Alaska Department of Fish and Game
Division of Wildlife Conservation

Federal Aid in Wildlife Restoration
Annual Performance Report
Survey-Inventory Activities
1 July 1999- 30 June 2000

DALL SHEEP

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: **Southcentral Alaska Dall Sheep Management**

Project Location: Units 7, 11, 13, 14, and 15

Sheep populations in the region are managed by mountain range or special hunt area. Mountain ranges frequently divide Game Management Units; therefore, unit numbers may be repeated in sections of the text.

Kenai Mountains (Units 7 and 15)

Project Objectives and Activities: Maintain a population of sheep that will sustain an annual harvest of 25 rams.

- Conduct midsummer aerial surveys to assess population size and sex and age composition.
- Monitor harvest with assistance from Fish and Wildlife Protection and U.S. Fish and Wildlife Service.

Work Accomplished During the Project Segment Period: Three count areas in Units 7 and 15 (837, 855 and 853) were surveyed during summer of 1999, resulting in 252 sheep classified. Composition was 56 rams, 55 lambs and 141 ewes and unidentified sheep. Lambs and rams each composed 22% of observed sheep.

Interim harvest statistics revealed 104 hunters harvested 7 rams in Units 7 and 15 during 1999 general season. Hunter success rate was 7 percent. Mean horn length from reported harvest (n = 7) was 35.8 inches and ranged between 34.5 and 37 inches. Average age was 8.4 years, with a range of 8 to 10 years. The mean base circumference measurement was 12.9 with a range between 12.0 and 13.5 inches. Alaska residents harvested 6 (86%) rams and a hunter who failed to report residency took 1 (14%).

Twenty permits for ewes only were issued again in 1999 for the Round Mountain area and 15 permit holders reported hunting. Eight (53%) of these hunters were successful. All successful hunters were Alaska residents and used highway vehicles to access the hunt area.

The Board of Game established a new permit area in the Crescent Lake area of Unit 7 beginning in the fall of 1999. Ten permits were issued for hunting rams and 10 for ewes. Seven of the permit holders to hunt rams reported hunting and 2 were successful. Three of the 8 hunters holding permits for ewes were successful. All hunters were Alaskan residents and used either boats or highway vehicles as their primary means of access.

Progress Meeting Project Objectives: Harvests in 1999 failed to meet the management objective of maintaining a population of sheep in the Kenai Mountains that could sustain an annual harvest of 25 rams. Additionally, the hunting effort declined by 45% compared to that of the previous year. We believe the reason for the reduced hunter effort and lower harvest was the lack of mature rams in the population. Mature rams first showed a decline in 1998 due to severe spring weather in 1992 and 1993, causing low lamb survival. In addition to the severe weather

during these springs, Kenai Peninsula had a severe winter in 1998/99. Heavy snow and cold spring weather during this winter also reduced survival in portions of the sheep range. The current sheep population is believed to be near the lower range of the 1500 and 1775 estimate.

Because the Kenai Mountains generally support a high number of hunters who take most of the legal rams each season, the general harvest will comprise rams in their first year as a full curl until the population rebuilds. Beginning in 1994, number of lambs observed increased in most count areas, indicating ram harvests should increase over the next 2 seasons.

Limited harvest of ewe sheep in the Round Mountain area resulted in the harvest of 8 ewes. This population declined from 151 sheep in 1991 to 106 counted in 1996, then decreased to 96 in 1999. Harvesting ewes should continue until the population density is reduced to 3 sheep/mi^2 (80 to 90 countable sheep). Thereafter, harvesting of ewes should be implemented only to stabilize the population at this level to evaluate the response in lamb survival.

This was the first year since the 1970s that the Crescent Lake area was open to hunting by permit only. The objective for this area is to maintain a population of 150 to 200 sheep by adjusting the number of permits to regulate the annual harvest. A secondary objective was to maintain a low number of permits for rams to allow the mean age of rams to increase.

Surveys conducted in 1999 did not cover a large enough portion of the sheep range in Kenai Mountains to make meaningful conclusions relating to area wide population trends. No changes are recommended at this time.

Talkeetna Mountains (Units 13A, 13E, 14A, and 14B)

Project Objectives and Activities: Maintain a population of sheep that will sustain an annual harvest of 75 rams.

- Identify critical sheep habitat (e.g., mineral licks and lambing areas).
- Monitor the harvest through hunter contacts and harvest reports.
- Conduct composition surveys.

