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Division of Wildlife Conservation

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BROWN BEAR

Mary V. Hicks, Editor

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STATE OF ALASKA
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DEPARTMENT OF FISH AND GAME
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Project Title: **Southeast Brown Bear Population Management**

Project Location: Unit 1 (18,300 mi^2)
Southeast Alaska mainland from Dixon Entrance to Cape Fairweather and those islands lying 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

- 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.

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

Work Accomplished During the Project Segment Period: For the eleventh consecutive season, we collected harvest data through mandatory registration permits. We required all permittees to report whether or not they hunted and required all successful hunters to present hides and skulls for sealing within 30 days of the date of kill. We measured skulls, determined sex, and pulled a tooth from most of the bears presented for sealing. We sent teeth from harvested bears to Matson's Montana lab for aging, and we will send letters to successful hunters informing them of their bears' age once the data are available. We also collected additional harvest-related data and anecdotal information at the time of sealing.

Progress Meeting Project Objectives: Forty-six brown bears were killed in Unit 1 during this report period. The harvest (including defense of life or property kills) consisted of 28 males (61%) and 18 females (39%) and did not meet our 3 male to 2 female harvest objective. Forty were taken legally. The other 6 bears were killed in DLP situations and included 1 young of the year female in Unit 1C, 2 male yearling cubs, 2 adult males, and 1 adult female from Unit 1D. Harvests by unit, including DLPs in parenthesis, are shown below.

Unit	Male	Female
1A	5	8
1B	5	1
1C	4	2 (1)
1D	10 (4)	5 (1)

The average size of male skulls was 22.8 inches (n = 24), similar to the previous season. The average size of female skulls was 19.7 inches (n = 13), also similar to the previous season.

We issued 343 registration permits during this report period. Besides the 40 successful hunters, there were 131 unsuccessful hunters, 171 that did not hunt, and 1 that did not report. Age data for 1999–00 are not yet available; however, averages for males and females taken during the 1998–99 season were 7.9 years (n = 24) and 5.4 years (n = 10), respectively. This met our objective of maintaining an average of 6.5 years for harvested males.

Project Location: Unit 4 (5800 mi^2)
Admiralty, Baranof, Chichagof, and adjacent islands

Project Objectives and Activities

- 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.
- Reduce the number of bears killed because of garbage habituation.
- Monitor the harvest, seal harvested bears, and analyze harvest data.
- Monitor use of the Pack Creek viewing area on the Stan Price Wildlife Sanctuary.

Work Accomplished During the Project Segment Period: For the 1999–00 regulatory year, 602 registration permits were issued. We measured skulls of harvested bears, extracted premolars for age analysis, examined hides for evidence of sex, and noted other pertinent data. We submitted extracted teeth for sectioning and aging. Efforts to reduce defense of life or property (DLP) incidents through public education and interagency contacts were continued. Biologists and technicians continued efforts at Pack Creek to reduce losses of brown bears to DLP incidents regionally and to better inform the public about regulations, bear life history, and safety precautions. The Unit 4 Brown Bear Management Team, established by the Alaska Board of Game, met to discuss aspects of management of bears in the unit. A final report with suggestions for better management has been published, and recommendations will be presented to the Board at the November 2000 meetings.

Progress Meeting Project Objectives: Age data from 1999–00 harvested bears, based on cementum analyses, were not available prior to this report deadline. For 1998–99, mean age of 125 sport-killed bears was 7.8 years. Preliminary registration permit data indicate sport hunters in 1999–00 took 166 bears, and 7 additional bears were taken by DLP or illegally. The sex ratio for the recorded mortality (173 bears) was 130 males, and 43 females (a male to female ratio of 3:1). Spring seasons continued to provide the greatest bear hunting opportunity and harvest, with 71% of the documented harvest. Harvest by island in Unit 4 included 34% from Admiralty, 28% from Chichagof, and 38% from Baranof. A total of 1351 visitors came to the Stan Price State Wildlife Sanctuary to view brown bears at Pack Creek in the 1999 field season.

Project Location: Unit 5 (5800 mi^2)
Cape Fairweather to Icy Bay, eastern Gulf Coast

Project Objectives and Activities

- Maintain an average age of harvested males of no less than 6.5 years with a male to female harvest ratio of at least 3:2.
- Reduce the number of bears killed because of garbage habituation.

- Monitor the harvest, seal harvested bears in Yakutat and Anchorage, and analyze data.

Work Accomplished During the Project Segment Period: We collected harvest data through the mandatory sealing process. All successful hunters were required to present hides and skulls for sealing within 30 days of kill. We collected data on method, means, and effort at the time of sealing. Additional anecdotal information was solicited from hunters and other observers. The sport harvest of 31 bears (23 males, 8 females) was equal to the 1998–99 harvest, but an additional 6 bears were killed during the report period (3 illegal kills and 3 dump casualties). Two of the mortalities associated with the Yakutat dump were bears that were purposely killed because of their aggressive behavior toward people. Five of these 6 nonhunt kills were male. Nineteen of the sport-harvested bears came from Unit 5A and 12 from Unit 5B.

Progress Meeting Project Objectives: Hunter harvest was analyzed from sealing certificates. Age data for bears taken during the 1999–00 season were not available at the time of report preparation. The project objective of a 3 to 2 male to female kill ratio was easily met, as 65% of the legally harvested bears were male. Our second objective regarding a reduction in the kill associated with garbage habituation was not met. In fact, this mortality increased by 2 animals over the previous report period. The Yakutat dump continues to attract bears, and the dump-related bear mortality will continue without strategies to alleviate the problem. To address this issue, the city of Yakutat is planning to install an incinerator.

