life or property.

Location and chronology of the Unit 22 harvest by sex are as follows:

	Fall 1994			Spring 1995	
Subunit	Males	Females	Unknown	Males	Females
22A	1	0	1	1	0
22B	0	0	0	12	4
22C	3	3	0	1	0
22D	1	2	0	4	2
22E	0	0	0	2	1

Unit 22 residents harvested 32% of the legal harvest; nonresidents and other Alaska residents were responsible for 47% and 21% of the harvest, respectively.

During the reporting period, we participated in numerous meetings and impromptu discussions with unit residents and reindeer herders to discuss methods of reducing adverse bear/human interactions and predation by bears on reindeer.

Department staff and Fish and Wildlife Protection officers traveled to villages to explain the need for regulations and harvest reports and to assist license vendors with their duties. As in past years, we devoted considerable time answering questions from the public, writing newspaper articles, mailing information and regulatory materials, and assisting license vendors.

We also sealed bears at the office in Nome, often after normal business hours, and when we traveled to surrounding villages. A bear sealer is also available in Unalakleet to seal bears taken in the southeast portion of the Unit.

Progress Meeting Project Objectives: Limited progress has been made in reducing bears/human interactions. Some individuals with previous bear problems in camps have made efforts to keep cleaner camps, discouraging bears from visiting.

Discussions with reindeer herders have reduced bear/reindeer interactions by having herders spend more time with their reindeer and herding reindeer to areas where bear densities are lower.

Many residents of Unit 22 dislike brown bears and openly express their desire to have the population completely eliminated. Efforts to inform the public of the importance of wildlife conservation and the need for regulations have been effective in some communities because the number of people purchasing licenses and bear tags has increased. Additional contact with local residents, particularly village residents, needs to occur to achieve compliance with current bear regulations.

Development of a brown bear management plan and updated population objectives has not been completed. We communicated out intent to develop a management plan with unit residents and representatives of several government agencies. We will use responses from the public and other agencies and data from our recently completed bear study to develop a bear management plan for Unit 22.

Project Location: Unit 23 (44,000 mi^2)
Kotzebue Sound and Western Brooks Range

Project Objectives:

1. Maintain brown bear population densities between 1 bear/40 mi^2 and 1 bear/20 mi^2.
2. Improve local residents' compliance with bear harvest reporting requirements.

Work Accomplished During the Project Segment Period: We continued to provide information on the new subsistence brown bear season to local hunters and actively collected harvest data. Eighty-seven registration permits were issued for brown bears in the Northwest Alaska Brown Bear Management Area 1993-1994 subsistence hunt. Seventy-three hunters reported taking 7 bears, (6 males, 1 female). Four of the 7 bears taken were from Unit 23. We issued permits for the 1994-1995 season. Harvest reports are still being returned.

Radiocollars were removed from bears in the Noatak River drainage. Bears had been collared to determine population density before development of the Red Dog Lead-Zinc Mine and for monitoring bear movements and denning locations after the mine was established. The project has been completed.

We monitored the trophy season through sealing requirements.

Trophy Hunt	Fall 1994			Spring 1995		
	Male	Female	Unk.	Male	Female	Unk.
Local Resident	2	1	0	5	0	0
Nonlocal Resident	12	3	0	0	0	0
Nonresident	1	3	0	3	0	0
DLP/accidental	2	0	0	0	0	0
Total	17	7	0 (24)	8	0	0 (8)

Progress Meeting Project Objectives: Based on incidental observations and reports from local residents and hunters, brown bear numbers in Unit 23 are stable or increasing. With low reported harvests and abundant ungulate populations (caribou), the population objective of 1 bear per 20-40 mi^2 is probably being met.

Project Location: Subunit 26A (53,000 mi^2)
Western North Slope

Project Objectives and Activities:

1. Maintain brown bear population level at existing levels in Subunit 26A.
   a. Monitor the harvest through the statewide sealing program.
2. Minimize adverse interactions between bears and the public.
3. Develop updated population management objectives in consultation with the public and other agencies.

Work Accomplished During the Project Segment Period: We conducted a mark-recapture census in the Utukok and Kokolik drainages in Subunit 26A West (west of 159^0 W longitude) during June 1992 using radiocollared bears as the "marked" animals. We estimated a density of 7.7 bears/100 mi^2, and a 95% confidence interval of 7.3 to 8.2 bears/100 mi^2.

The population estimate for bears in Subunit 26A is 900 to 1120 bears; 400 bears are estimated to be in Subunit 26A West and 500-720 are estimated to be in Subunit 26A East. This represents an increase from the pre-1987 population estimate of 645 to 780 bears (Trent 1989).

We have not received all of the data on harvested bears in 1994-95. Based on available information, 19 bears were reported harvested during 1994-95. In Subunit 26A West 6 bears were killed, and in Subunit 26A East (east of 159^0 W. longitude), 13 bears were killed. Twelve bears were males, 3 were females, and 4 were of unknown sex. The mean skull size for harvested males was 21.2 inches, and 18.9 inches for females. Hunters harvested 13 bears during

September and 6 in May. Hunters (13) used aircraft, 1 hunter used a boat, 1 walked, and 4 were unknown transportation. The mean number of days per hunt was 3.9. Fourteen of the successful hunters were nonresidents and 5 were residents.

Information was distributed through the media describing safe camping practices regarding food and garbage and the correct handling of problem bears. We placed posters and pamphlets on bear safety in public locations.

