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**Alaska Department of Fish and Game
Division of Wildlife Conservation
Federal Aid in Wildlife Restoration
Annual Performance Report of
Survey-Inventory Activities
1 July 1990 - 30 June 1991**

DALL SHEEP



Illustration by Sue Arthur

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**Susan M. Abbott, Editor
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Project Title: Southcentral Alaska Dall Sheep Management

Project Location: Game Management Units 7, 11, 13-15

Project Objectives:

Kenai Mountains (Units 7 and 15): Maintain a population of sheep that will sustain an annual harvest of 25 rams.

Talkeetna Mountains (Units 13A and E, 14A and B): Maintain a population of sheep that will sustain an annual harvest of 75 rams.

Chugach Mountains (Units 11, 13D, 14A and C): Maintain a population of sheep that will sustain an annual harvest of 120 rams.

South Wrangell Mountains (Unit 11): Maintain a sheep population that will sustain an annual harvest of 60 rams.

Project Activities: Regionwide: Identify and document critical sheep habitat (e.g., mineral licks and lambing areas) for use in land use decisions. Monitor the harvest as to number of sheep and location of kills. Conduct summer aerial sex and age composition surveys.

Work Accomplished During the Project Segment Period: No work was directed specifically at identifying and documenting critical sheep habitat in southcentral Alaska. However, in GMUs 11, 13D, 14A, and 14C population surveys were conducted from which habitat use information was acquired.

For most of the region, 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 of kill, location of kill and transportation used were all noted in the harvest report. The sheep harvest by mountain range was as follows:

Kenai Mountains	33
Talkeetna Mountains	77
Chugach Mountains (except Subunit 14C)	197
South Wrangell Mountains	143

All Subunit 14C sheep hunters were required to return their permit reports within 15 days after the close of the season or, if successful, bring their permit and horns to an ADF&G office within 10 days of taking the sheep. The permit report specified the number of days

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hunted, method of take, date of kill, location of kill and transportation type. All horns were aged by horn annuli, and length and base measurements were recorded.

Hunters in Subunit 14C killed 101 sheep including 41 full curl or larger rams; 24 7/8-curl rams; 20 3/4-curl or less rams and 16 ewes. The mean horn length of rams 7/8-curl or larger was 35.3 inches and the mean age was 7.4 years. This was the second season in Subunit 14C where hunters could take any sheep.

A sheep survey was flown in GMU 11 on 17 July 1990 in Trend Count Area 11 (CA 11). This area was selected because it has high numbers of sheep, is hunted quite heavily, has the most recent count data of any GMU 11 count area, and is close to Glennallen, thus reducing survey costs. Three hundred and sixty-one sheep were counted, down 35% from a July 1987 count of 559 sheep. The decline was observed in all sex and age classes.

Herd composition for Subunits 13D and 14A was determined by aerial surveys flown during July and August, 1990. The number of sheep observed during the surveys was 1,261 in Subunit 13D and 301 in Subunit 14A. Composition (different observers used slightly different classification methods) was as follows: of 824 sheep classified in a portion of Subunit 13D there were 74, 3/4 curl or larger rams, 77 rams less than 3/4 curl, 521 ewes and 1-2 year old rams, and 152 lambs; the remaining 136 sheep observed in Subunit 13D were classified as 6, 4/4 curl or larger rams, 19 rams less than 4/4 curl, 8 unclassified rams, 85 ewes and 1-2 year old rams, 17 lambs, and 1 unidentified sheep. In Subunit 14A, the 301 sheep observed were comprised of 6, 4/4 curl or larger rams, 61 rams less than 4/4 curl, 2 unidentified rams, 168 ewes or 1-2 year old rams, 38 lambs, and 26 unidentified sheep.

Herd population size and composition for Subunit 14C was determined by aerial surveys flown during July, 1990. A total of 2,141 sheep were observed, comprised of 218 7/8-curl or larger rams, 440 1/2-to 3/4-curl rams, 259 lambs, and 1,224 ewes and 1- or 2-year old rams.