Segment Period Project Costs

	Personnel	Operating	Total
Planned	71.4	17.0	88.4
Actual	122.1	19.8	141.9
Difference	-50.7	-2.8	-53.5

Explanation of costs: Several issues during the year caused lines 100 and 200–500 to be much higher than our projection. Several bear/human interaction concerns created charter and travel costs. The Board of Game established Unit 4 Brown Bear Management Team expenses of travel, per diem, postage, printing, and other administrative overhead costs. Increased nonresident take of brown bears in Units 4 created travel and meeting-related costs for several staff.

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 sport 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: Twenty-seven bears (18 males, 9 females) were harvested during fall 1999. Preliminary harvest data for spring 2000 indicated that an additional 21 bears (16 males, 5 females) were taken. Males composed 71% of the take and preliminary mean skull size for males was over 23 inches. Included in the reported harvest were 2 bears shot in defense of life and property (DLP).

Progress Meeting Project Objectives: We exceeded our sport harvest objective by 13 bears. However, the average skull size remained over 23 inches. The brown bear population appears to be increasing in Unit 6 and can sustain this increased level of sport harvest.

Project Location: Units 7 and 15 (8400 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 of at least 60% males (3-year average of 6 female units).

Work Accomplished During the Project Segment Period: Preliminary harvest reports indicated that annual harvest levels continue to remain at the upper level of management objectives. Ten bears (5 males and 5 females) were harvested during the fall registration permit hunt. The management guideline of 6 female bears was met during this hunt, and the season was shortened by emergency order and closed on 24 October 1999.

Nuisance bears continued to be a problem on the Kenai. Reports of nuisance bears to both the Homer and Soldotna offices were heavy throughout the summer months. Staff maintained 3 bear traps at various locations for most of this period. Four bears were trapped and moved to remote locations on the Kenai Peninsula. Three bears, including one 2-year-old female bear, were reported taken DLP during the fall of 1999. Two additional bears were taken illegally, and a vehicle killed another.

Progress Meeting Project Objectives: During the March Board of Game meeting of 1999, the board accepted the department's proposal to change from a spring registration permit hunt to a fall registration permit hunt. High female harvests during the spring seasons in both 1997 and 1998 were the primary reasons for this change. From research results we learned that single adult female bears were at or in dens by 15 October, indicating that a late October season should direct harvest effort to males. However, results from the fall harvest did not substantiate this. Five female bears were harvested in the first 6 days of the season.

Department personnel coordinated and participated in a strategic planning effort throughout this reporting period. Stakeholders representing government agencies, major landowners, and public interests met 12 times and held 6 workshops across the Peninsula and in Anchorage. Results of their efforts are listed as recommendations in The Kenai Peninsula Brown Bear Conservation Strategy (2000). The IBBST is currently drafting a conservation assessment for Kenai Peninsula brown bears that will summarize the biological information given to the stakeholders.

Logging associated with the spruce bark beetle epidemic will continue to be the major factor affecting brown bear habitat on the Kenai Peninsula. Over 33,000 acres of timber sales were offered during regulatory year 1997–98. Additional federal, state, borough, and private forested lands are being planned for salvage logging in the future.

Project Location: Unit 8 (5100 mi^2)
Kodiak and adjacent islands

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

Work Accomplished During the Project Segment Period: With assistance from Kodiak National Wildlife Refuge staff and Wildlife Forever, we continued work on a comprehensive overview of the status, management, and research on bears in Game Management Unit 8. The information gathered from this overview is to be used as the basis of a bear management plan for the archipelago. We anticipate the management plan being completed next year.

In late May we joined Kodiak NWR staff in conducting an intensive aerial survey of brown bears on the Spiridon Peninsula on northeastern Kodiak island. The department and the refuge annually survey a portion of the island to establish baseline bear density estimates and to detect changes in the population. The Spiridon area was last surveyed in 1995 with an estimated density of 118 bears per 1000 km^2. This year's estimate was higher (134/1000 km^2) but not significantly different.

We issued 302 fall permits and 319 spring permits to 621 people. During the fall season, 229 hunters went afield and killed 60 bears. In the spring season 291 hunters went afield and killed 110 bears. The annual sport harvest was 170 bears, 127 males (75%) and 43 females (25%). One bear, a male, was killed in the federal brown bear subsistence hunt. An additional 22 nonsport mortalities were documented as follows: defense of life or property (DLP) - 18 (11 males, 6 females, 1 unknown sex); illegal - 1 (1 unknown sex); natural/unknown - 3 (1 female, 2 unknown sex).

A drastic reduction in berry production and delayed salmon returns prompted an increase in bear/human interactions throughout the archipelago during this reporting period. Aggressive bears seeking food from human sources (cabins, garbage, hunter-killed game) increased DLP kills and resulted in the first human mortality by a bear attack in over 70 years.

Progress Meeting Project Objectives: The 1999–2000 sport harvest of 170 bears exceeded the annual harvest objective of 150 bears. Males composed 75% of the harvest, well above the minimum objective of 60% males. Intensive aerial survey data indicate that the unitwide bear population continues to be stable to slightly increasing.

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 that are 8 or more years old taken during the combined fall and spring seasons.