Work Accomplished During the Project Segment Period: No work was directed specifically at identifying and documenting critical sheep habitat in the Talkeetna Mountains.

For this area the sheep harvest was monitored from harvest reports. Hunters were required to return their harvest reports within 15 days after the close of the season, or within 15 days of taking an animal. Days hunted, method of take, date and location of kill, and transportation mode were all noted in the harvest report. The reported harvest from the Talkeetna Mountains was 76 sheep, taken by 301 hunters. The number of hunters has declined in recent years to a level similar to 1989, after a sharp increase (to 516 hunters) in 1994. Harvest has also declined recently, from a high of 106 sheep taken in 1995. The decline in hunter numbers is probably due to changes in hunting regulations for Nelchina caribou, and the decline in harvest reflects both high wolf densities and winter weather conditions when legal rams were first recruited as lambs and yearlings.

Sex and age composition surveys were conducted in 10 count areas in Units 13 and 14. All surveys were funded by the Foundation for North American Wild Sheep. We classified 2368 sheep, including 532 rams, 1355 ewes, and 481 lambs. Compared with similar surveys in 1994, the number of sheep in all classes increased except for the number of legal rams.

Progress Meeting Project Objectives: We met our harvest objectives for the Talkeetna Mountains. The area is popular with sheep hunters, but because of funding levels population surveys are conducted only periodically. A private conservation group, citing concerns about sheep in this area, provided funding for all surveys in 1999. Department funds should be allocated to conduct surveys every 2–3 years, and managers from Units 13 and 14 should coordinate survey schedules.

Chugach Mountains (Units 11, 13D, 14A, and 14C)

Project Objectives and Activities: Maintain a minimum population of sheep that will sustain an annual harvest of 120 rams.

- Conduct composition surveys.
- Identify critical sheep habitat (e.g., mineral licks and lambing areas).
- Monitor the harvest through hunter contacts, harvest or permit reports, and aging/measuring sheep horns.

Work Accomplished During the Project Segment Period: Sheep were counted by aerial survey in portions of Unit 13D and 14C.

In Unit 13D, 214 sheep were counted by aerial survey in the Tonsina Controlled Use Area during late July 2000. This count included 9 full-curl or larger rams, 48 young rams, 26 lambs, and 131 ewes and unclassified young rams. No other portions of Unit 13D were surveyed. No surveys were conducted in Unit 14A during 1999 or 2000.

In Unit 14C, we counted 2118 sheep by aerial survey in late July 2000. The population included 172 full-curl or larger rams, 543 young rams, 230 lambs, and 1152 ewes and unclassified young rams. Lambs composed 11% of the total count. Due to snow cover in June and inclement weather in July and early August, no sheep surveys were flown in Unit 14C during 1999.

We analyzed harvest reports for all units. All Unit 14C sheep hunters were required to bring their permit and sheep horns to an ADF&G office within 10 days of taking a sheep. Horns were aged by horn annuli, and length and base measurements were recorded.

Total harvest for the Chugach Mountains was 153 sheep: 121 full-curl or larger rams, 2 young rams (less than full-curl), and 30 ewes (24% hunter success). In Unit 13D, 216 hunters shot 59 full-curl rams (27% hunter success). In Unit 14A, 123 hunters shot 25 full-curl rams (20% hunter success).

All sheep hunting in Unit 14C is by drawing permit. In 1999 hunters applied for 3 types of drawing permits: full-curl ram or ewe, ewe-only, or any sheep (archery-only). We issued 415 drawing permits (180 full-curl ram/ewe, 100 ewe-only, and 135 any-sheep [archery-only]); 294 hunters went afield and 69 hunters killed sheep (23% hunter success). Of these, 37 were full-curl or larger rams (including rams less than full curl but with both horns broomed or at least 8 years old), 1 was a young ram (less than full curl, taken by archery), 1 was a young ram taken illegally, and 30 were ewes. The success rate for the archery-only permits, including 80 issued during a late season (1–10 October) hunt, was 9%, while hunters in the remainder of the hunts achieved a 29% success rate.

Progress Meeting Project Objectives: The population and harvest objectives were met. However, surveys conducted during summer of 2000 in the eastern Talkeetna Mountains, Tonsina Controlled Use Area, and northern Unit 14C, indicate that unfavorable winter conditions during 1999–2000 may have reduced sheep numbers by 30% in Unit 13D and 14A portions of the Chugach Mountains. If declines in sheep numbers are as large as estimated, population and harvest objectives will probably not be met during fall 2000 or 2001. The full-curl and ewe-only permits in Unit 14C focused the harvest on large rams and ewes, while protecting young rams, a significant improvement over the previous "any sheep" regulation. As the number of full-curl rams increases, the number harvested should also increase in Unit 14C.