Progress Towards Meeting Project Objectives: Harvest objectives for the Kenai, Talkeetna, Chugach, and South Wrangell Mountains were exceeded. Sheep populations in southcentral Alaska ranges are at relatively high levels although declines may be occurring in some areas. Sufficient numbers of full-curl rams were available in 1990 to meet management objectives.

Segment Period Project Costs:

	<u>Personnel</u>	<u>Operating</u>	<u>Total</u>
Planned	5.5	2.5	8.0
Actual	5.5	5.5	12.0
Difference		+3.0	+4.0

Explanation: Funding was reprogrammed from mountain goat management to conduct sheep surveys in GMUs 11, 13D, and 14A because of suspected declines in numbers and because of either sex harvests in GMU 11.

Submitted by:

John Trent and Kenneth Pitcher
Management Coordinators

Project Title: **Region III Dall Sheep Population and Habitat Management**

Project Location: Units 9, 12, 13, 16, 17, 19, 20, 24, 25, and 26

Sheep populations in the region are managed by mountain range or special hunt area. Because mountain ranges frequently divide Game Management Units, unit numbers may be repeated in different parts of this text.

Units 9, 16, 17, and 19, Alaska Range West:

Project Objectives and Activities: Manage the existing Dall sheep populations at recorded levels of abundance and productivity. Manage for uncrowded hunting conditions and an average success rate of at least 50%.

Manage for a mean horn length of not less than 34 inches and a reported mean age above 7.5 years among harvested rams.

Monitor the harvest through hunter contacts and harvest or permit reports. Conduct aerial or ground composition surveys.

Work Accomplished During the Project Segment Period: Sheep harvests in the Alaska Range West were monitored and assessed through evaluation of hunter harvest reports. No attempt was made to assess hunter distribution or success in the field during the open season.

According to harvest reports, 265 hunters took 151 rams for an overall hunter success rate of 57%. Nonresident hunters took 102 rams and had a success rate of 70%. Resident hunters reported harvesting 46 rams with a 41% success rate. Access was almost entirely by aircraft. Ram horn lengths averaged 36.1 inches, and mean reported age was 8.86 years.

A record number of hunters reported hunting in the Alaska Range West during 1990. Increases were in nonresident participation. No aerial surveys of the sheep population in the Alaska Range West were conducted during this report period.

Progress Toward Meeting Project Objectives: The management objectives listed above for the Alaska Range West were fulfilled. Changes in regulations allowing only the harvest of full-curl or larger rams will probably serve to maintain a healthy population.

Unit 12, North Wrangell, Nutzotin, and Mentasta Mountains

Project Objectives and Activities: Manage to maintain a population of approximately 12,000 sheep. Monitor the harvest through hunter contacts and harvest reports.

Work Accomplished During the Project Segment Period: Harvest reports were analyzed for this area. Four hundred twenty-two hunters reported taking 230 full-curl rams during the 1990 season for a hunter success rate of 55%. This is a high harvest success rate for an area managed to provide maximum opportunity to participate in hunting sheep. The mean horn length of 34.3 inches and the mean age of 8.7 years for harvested rams indicate stability in horn length and age among rams harvested since the full-curl regulation was implemented in 1984.

Progress Toward Meeting Project Objectives: The regional objective of maintaining a stable or increasing sheep population and harvest was not compromised by the harvest of full curl rams. The human use objective of providing the maximum opportunity to participate in sheep hunting was attained.

Units 12, 13, and 20, Tok Management Area

Project Objectives and Activities: Manage for a harvest of 30-45 rams each year with a mean horn length of 36-37 inches among harvested rams and a mean age of 8-9 years. Manage to obtain an average of 7-10% of rams with 40-inch or greater horns in the harvest.

Manage to prevent unacceptable increases in hunter concentration and maintain the existing aesthetically pleasing qualities associated with sheep hunting in the Tok Management Area (TMA). Monitor the harvest through hunter contacts and harvest reports. Conduct aerial or ground composition surveys.