Work Accomplished During the Project Segment Period: Four replicate stream surveys were attempted at Black Lake in August 1999, but due to bad weather 2 surveys were aborted without total coverage of the West Fork drainage. Counts from the best single survey and averages from all surveys in 1999 set new records, indicating the bear population is growing. Single bears composed 37% of 1103 bears classified during all attempted surveys. In May 2000 we continued collecting data for a combination line transect and double count method to estimate both brown and black bear densities in the northern half of Unit 9B. Final results are pending (Becker, in prep.).

The preliminary tally of brown bears taken during regulatory year 1999 was 377 (60.4% males) for the fall season and 295 (78% males) for the spring season. Included within these totals were registration permit hunts in 2 areas. In the Naknek drainage, registration permittees killed 6 bears (4 males and 2 females) during the fall 1999 season (RB 361) and none during the spring 2000 (RB371). In the Cold Bay road system, registration permittees killed 4 bears (2 males and 2 females) during the fall 1999 season (RB 362) before the season was closed by emergency order on October 4. One bear was taken during the spring 2000 (RB372).

On Unimak Island, drawing hunt permittees killed 6 males during the fall 1999 season. The preliminary return for the spring 2000 hunt is 6 males and 1 female.

Progress Meeting Project Objectives: Harvests during the fall and spring hunts this year set new records, yet the sex ratios were well within the desired range. The combined harvests for regulatory year 1999 exceed the recommended harvest rate of 5% for the extrapolated bear population of 5680 for areas open to hunting in Unit 9. However, this population estimate was made in 1990, and results of stream surveys at Black Lake and observations of guides and local residents indicate the population may have grown the past 10 years. At this time the general seasons and permit hunts appear to be meeting management objectives.

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 killed bears. We also interviewed hunters at the time of sealing to determine hunting method, means, and effort.

Preliminary harvest data for the 1999–2000 season indicated 5 brown bears were killed in Unit 11, similar to last year's harvest of 3, and similar to the previous 5-year average of 4 bears. The proportion of females (40%) is below the 50% maximum in the management guidelines for brown bear harvest in this unit. Four bears were taken during the fall and 1 was taken during the spring. Nonresidents killed 2 bears. For transportation, successful hunters used aircraft, horses, boats, and highway vehicles. These hunters reported spending an average of 4 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 unit bear population. Small harvests negate our useful interpretation of sex ratio data from sealing certificates in Unit 11. For example, the harvest last year was 3 bears and all were males. Although population data for brown bears in Unit 11 were not available, staff and public field observations of bears suggested a relatively abundant and well-distributed population of brown bears. The low harvests of the past 15 years have been 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 opened subsistence brown bear hunting in Unit 11.

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

Project Objectives: Reduce current brown bear numbers to increase moose calf survival to fall but maintain a minimum estimated brown bear population of 350 bears.

Work Accomplished During the Project Segment Period: We monitored the brown 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, success, and effort.

Brown bear harvests in Unit 13 were liberalized in 1995 by opening the season on 10 August, increasing the bag limit to 1 bear every year and eliminating the $25.00 resident tag fee. The spring bear season was extended to 15 June in 2000.

Preliminary harvest data for the 1999–2000 hunting season indicated hunters took 157 brown bears. This preliminary figure is the highest single year harvest in Unit 13. There were 91 bears (52% males) taken during the fall of 1999; female bears composed 48% of the fall harvest. Hunters harvested 66 bears during the spring of 2000. This is well above the average of 34 bears during the spring season for the past 5 years. This high harvest may be partially attributed to the lengthened spring season that was initiated this year. Also, this year's spring snow conditions were excellent for snowmachine travel.

Progress Meeting Project Objectives: Since regulations were liberalized in 1995, brown bear harvests have been high in Unit 13, yet no noticeable decline in brown bear numbers has been detected in the unit. Prolonged harvest at this level may eventually effect a decrease in brown bear abundance that is dictated by our management objective.

Brown bear population estimates are available for Units 13E and 13A. The population estimate in 13E spans a 10-year period when harvests exceeded calculated sustainable rates. No change in population density could be detected between estimates. Estimates in 13A are similar to density estimates in 13E, indicating that increased bear harvests over the last 15 years have not reduced the brown bear population.

Current brown bear harvest rates are probably sustainable. Unless additional liberalization in seasons, bag limits, or methods and means are enacted, it is doubtful the Unit 13 brown bear population will be reduced substantially in the near future. In fact, with large refugia in the form of 2 national parks on the eastern and western boundaries of the unit and large expanses of timbered habitat within the unit, it is highly improbable that any large reduction will occur, other than localized declines near access to heavily hunted areas.

My recommendation is to liberalize brown bear regulations on at least an economic basis. Because locals do not want to take a bear, the tag fee and guide requirement for nonresidents could be eliminated.

Project Location: Unit 14 (6600 mi^2)
Upper Cook Inlet

Project Objectives: Maintain a population of at least 150 brown bears. The human-use objective is to provide an opportunity for a low level of hunter harvest, not to exceed 15 bears when combined with defense-of-life-or-property (DLP) and illegal kills. Of these 15 bears, 5 or fewer should be adult females.

Work Accomplished During the Project Segment Period: During this reporting period, we sealed 21 brown bears for Unit 14. Hunters killed 16 bears, 10 in Unit 14A and 6 in Unit 14B. The hunter harvest was 45% female bears, with 1 taken in spring and 4 taken during fall. Three bears (2 males, 1 female) were killed in defense of life or property (DLP). In 14C, 1 female was taken illegally and 1 female was killed in a vehicle collision. The total reported kill was composed of 13 males and 8 females.