South Wrangell Mountains (Unit 11)

Project Objectives and Activities

To allow the population to fluctuate according to available habitat, climate conditions, and predation.

To allow harvest of mature rams as they are available in the population.

To allow very limited harvest of other sex and age classes on a sustained-yield basis.

Management-Related Activities

- Identify critical sheep habitat (e.g., mineral licks and lambing areas).
- Monitor the harvest through hunter contacts and harvest reports.

Work Accomplished During the Project Segment Period: Surveys were flown in count areas 11, 12, 13, 14, 15 and 22 during 1999. Count area 11, located between the Dadina River and Long Glacier, has been surveyed more frequently than all other count areas in Unit 11. The count rebounded to 256 sheep from last year's low of 184 sheep. This is still far below the 559 counted in 1986. The trend in CA 11 is a long-term decline in abundance of sheep. The count in adjacent CA 12 was similar to last year's survey but still lower than all previous surveys since 1981. We observed 374 sheep in CA 13 this year, more than twice the number counted in 1983 when it was last surveyed. The count from the Crystalline Hills (CA 14) was up slightly from its low of 79 sheep in 1994. We observed a total of 91 sheep this year, including 5 full-curl rams. National Park Service personnel surveyed Count area 22, the Hawkins Glacier area, again this year. A total

of 303 sheep were observed in CA 22, very similar to the 305 observed last year. Survey conditions were reported as good for all areas counted in 1999. No progress was made identifying lambing areas in Unit 11 this year.

Hunters killed 124 sheep in Unit 11 during the 1999 hunting season. This harvest includes 84 mature rams taken by sport and subsistence hunters, 26 rams <full-curl, and 14 ewes taken by subsistence hunters. Total harvest has remained between 110 and 143 sheep since 1994, and ewe and small ram harvests have remained stable and relatively low.

Progress Meeting Project Objectives:. Sheep populations were high in Unit 11 throughout the early and mid 1980s. Sheep surveys in recent years indicate sheep numbers have declined in some portions of Unit 11 from previous population highs. In the early 1990s the count of ewes and lambs showed the largest decline, however there was also an overall decline in all sex and age categories. Those years of low lamb production/recruitment in the early 1990s are now resulting in reduced ram harvests.

During this reporting period, wolves were abundant in Unit 11 and wolf predation on sheep appeared to be high. Wolves are often observed at higher elevations where wolves could easily hunt sheep. Observations of surplus killing of sheep by wolves were recorded during the winters of 1989 and 1992. Sheep hunters have also reported observing wolves in the high country and wolf scats containing sheep hair. Coyote abundance is also high and may impact sheep in the Wrangell Mountains.

On average, hunting pressure in the 1990s has increased by almost 42%, compared to that in the 1980s. From 1981–89 an average of 236 (range 204–259) people reported hunting sheep in Unit 11 compared to an average of 330 (range 253–388) for 1990–99. Success rate was high (49%) for those that reported hunting in Unit 11 in 1999. The subsistence take of small rams and ewes seems to vary between 30 and 50 animals each year and reflects the subsistence demand at this time. The definition of a subsistence hunter in Unit 11 was broadened under state law during 1990 to include all state residents, whereas only local rural residents were considered subsistence sheep hunters in previous years. The current subsistence harvest of small rams is relatively low, dispersed throughout the unit and has little impact on ram numbers. The subsistence ewe harvest is also low but is only of concern when most of the harvest is in concentrated areas as happened in 1995 when areas adjacent to the Chitina-McCarthy Road accounted for 47% (9) of the ewes taken. During the past 4 seasons, the ewe harvest was more evenly distributed throughout the unit. Ewe and small ram harvests at the present level are not considered a biological problem at this time and probably do not influence overall sheep abundance. Harvest objectives were met for Unit 11, and no changes in season dates or bag limits are recommended at this time for either the sport or subsistence hunt.

Segment Period Project Costs

	Personnel	Operating	Total
Planned	12.0	3.0	15.0
Actual	12.0	3.0	15.0
Difference	0.0	0.0	0.0

Submitted by

Michael G, McDonald
Assistant Management Coordinator

Project Title: **Interior Dall Sheep Population Management**

Project Location: Units 9, 16, 17, 19 (4600 mi^2)
Alaska Range west and south of Denali National Park and Preserve

Objectives

1. Maintain a full-curl harvest strategy.

2. Determine the conditions hunters consider to be aesthetically pleasing.

Management-Related Activities

- Develop a questionnaire to determine what hunters find "aesthetically pleasing."
- Assess the level of hunter satisfaction.
- Solicit ideas for future management strategies and regulatory changes.