Work Accomplished During the Project Segment Period: One hundred twenty drawing permits were issued for fall 1990; 84 hunters reported taking 36 full-curl rams for a hunting success rate of 42.9%. Average horn length was 37 inches, and the mean age of rams harvested was 9.2 years. Seven (19%) of the 36 rams taken had horn lengths of 39 inches or greater, and 6 (17%) had horn lengths of 40 inches or more. The harvest of 36 rams was lower than average, but within the limits specified in the objectives. This lower harvest was probably a result of unfavorable weather during hunting season. The first 2 weeks of the season were unusually hot, and sheep were not in normal locations. The last 4 weeks of the season were rainy. The low harvest also coincided with a low yearling recruitment 8 years ago, but the number of large rams harvested and the high mean age did not suggest a scarcity of large or mature rams in the population.

Three-hundred-and-thirty-nine sheep were classified at the Sheep Creek mineral lick on 4-8 July 1990. The ratio of lambs:100 ewes 2 years of age or older was 65:100 in this sample. The yearlings:100 ewes ratio was 25. Nineteen radio-collared ewes (marked before 1986) were seen. In this small sample, 11 had lambs, for a marked sample estimate of 58 lambs:100 ewes. Of the 19 radio-collared ewes observed, 13 were older than 10 years. This represents a high proportion of old ewes and suggests the ewe

population will decline at the next normal-to-difficult winter. The high lamb ratio attending this high ewe population indicates the lamb cohort produced in 1990 was unusually large.

Progress Toward Meeting Project Objectives: Management objectives in the TMA have been achieved throughout the last decade and were maintained this year. The likelihood of continued attainment of these objectives was increased by advising the Board of Game that customary and traditional use of sheep for subsistence purposes has not been documented in the TMA. The Board did not propose a customary and traditional finding for the area.

Units 13 and 20, Delta Controlled Use Area

Project Objectives and Activities: Manage a population of approximately 1,800 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. Manage to provide aesthetically pleasing hunting conditions.

Activities: Monitor the harvest through hunter contacts and permit reports. Conduct aerial or ground composition surveys.

Capture sheep in the Delta Controlled Use Area (DCUA) in Subunit 20D. Collect and analyze blood samples. Mail a questionnaire to hunters and quantify their satisfaction with DCUA aesthetics.

Work Accomplished During the Project Segment Period: Forty-eight people (45 residents and 3 nonresidents) hunted during the first season (permit hunt 1103), killed 15 sheep, and had a 31% success rate. Sheep killed during hunt 1103 had a mean horn length of 36.2 inches and a mean age of 9.4 years.

Forty-nine people (48 residents and 1 nonresident) hunted during the second season (permit hunt 1104), killed 12 sheep, and had a 24% success rate. Sheep killed during hunt 1104 had a mean horn length of 36.7 inches and a mean age of 9.5 years.

Overall, 94 people hunted in the DCUA (93 residents and 4 nonresidents) and killed 27 sheep for a success rate of 29%. Mean horn length was 36.4 inches and mean age was 9.4 years.

Composition data were collected from the ground at the Granite Creek mineral lick from 4-8 and 14-16 June 1991. Observers classified 119 sheep and calculated ratios of 21 lambs:100 ewes, 32 yearlings:100 ewes and 41 rams:100 ewes.

Nineteen sheep were captured from 4-8 and 14-16 June 1991 at the Granite Creek mineral lick. Blood was taken from each sheep and will be analyzed for the Granite Creek serological survey. All captured sheep were marked with neck collars or ear tags.

Questionnaires were mailed to all DCUA hunters. Twenty-eight hunters with permits for hunt 1103 responded and 89% were satisfied with the aesthetics of their hunt. Seventeen hunters with permits for hunt 1104 responded and 82% were satisfied with the aesthetics of their hunt. Overall, 87% of hunters were satisfied with the aesthetics of their hunt.