Progress Meeting Project Objectives: At the spring 1999 Board of Game meeting, human-use objectives were modified to allow annual human-caused mortality to reach 15 bears. Even with an increase in allowable harvest, the allowable harvest was exceeded. We believe the Unit 14 brown bear population is above objective levels and approaching societal carrying capacity. Female harvest will be monitored closely. Bears killed illegally or DLP composed 14% of reported mortality. Educating the public on bear behavior and increasing public awareness that garbage, livestock, salmon streams, beehives, and dog food attract bears should be included in

division objectives. The division should establish a statewide bear management position to develop outreach materials and seek alternative funding options for outreach programs.

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

Project Objectives: Maintain a brown bear population that appears stable or declining slightly. The human-use objective is to allow optimum opportunity to hunt brown bears while allowing a 3-year average harvest of 50–60 bears with an average maximum of 18 females greater than 2 years of age.

Work Accomplished During the Project Segment Period: During this period we sealed 81 brown bears for Unit 16. Hunters took 74 of these, including 14 bears in Subunit 16A and 60 in 16B. Females composed 27% of the hunter harvest. This included 2 females from 16A and 18 females from 16B. Ages of females were not available. Three females were killed in defense of life or property (DLP). Two females were killed illegally, and 2 males were found dead (one from a boar at a kill site and the other from a gunshot wound to the leg).

The 1997–2000 average harvest (including DLP harvest) was 64.6 bears. If all females sealed this year were older than 2 years, the 3-year average would be 24 females greater than 2 years old.

Progress Meeting Project Objectives: Status of the brown bear population in Unit 16 was uncertain. Most local residents believe the brown bear population is increasing. The human-use objective for total harvest was achieved, but the 3-year average harvest for females exceeded the maximum desired level. Most of the female harvest (50%) occurred during the fall season. The spring harvest, which typically comprises male bears, has fluctuated greatly in recent years relative to snow and travel conditions. The number of DLP kills continues to reflect increasing conflicts with local residents and recreational users (primarily fishermen), or of increased reporting of these kills.

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 82 brown bears, including 58 males (71%) and 24 females (29%) during 1999–2000. Average skull size was 23.99 inches for males and 21.08 inches for females. Nonresident hunters reported killing 62 bears (76%), nonlocal residents killed 11 bears (13%), and unit residents killed 9 bears (11%). Forty-eight successful hunters (59%) reported using aircraft for access, 15 (18%) used boats, and 16 (20%) used snowmachines. The average hunt length for successful hunters was 4 days.

Thirty-eight bears (23 males, 15 females) were killed during the fall 1999 season, and 44 bears (35 males, 9 females) were killed during spring 2000. Ten bears (7 males and 3 females) were killed in Subunit 17A, 50 (34 males, 16 females) in 17B, and 22 (17 males, and 5 females) in Subunit 17C.

One bear was reported killed in defense of life or property during this reporting period. We received unconfirmed reports of bears illegally taken in the immediate Dillingham area.

Progress Meeting Project Objectives: No objective data are available on the population density of brown bears in the unit. There is also a paucity of information on bears shot in defense of life or property and illegal kills. However, we believe the unit population of brown bears is stable to increasing.

A joint ADF&G/U.S. Fish and Wildlife Service research project started in 1992 was 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 (Units 17A and 18).

LITERATURE CITED

Alaska Department of Fish and Game, Division of Wildlife Conservation. 2000. Kenai Peninsula Brown Bear Conservation Strategy. State of Alaska Department of Fish and Game. Anchorage Alaska USA. 84pp.

Segment Period Project Costs

	Personnel	Operating	Total
Planned	111.7	11.9	123.6
Actual	111.7	11.9	123.6
Difference	0.0	0.0	0.0

Submitted by

Michael G. McDonald
Assistant Management Coordinator

Project Title: **Interior Grizzly Bear Population and Habitat Management**

Project Location: Unit 12 (9978 mi^2)
Upper Tanana and White River drainages including the northern Alaska Range east of the Robertson River and the Mentasta, Nutzotin, and northern Wrangell Mountains

Objective: Manage harvests so the 3-year mean harvest does not exceed 28 bears and has at least 55% males in the harvest.

Activities Planned: Monitor harvests, seal harvested bears, and analyze harvest data.

Activities Accomplished

1. Reviewed the management objective by comparing harvest data to the estimated Unit 12 grizzly bear population. Based on this analysis, no changes to the population/harvest objectives were necessary. The Unit 12 grizzly bear objective was also discussed with local advisory committees. Primary discussion points were the adequacy of the harvest level to benefit moose calf survival and the possibility of regulatory changes that could result in greater bear hunting opportunity and increased harvest, if regulatory changes are desired under intensive management. Advisory committee recommendations were incorporated into the Unit 12 moose intensive management proposal presented to the Alaska Board of Game in March 2000.

2. Monitored harvest using information collected during sealing, analyzed data to determine if harvest was causing unit or area bear population reduction, and evaluated effects of bear harvest on moose calf survival.

3. Established 4 permanent transects (4–5 1-m^2 plots/transect) to measure annual blueberry abundance in portions of Unit 12. A rain gauge was placed along each transect to measure moisture throughout the growing season. Monitoring blueberry abundance in relation to bear harvest, number of bear incidents, and bear movements will become an annual activity.