Activities Planned: Monitor the harvest through hunter contacts and harvest or permit reports (all objectives).

Activities Accomplished: Monitored the harvest through hunter contacts in the field and permit reports (all objectives).

Project Location: Portions of Unit 12 (9978 mi^2)
Mentasta, Nutzotin, and northern Wrangell Mountains

Objectives

1. Provide the greatest level of sustainable annual opportunity to participate in hunting Dall sheep.

2. Provide the greatest sustainable annual harvest of Dall sheep.

3. Provide the opportunity to view and photograph Dall sheep under natural conditions.

Activities Planned

Monitor the harvest through hunter contacts and harvest or permit reports (objectives 1 and 2).

Activities Accomplished

1. Reviewed management objectives using input from advisory committees, guides, landowners, sportsman groups, and tourists in relation to past survey and harvest data. No changes were necessary to meet biological or public needs or to comply with the intensive management law (objectives 1–3).

2. Monitored harvest and hunter distribution using aerial surveys, hunter contacts in the field, and harvest reports (objectives 1 and 2).

Project Location: Portions of Units 12, 13, and 20 (1500 mi^2)
Tok Management Area

Objectives

1. Maintain a population capable of allowing hunters to be selective in harvesting 30–45 rams each year.

2. Maintain a mean horn length of 36–37 inches among harvested rams and a mean age of 8–9 years.

3. Maintain an average of 7–10% rams with 40-inch or greater horns in the harvest.

4. Prevent unacceptable increases in hunter concentration and maintain the existing aesthetically pleasing qualities associated with sheep hunting in the TMA.

Activities Planned: Monitor the harvest through hunter contacts and harvest or permit reports (all objectives).

Activities Accomplished

1. Administered the drawing permit hunt (all objectives).

2. Completed a public review process of the project objectives using a written questionnaire and discussions with advisory committees, past TMA permit applicants, and state and national sportsman groups. Results of the survey were presented at the Alaska Board of Game meeting in March 2000 and at the International Sheep Conference held in Whitehorse, Yukon, Canada in June 2000. Results will also be published in the conference proceedings (all objectives).

3. Monitored harvest and hunter distribution using aerial surveys, hunter contacts in the field, and harvest reports (objective 4).

4. Conducted an aerial composition survey in the western portion of the TMA including the Robertson and Johnson River drainages (objective 1).

Project Location: Portions of Units 13B, 20A, and 20D (1680 mi^2)
Delta Controlled Use Area (DCUA)

Objectives

1. Manage a population of approximately 1800 sheep to provide a mean annual harvest of 35 full-curl rams with a mean horn length of more than 36 inches and mean age exceeding 8 years.

2. Monitor Dall sheep harvest through hunter contacts and permit reports.

3. Conduct aerial and/or ground composition surveys of Dall sheep.

4. Mail a questionnaire to hunters and quantify their satisfaction with aesthetics of Dall sheep hunting in the DCUA.

Activities Planned

1. Monitor the harvest through hunter contacts and harvest or permit reports (all objectives).

2. Conduct aerial surveys to estimate initial productivity and lamb survival (objectives 1 and 3).

Activities Accomplished

1. Monitored harvest using 1) permit reports and 2) hunter contacts through questionnaires (all objectives).

2. Conducted no aerial surveys due to inadequate funding (objectives 1 and 3).

Project Location: Unit 20A (6796 mi^2)
North side of the Alaska Range east of the Nenana River, west of the Delta River, and south of the Tanana River

Objectives

1. Provide the greatest sustainable annual opportunity to hunt Dall sheep.

2. Manage for a Dall sheep population of approximately 5000 sheep.

3. Maintain naturally regulated ewe and subadult ram segments of the population.

Activities Planned

1. Monitor the harvest through hunter contacts and harvest or permit reports (all objectives).

2. Conduct aerial surveys to estimate initial productivity and lamb survival (all objectives).

Activities Accomplished

1. Analyzed harvest and permit report information (all objectives).

2. Conducted aerial surveys to estimate initial productivity and lamb survival (all objectives).

Project Location: Portions of Units 20B, 20F, and 25C (534 mi^2)
White Mountains

Objective: Manage for the annual opportunity to harvest full-curl rams from a population of at least 250 Dall sheep.