Progress Toward Meeting Project Objectives: Harvest was below the objective during this report period; however, mean horn length and age met the objective for those sheep that were harvested. Composition data were collected, sheep were captured, and blood was collected at the Granite Creek mineral lick. Most hunters were satisfied with the aesthetics of their DCUA hunt.

Unit 20, Central Alaska Range

Project Objectives and Activities: Provide the greatest level of sustainable annual opportunity to participate in hunting Dall sheep. Provide the greatest level of sustainable annual harvest of Dall sheep. Provide the opportunity to view and photograph Dall sheep under natural conditions. Monitor the harvest through hunter contacts and harvest reports. Conduct aerial or ground composition surveys.

Work Accomplished During the Project Segment Period: Harvest reports were returned by 369 hunters who reported taking 122 full-curl rams in 1990. Horn length averaged 34.4 inches and age of harvested rams averaged 8.9 years. Of 369 reporting hunters, 274 were residents, 54 were nonresidents, and 37 did not report residency. The greatest harvest and hunting pressure by drainage came from the Wood River where 31% of the harvest and 28% of the hunters were located. Aircraft have traditionally been the most popular form of access for sheep hunting in Subunit 20A, 49% of the hunters used aircraft for access in 1990. Fifteen percent of the hunters used horses for access. Hunters using horses achieved the highest success rate (52%). Aerial surveys were not conducted during the report period, but surveys are planned for July 1991.

Progress Toward Meeting Project Objectives: Additional project objectives were established during the report period. They were to maintain a Dall sheep population of approximately 5,000 sheep and maintain naturally regulated ewe and subadult ram segments of the population.

The project objective of providing the greatest opportunity to participate in hunting Dall sheep is being provided with a general season hunt for full-curl rams from 10 August through 20 September.

Subunits 20B, 20F, and 25C, White Mountains

Project Objectives and Activities: Manage a population of at least 250 Dall sheep. Establish guidelines by 1990 for protection of sheep habitat in the White Mountains in cooperation with other land management agencies and potentially affected interest groups.

Determine by 1991 if the management goal of providing aesthetic hunting conditions is consistent with current public interest. Monitor the harvest through hunter contacts and harvest or permit reports. Conduct aerial or ground composition surveys.

Work Accomplished During the Project Segment Period: Nineteen hunters reported taking 3 sheep during 1990 in the White Mountains. Of the 18 hunters who indicated residency on their harvest report, all were residents. Nine of the 19 reporting hunters used three-wheelers for access and 7 reported using aircraft. Two of the 3 successful hunters used aircraft for access, the 3rd walked to the hunt area. No aerial or ground composition surveys were conducted during this report period, but they are planned for FY92.

Progress Toward Meeting Project Objectives: Harvest reports indicate that hunter effort and harvest in the White Mountains remain low.

Unit 20, Tanana Hills

Project Objectives and Activities: Manage for aesthetically pleasing hunting conditions. Manage to increase sheep numbers from an estimated 350 to 700 by the year 2000. Monitor the harvest through hunter contacts and harvest or permit reports.

Work Accomplished During the Project Segment Period: Twelve drawing permits were issued to hunters for the Charley River, Seventymile River, and Mount Harper areas. Hunters needed only harvest tickets to hunt in the Glacier Mountain Controlled Use Area. In the Glacier Mountain area, 9 hunters (7 residents and 2 nonresidents) reported hunting sheep. One was successful, harvesting an 11-year-old ram with 37.6-inch horns. In the drawing permit areas, 2 hunters participated in hunt area 1106; the harvest was one 10-year-old with 39.8-horns. In hunt area 1107, 2 hunters participated and took one 11-year-old ram with 36-inch horns. In hunt area 1108, 4 hunters participated but no sheep were taken. This level of participation in hunt areas 1106 and 1107 represents an increase of permit use and harvest in these areas.

Progress Toward Meeting Project Objectives: The use objective to provide an aesthetically pleasing hunting opportunity was achieved. All hunters were pleased with the quality of their hunting experience, and trophy size was good. No identifiable progress was made in increasing the size of the sheep population.