Project Location: Units 19, 21A, and 21E (59,756 mi^2)
Drainages of the Kuskokwim River upstream from the village of Lower Kalskag; Yukon River drainage from Paimiut upstream to, but not including, the Blackburn Creek drainage; the entire Innoko River drainage; and the Nowitna River drainage upstream from the confluence of the Little Mud and Nowitna Rivers All drainages of the Kuskokwim River upstream of the village of Kalskag

Objectives

1. Manage brown bear populations to sustain a mean annual harvest of no more than 70 bears with a minimum of 50% males in the harvest.

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

Activities Planned: Monitor harvests, seal harvested bears, and analyze harvest data (all objectives).

Activities Accomplished: Monitored harvests, sealed bears, and analyzed data. Population density estimates for the area were reviewed and increased, based on more current information. The updated estimates will be presented in the next management report (all objectives).

Project Location: Units 20A, 20B, 20C, 20F, and 25C (39,228 mi^2)
Central and Lower Tanana Valley, and Middle Yukon River drainages

Objectives

Unit 20A Mountains

1. Decrease human-caused grizzly bear mortality until at least 1997 by managing for a 3-year mean annual human-caused mortality of no more than 3% of the adult females (≥6 years old) and no more than 6% of the bears ≥2 years old.

2. Cooperate with a research project (Reynolds 1996) whose objectives are to:

   a. determine the length of time necessary for recovery or stabilization of a reduced grizzly bear population following reductions in human-caused mortality rates.

   b. measure the recovery responses in the dynamics of the population, especially female population size, total population size, and production and survival of offspring.

Eastern half of Unit 20B

3. Manage human-caused grizzly bear mortality to provide a stable population with a 3-year mean annual human-caused mortality of no more than 6 bears ≥2 years old, with an average of at least 55% males.

Unit 20C within the original boundaries of Denali National Park

4. Maintain a closed season on grizzly bear hunting.

Unit 20A Flats, western half of 20B, remainder of 20C, 20F, and 25C combined

5. Manage human-caused mortality to provide stable grizzly bear populations with a 3-year mean annual human-caused mortality of no more than 26 grizzly bears ≥2 years old, with an average of at least 55% males.

6. Manage the 3-year mean annual human-caused grizzly bear mortality from individual areas with the following harvest objectives: no more than 3 bears from Unit 20A Flats, 3 from the western half of Unit 20B, 7 from Unit 20C, 7 from Unit 20F, and 6 from Unit 25C.

Activities Planned: Monitor harvests, seal harvested bears, and analyze harvest data (Objectives 1, 2a, 3, 4, 5, and 6).

Activities Accomplished

1. Monitored harvests through sealing of harvested bears and analysis of harvest data (Objectives 1, 2a, 3, 4, 5, and 6).

2. Monitored radiocollared bears, replaced old radio collars, and retrieved dropped radio collars in cooperation with research project (Objectives 2a and 2b).

Project Location: Unit 20D (5637 mi^2)
Central Tanana Valley near Delta

Objective: Manage for an annual harvest of 5–15 bears.

Activities Planned: Monitor harvests, seal harvested bears, and analyze harvest data.

Activities Accomplished: Sealed bears killed in the area and analyzed harvest data.

Project Location: Unit 20E (10,680 mi^2)
Fortymile, Charley, and Ladue River drainages, including the Tanana Uplands and all drainages into the south bank of the Yukon River upstream from and including the Charley River drainage

Objectives

1. Manage to effect temporary reductions in the grizzly bear population or to reduce the extent of bear predation where it is limiting moose population growth (e.g., moose populations are below food-limiting densities with fall calf:cow ratios <25:100).

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

Activities Planned: Monitor harvests, seal harvested bears, and analyze harvest data (Objectives 1 and 2).

Activities Accomplished

1. Reviewed project objectives using a combination of harvest data collected during the sealing process, the estimated unit bear population size, and the trends of the Unit 20E moose population size and sex and age composition. Based on these data, changes to the population management objective to allow for maximum opportunity to hunt grizzly bears with safeguards to protect the population against overharvest will be considered during the next management report cycle (Objectives 1 and 2).

2. Discussed project objectives and effects of bear harvest on moose calf survival with the Upper Tanana/Fortymile and Eagle Advisory Committees. Both advisory committees considered additional regulations to increase bear hunting opportunity as part of intensive management of Unit 20E moose and the Fortymile caribou herd. Their recommendations were included in the intensive management proposal for Unit 20E moose, presented to the Alaska Board of Game during March 2000.

3. Established 4 permanent transects (4–5 1-m^2 plots/transect) to measure annual blueberry abundance in portions of Unit 20E. A rain gauge was placed along each transect to measure moisture throughout the growing season. Monitoring blueberry abundance in relation to bear harvest, number of bear incidents, and bear movements will become an annual activity.

Project Location: Units 21B, 21C, and 21D (20,655 mi^2)
Middle Yukon River, including lower Koyukuk River, Nowitna River, and Melozitna River

Objective: Manage a grizzly population that will sustain a 3-year mean annual harvest of at least 25 bears and at least 50% males in the reported harvest.

Activities Planned: Monitor harvests, seal harvested bears, and analyze harvest data.

Activities Accomplished

1. Monitored harvest through statewide sealing system and maintained a harvest within the prescribed harvest objectives.

2. Sealed grizzly bear hides in the Galena Office.

Project Location: Unit 24 (26,055 mi^2)
Koyukuk River drainage upstream from the Dulbi River

Objectives: Manage a grizzly bear population that will sustain a 3-year mean annual harvest of at least 20 bears in the northern portion of the unit (north of Allakaket) and at least 15 bears in the southern portion of the unit (remainder), with at least 50% males in the reported harvest.