Activities Planned

1. Monitor the harvest through hunter contacts and harvest or permit reports.
2. Conduct aerial surveys to estimate initial productivity and lamb survival.

Activities Accomplished

1. Summarized and analyzed harvest data.
2. Conducted an aerial composition count during August 1999.

Project Location: Portions of Units 20D and 20E (1000 mi^2)
Tanana Hills

Objective: Monitor harvest through hunter contacts and harvest or permit reports.

Activities Planned

1. Monitor the harvest through hunter contacts and harvest or permit reports.
2. Conduct aerial surveys to estimate initial productivity and lamb survival.

Activities Accomplished

1. Reviewed the management objective and found no biological or social evidence for change.
2. Conducted an aerial composition survey in the Glacier Mt. area during September 1999.
3. Monitored harvest and hunter distribution using aerial surveys, hunter contacts in the field, and harvest reports.

Project Location: Unit 24, and portions of Units 23 and 26A (15,717 mi^2)
Central Brooks Range west of Dalton Highway Corridor to Howard Pass, including Gates of the Arctic National Park

Objectives

1. Maintain an annual subsistence harvest of up to 50 sheep in the GAAR and a general harvest of full-curl rams in the Wild, Alatna, and John River drainages.

2. Maintain a naturally regulated sheep population in the Central Brooks Range.

Activities Planned: Monitor the harvest through hunter contacts and harvest or permit reports (all objectives).

Activities Accomplished

1. Monitored general harvest through statewide permit reporting system (all objectives).

2. Monitored subsistence harvest in GAAR with local village sign-up sheets and coordinated efforts with Park Service staff (all objectives).

Project Location: Units 24 (eastern portion), 25A, 26B, and 26C (49,600 mi^2)
Eastern Brooks Range

Objectives

1. In cooperation with FWS, continue to monitor sheep population status using trend indicator areas.

2. Manage for a harvest of Dall sheep rams with full-curl or larger horns.

3. Monitor effects of the full-curl minimum size limit that took effect in fall 1993.

4. Work with ADF&G Subsistence Division and FWS to manage subsistence sheep harvests.

Activities Planned: Monitor the harvest through hunter contacts and harvest or permit reports (objectives 2, 3 and 4).

Activities Accomplished

1. Gathered and analyzed sheep harvest data (objective 1).

2. Discussed hunting conditions with hunters (objectives 2,3 and 4).

3. Monitored population status in selected trend areas using FWS resources (objective 1).

Segment Period Costs

	Personnel	Operating	Total
Planned	57.2	12.8	70.0
Actual	15.9	9.0	24.9
Difference	41.3	3.8	45.1

Explanation: The underexpenditure of operating funds resulted from cancellation of aerial surveys in Unit 19 and 25/26B and C because of poor weather. Widespread poor flying weather was partly responsible for the underexpenditure of personnel funds, as was shifting work assignment priorities to Fish and Game Fund activities and other federal aid activities.

Submitted by

Roy Nowlin
Regional Management Assistant

David James
Management Coordinator

Project Title: **Western Alaska Dall Sheep Management**

Project Location: Unit 23 and Unit 26A (99,000 mi^2)
Kotzebue Sound and Western Brooks Range

Project Objectives

1. Maintain a posthunt population in the Baird Mountains of 450–600 adult sheep.
2. Maintain a minimum ratio of 7–10 7/8+ curl rams:100 "ewes" (defined as adult females, yearlings, and 1/4- curl rams) throughout Unit 23.
3. Census sheep in the western portion of the DeLong Mountains between the Wulik Peaks and the headwaters of the Nimiuktuk River during July 2001.

Work Accomplished During the Project Segment Period: The department did not complete sheep survey work during this reporting period. The NPS surveyed sheep in the Baird Mountains during July 2000. Although the total Baird Mountain population size increased from 406 to 525 sheep (329 to 424 adult sheep), the NPS decided to close all federal lands to sheep hunting because few (10) full-curl rams were observed during the surveys. Unlike in previous years, the department and public had little input into the decision to close NPS lands to sheep hunting. Less than 10% of all sheep habitat in Units 23 and 26A is on state-managed lands; therefore, the department issued an emergency order closing all sheep hunting west of the Aniuk and Etivluk Rivers based on the NPS action. Sheep hunting remained open east of the Aniuk, Etivluk, Cutler and Redstone Rivers in Units 23 and 26A.