Progress Meeting Project Objectives: If we assume that safe harvest limits should not exceed 4% of the population, the allowable sustained yield for Subunit 26A is 36 to 47 bears. The reported brown bear harvest for 1994-95 of 19 bears is well below this allowable limit. Even if unreported harvest is as high as 50% of the reported harvest, 30 bears would still be within safe harvest limits. In Subunit 26A East where most of the bears were killed during 1994-95, the current harvest of 13 bears was within the allowable limit (20-28). We could consider liberalizing the limit for bears in Subunit 26A.

There were no serious adverse encounters between brown bears and the public reported for Subunit 26A during the segment period. The information distributed to the public on bear safety was well received.

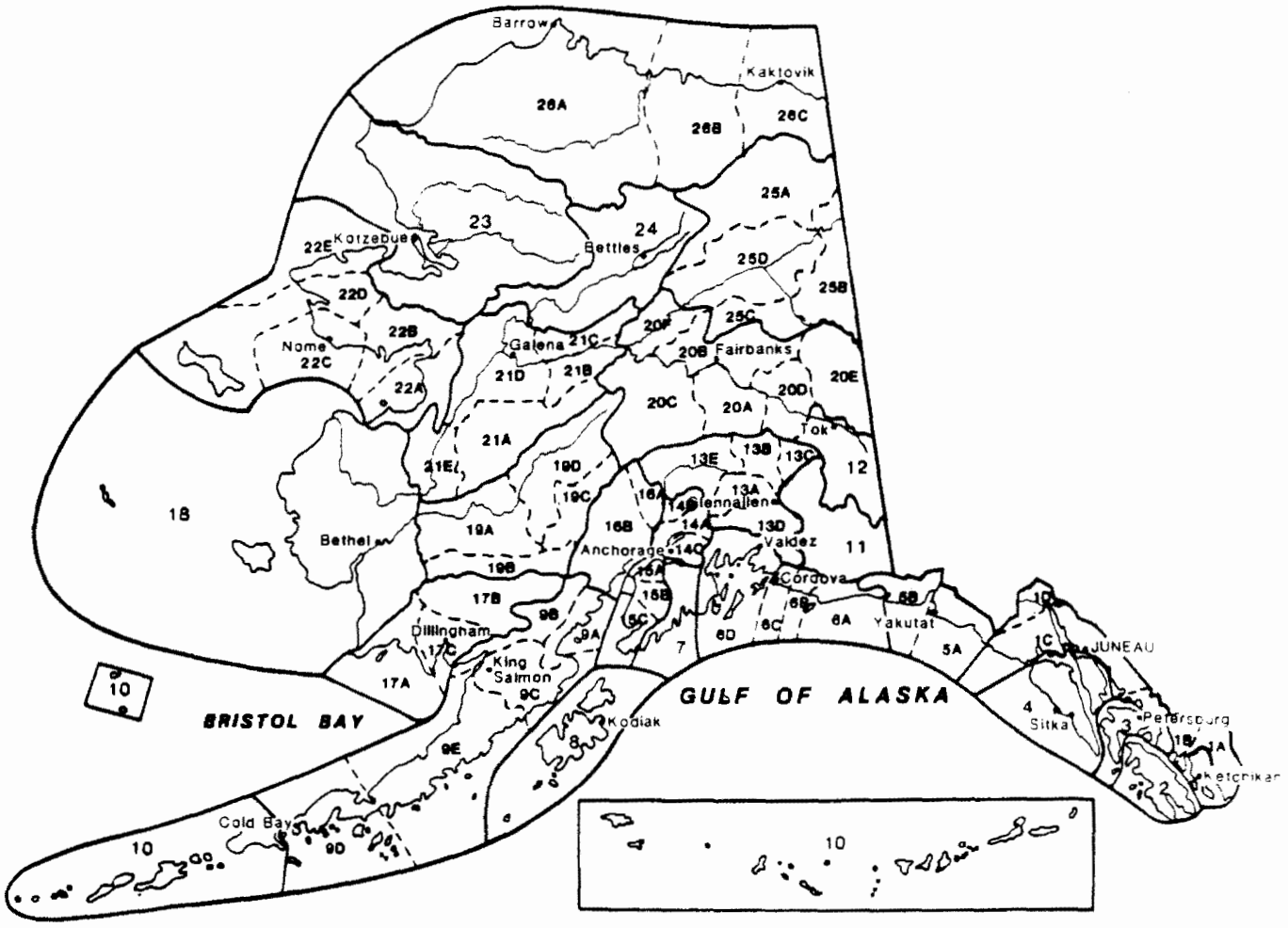
Segment Period Project Costs:

	Personnel	Operating	Total
Planned	3.0	0	3.0
Actual	3.0	0	3.0
Difference	0	0	0

Submitted by:

Steve Machida
Survey-Inventory Coordinator

Alaska's Game Management Units



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 allots funds back to states through a formula based on each state's geographic area and number of paid hunting license holders. Alaska receives a maximum 5% of revenues collected each year. The Alaska Department of Fish and Game uses federal aid funds to help restore, conserve, and manage wild birds and mammals to benefit the public. These funds are also used to educate hunters to develop the skills, knowledge, and at for responsible hunting. Seventy-five percent of the funds for this report are from Federal

LEONARD LEE RUE