Activities Planned: Monitor harvests, seal harvested bears, and analyze harvest data.

Activities Accomplished: Monitored harvest through the statewide sealing system and maintained a harvest within the prescribed harvest objectives.

Project Location: Units 25A, 25B, 25D, 26B, and 26C (73,755 mi^2)
Eastern North Slope of the Brooks Range and the upper Yukon River Drainage

Objectives

1. In Unit 25 maintain a brown bear population capable of sustaining mean annual harvests of 29 bears in Unit 25A and 29 bears in Units 25B and 25D, with a minimum of 60% males in the harvest.

2. In Units 26B and 26C, maintain a brown bear population capable of sustaining a mean annual hunter harvest of 13 bears in Unit 26B and 19 bears in 26C, with a minimum of 60% males in the harvest.

Planned Project Activities: Monitor harvests, seal harvested bears, and analyze harvest data (all objectives).

Activities Accomplished: Monitored harvests, analyzed harvest data, and established new bear sealing agents on the Yukon Flats (all objectives).

Segment Period Costs

	Personnel	Operating	Total
Planned	77.6	9.8	87.4
Actual	80.8	12.2	93.0
Difference	-3.2	-2.4	-5.6

Explanation: The overexpenditure in operating and personnel funds resulted from additional monitoring of radiocollared bears in Unit 20A and because of a population estimate aerial survey in Unit 26B.

Submitted by

Roy Nowlin
Regional Management Assistant

David James
Management Coordinator

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

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

Project Objectives

1. Maintain brown bear populations at existing densities in Unit 18.

   a. Monitor harvests through the sealing program, the Western Alaska Brown Bear Management Area (WABBMA) 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 Kuskokwim Mountains.

2. Minimize adverse interactions between bears and the public.

3. Develop updated population management objectives through cooperative planning with the public and other agencies.

Work Accomplished During the Project Segment Period: We contacted local residents to explain hunting regulations for brown bears in Unit 18. We met with representatives of the Association of Village Council Presidents (AVCP), FWS, Subsistence Division, local Advisory Committees, and local Indian Reorganization Act (IRA) councils. We discussed the WABBMA subsistence brown bear registration permit system, improvements to our harvest information, liberalization of seasons and bag limits, and the continuation of the cooperative brown bear research project.

The department, FWS, and BLM continued the cooperative brown bear radiocollaring project. Animals have been tracked since 1993 to determine seasonal movements and to estimate productivity. We expect to replace existing collars and deploy several new ones during late spring 2000.

We attended a Bear/Human Conflict workshop in which invited participants from various agencies discussed human/bear interactions.

Harvest information for the 1998–1999 hunting season was finalized: 4 of 72 hunters obtaining WABBMA registration permits were successful, and 8 hunters using general season hunting regulations reported harvesting bears. Harvest data for the 1999–2000 season is not finalized.

Progress Meeting Project Objectives: Active participation by local residents in the management process has increased communication with management agencies, and regulations that are more acceptable to local users have fostered improved hunter participation. We have improved local users' knowledge of the hunting regulations through local meetings, public announcements, newspaper articles, and instructions to license vendors. Registration permits for

hunters interested in using brown bears primarily for meat allow responsible management of the resource and should be continued in the future.

Project Location: Unit 22 (25,230 mi^2)
Seward Peninsula and the adjacent mainland drained by all streams flowing into Norton Sound

Project Objectives

1. Maintain a healthy brown bear population in Unit 22 with reduced densities through liberalized harvest regulations.
   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 interactions 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: We examined harvest reports and sealing certificates, and known human-induced mortality during the reporting period was 100 bears. Hunters killed 53 bears (30 males, 23 females) during fall 1999 and 39 bears (34 males, 5 females) during spring 2000. Eight bears (5 males, 3 females) were taken in defense of life or property (DLP) during the reporting period. The location and chronology of reported harvest is listed below:

	Fall 1999		Spring 2000		Total
Unit	Males	Females	Males	Females	Harvest
22A	13	8	9	2	32
22B	8	8	13	1	30
22C	5	4	3	1	13
22D	4	3	6	1	14
22E	0	0	3	0	3
DLP	2	2	3	1	8
Total	32	25	37	6	100

The 1999–2000 harvest was the highest ever recorded for Unit 22, surpassing the previous high of 90 bears in 1998–1999, which was a 65% increase over the 5-year average harvest of 54 brown bears. Plentiful bears, desire by local residents to reduce bear numbers, and increased numbers of nonresident hunters in Unit 22A where drawing permits are not required are responsible for recent high harvests.

Nonresidents took 47% of the reported harvest. Unit 22 residents and Alaska residents from outside Unit 22 took 34% and 19% of the harvest, respectively. Subsistence hunters with registration permits took 2 bears. All 20 nonresident drawing permits for Units 22B and C and the 5 drawing permits for Units 22D and E were issued by drawing or over the counter.

Department staff and Fish and Wildlife Protection troopers worked with Village Public Safety Officers and village officials to explain defense of life and property regulations. We encouraged the use of deterrents, such as rubber bullets or cracker shells, to drive bears away from villages and continued efforts to educate the public about bear behavior, bear safety, and ways to minimize bear/human conflicts. As in past years, considerable time was spent answering questions from the public, writing newspaper articles, and mailing information and regulatory materials. Bears were sealed at the Fish and Game office in Nome and by designated sealers in Shishmaref, Unalakleet, and White Mountain.