Progress Meeting Project Objectives: Based on NPS data, the Baird Mountain sheep population continued to recover with good lamb production following the decline that occurred in 1990 and 1991. However, the management process suffered in terms of department-NPS cooperation and meaningful public involvement in making management decisions.

Segment Period Project Costs

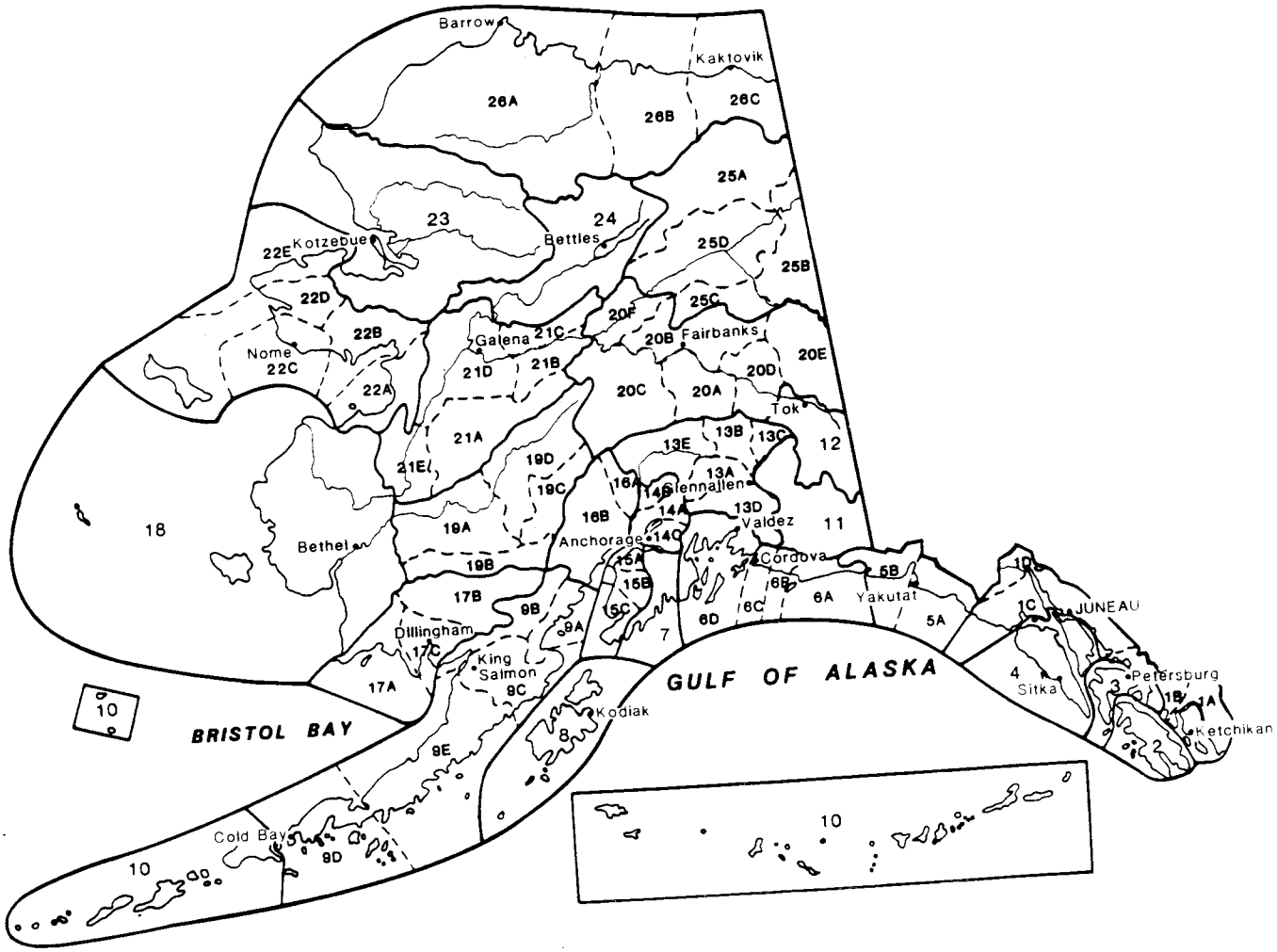
	Personnel	Operating	Total
Planned	11.9	12.0	23.9
Actual	4.1	3.1	7.2
Difference	7.8	8.9	16.7

Explanation: Personnel and operating costs were lower than planned because sheep counts in Unit 23 were not completed during the reporting period.

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

Ken Whitten