Progress Meeting Project Objectives: Observations by staff and residents of Unit 22 indicate that brown bear numbers are increasing throughout the unit. Reports of bear encounters, complaints about nuisance bears, and the number of DLP bears continue to increase. In October 1999, in response to public demand and concern about the effect of bear predation on moose calves in some parts of Unit 22, department staff recommended (and the Board of Game approved) regulatory changes for the 2000–2001 regulatory year that are intended to increase bear harvest in Unit 22. The resident tag fee requirement was eliminated throughout Unit 22 and the number of nonresident drawing permits was increased in Units 22B and 22C from 20 to 27 and from 5 to 8 in Units 22D and 22E.

Although people are becoming more conscientious about keeping clean camps and bear proofing their cabins, bear problems are increasing throughout the unit. Village dumps and traditional food storage practices continue to lure bears into villages, but we believe many of these problems are now reported and dealt with lawfully.

Efforts to inform the public of the importance of wildlife conservation and the need for regulations have been effective in some communities; the number of individuals purchasing licenses and bear tags and obtaining subsistence permits has increased. Additional contact with local residents, particularly village residents, is necessary to increase compliance with current bear hunting regulations. Development of a brown bear management plan with updated population objectives has not been undertaken. We will continue to use comments from the public and other agencies and data from our previously completed bear study to develop updated objectives for Unit 22.

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

Project Objectives

1. Maintain a minimum brown bear density of 1 adult bear per 26 mi^2 in the Noatak drainage.

2. Implement a community-based harvest reporting system to improve the accuracy of harvest data.

3. Encourage development of an alternative census technique for brown bear populations that is not dependent on radiocollaring.

Work Accomplished During the Project Segment Period: We continued to inform local hunters of subsistence brown bear regulations and actively collect harvest data from participants. In 1999–2000, 173 hunters registered in the Northwest Alaska subsistence brown bear hunt. Twenty-seven hunters resided outside the management area, and 96 hunters resided in Unit 23. Hunters (109) reported a total management area harvest of 10 bears (9 males, 1 female), of which 5 bears were harvested in Unit 23. Participating hunters support continuing this hunt.

Only 7 hunters applied for the 18 fall 1999 nonresident brown bear drawing permits; 7 of the 11 remaining permits were issued over-the-counter. Twenty-one hunters applied for the 24 spring 2000 nonresident brown bear drawing permits; all 3 remaining permits were issued over-the-counter. The fall and spring 1999–2000 brown bear general season and permit hunt harvest summary is listed below.

	Fall 1999				Spring 2000			
	Male	Female	Unk	Total	Male	Female	Unk	Total
Local resident	0	2	0	2	7	2	0	9
Nonlocal resident	6	2	0	8	6	0	0	6
Nonresident	7	5	0	12	9	1	0	10
DLP/accidental	5	1	3	9	1	0	1	2
Total	18	10	3	31	23	3	1	27

The Board of Game increased the number of spring nonresident drawing permits from 18 to 24, and the number of fall drawing permits from 18 to 24, effective July 1, 2000.

Progress Meeting Project Objectives: Incidental observations by department staff and reports from local residents and hunters indicate brown bear numbers in Unit 23 are probably high compared to previous years. A village-based big game harvest assessment project is planned for selected villages in Unit 23 to help promote a community-based reporting system to determine brown bear harvests in the unit.

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

Project Objectives and Activities

1. Periodically assess brown bear population in Unit 26A.

2. Maintain brown bear population at approximately the existing level in Unit 26A.

3. Monitor harvest through the statewide sealing program, the Northwest Alaska Brown Bear Management Area (NWABBMA) registration system, and contacts with the public.

4. Minimize adverse interactions between bears and the public.

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

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

Using the 1992 density estimate, the current population estimate in Unit 26A is 900–1120 bears; 400 bears are estimated to be in Unit 26A West and 500–720 in Unit 26A East. This represents an increase from the pre-1987 population estimate of 645 to 780 bears (Trent 1989).

During their spring 1996 meeting, the Board of Game considered and approved a proposal eliminating the drawing permit requirements for nonresident brown bear hunters in Unit 26A and lengthened the season to 20 August–20 May. The new regulation allows greater flexibility and predictability for guides but requires regular communication among guides, agencies, and the department. To avoid overharvest, guides need to voluntarily limit the harvest of their clients.

During the 1999–2000 season, hunters reported harvesting 10 bears, 10 in fall and none during spring. Four bears were harvested in Unit 26A East (East of 159^0) and 6 were harvested in Unit 26A West. Seven males (70%) and 3 females (30%) were harvested. Nonlocal residents harvested 3 bears, and nonresidents harvested 7. Three bears were harvested during August, and 7 were taken during September. All 10 hunters used aircraft for transportation. The mean number of days per hunt was 2.2.

We distributed information through the media describing safe camping practices, handling food and garbage, and correct procedures for managing problem bears. We placed posters and pamphlets on bear safety in public locations.

Progress Meeting Project Objectives: No population surveys were conducted in 1999–2000 in Unit 26A, but observations during moose surveys and reports from the public, pilots, hunters, and guides all indicate that brown bear populations have remained stable or have grown in recent years.

Sealing certificates indicate that the mean number of bears harvested during the last 4 seasons ($\bar{x}$ = 14.5 bears) was well below the average number of bears harvested between 1990 and 1996 ($\bar{x}$ = 26.6 bears). This reduced harvest might be explained by the lack of a concurrent moose season and the lack of hunters that would have harvested bear as a second hunt. Eliminating the drawing permit system has reduced paperwork and time administering the hunt and has not led to overharvest. We will continue communicating with the guides and urging them to limit their harvests and to selectively harvest male bears.

If we assume that safe harvest limits should not exceed 5% of the population, the allowable sustained yield for Unit 26A is approximately 51 bears. The reported brown bear harvest for 1999–2000 of 10 bears is well below this allowable limit. The reported harvests in Unit 26A East (4 bears) and Unit 26A West (6 bears) are well below the allowable limits of 31 and 20, respectively. In light of the fact that the number of bears harvested is much lower than the harvestable surplus, the bag limit for 26A was changed in the fall of 1999 by the Board of Game from 1 bear every 4 years to 1 bear per year to give people more opportunity to harvest bears.

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

LITERATURE CITED

TRENT, JN 1989. Unit 26A brown brown bear survey-inventory progress report. Pages 174–184 *in* SO Morgan, ed. Annual report of survey-inventory activities, 1987. Vol. XIX, Part V. Alaska Department Fish and Game. Federal Aid in Wildlife Restoration Progress Report. Grant W–23–1, Study 4.0. Juneau Alaska USA. 189pp.

Segment Period Project Costs:

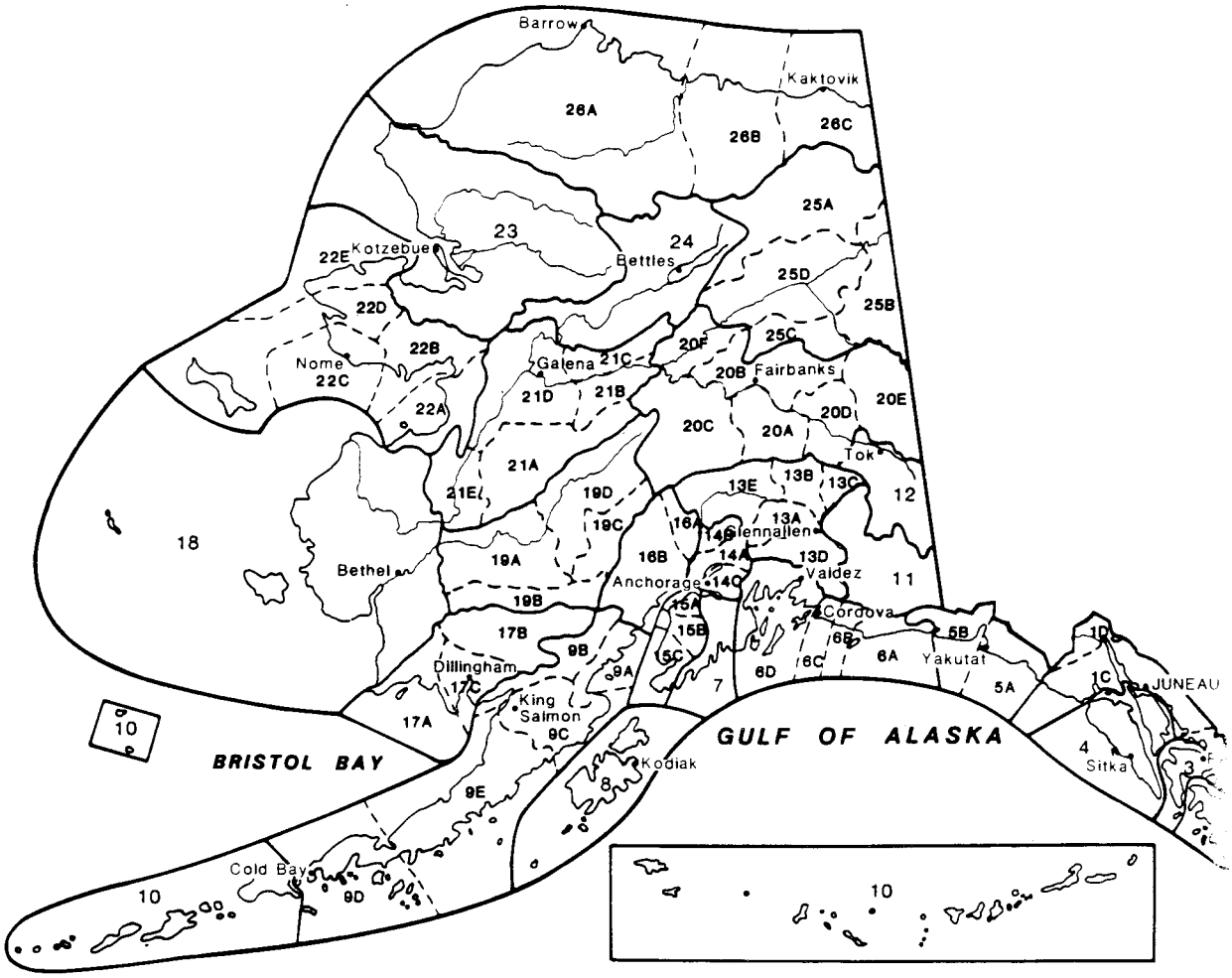
	Personnel	Operating	Total
Planned	27.4	4.0	31.4
Actual	16.6	5.0	21.6
Difference	10.8	-1.0	9.8

Explanation: Staff vacancies in Units 18 and 23 contributed to personnel underexpenditures.

Submitted by

Peter Bente
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 attitu for responsible hunting. Seventy-five percent of the funds for this report are from Federal Aid.

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