Unit 24, Central Brooks Range

Project Objectives and Activities: Maintain or increase the sheep population within the Gates of the Arctic National Park and provide for opportunities to view and photograph sheep while allowing for an annual subsistence harvest of up to 50 sheep.

In others areas of the unit, maintain or increase the sheep population to provide an annual harvest of at least 5 rams under aesthetically pleasing hunting conditions. Monitor subsistence sheep hunting success through periodic visits to villages in the unit.

Work Accomplished During the Project Segment Period: Within the Gates of the Arctic National Park, 50 people signed up to hunt sheep under a subsistence season. Hunters reported harvesting 22 sheep of which 18 were rams, 2 were ewes, and 2 were yearlings. All were harvested between August and October. Harvest data were obtained through post-hunt, direct contact and letters.

Outside the park, 11 hunters harvested 7 rams; 1 each was taken in the Alatna and John River drainages and 5 were from the Wild River. Five of the successful hunters were residents and 2 were nonresidents.

Progress Toward Meeting Project Objectives: Objectives to monitor harvest through harvest tickets and permits were met. No aerial surveys were conducted. Management objectives are being met through the low harvest.

Units 24, 25, and 26, Eastern Brooks Range

Project Objectives and Activities: Select trend indicator areas for determination of herd size, composition, productivity, and population trends by 1991. Develop subsistence harvest assessment techniques by 1991. Manage for a harvest of rams with a mean horn length exceeding 34 inches and a mean age of more than 8 years.

Manage for an annual hunter harvest success of at least 40% among recreational hunters. Determine hunter attitudes regarding the aesthetic quality of sheep hunting in the eastern Brooks Range by 1991. Identify suitable sites for viewing and photographing sheep and cooperate with other agencies to promote those sites by 1992. Monitor the harvest through hunter contacts and harvest or permit reports. Conduct aerial or ground composition surveys.

Work Accomplished During the Project Segment Period: Hunter reports were analyzed. The number of recreational hunters participating in sheep hunting rose slightly from 457 in 1989 to 493 in 1990. Of these 493 hunters, 59% were successful, harvesting 293 rams with 7/8-curl or larger horns. Most of the harvest (205 rams or 70%) was taken in Unit 26. Resident and nonresident hunters accounted for 53% and 47% of the harvest,

respectively. Eleven percent of hunters did not specify residency. Hunters spent an average of 5.3 days afield and took rams with horns averaging 34.5 inches in length and 13.1 inches in base circumference. The mean age of rams harvested was 9.2 years. Subsistence sheep harvest information reported from Arctic Village indicated 3 sheep (2 adult males, and 1 adult ewe) were taken by one hunter. Reports from Kaktovik indicate 7 permits were issued; 5 hunters reported. The reported harvest was 5 sheep (2 adult ewes, 2 adult rams, and 1 lamb). In Subunit 25A, 57 permits were issued to hunters who did not live in Arctic Village, and 56 hunters returned report cards. Of these 56 hunters, 24 reported hunting, and the reported harvest was 3 ewes and 3 rams.

No surveys were accomplished in the Eastern Brooks Range during this report period.

Progress Toward Meeting Project Objectives: Cooperative work with the U.S. Fish and Wildlife Service (USFWS) resulted in a foot survey of the Atigun area where 283 sheep were classified. The composition was 21.9% rams with 8% of these rams being legal for harvest at 7/8 curl or greater. There were 62 lambs:100 ewes and 17 yearlings:100 ewes. Aerial surveys were also conducted in a low-density area on the East Fork of the Chandalar River where individuals were marked to define a trend population area.

Population trend indicator areas were expanded from 1 to 2 during the year by adding a trend area on the East Fork of the Chandalar River. Progress toward subsistence harvest assessment techniques was achieved by description of a federal subsistence zone for residents of Arctic Village. Sheep population stability in this area was enhanced through reduction of the bag limit from 3 sheep to 2 rams. The possibility of overharvesting ewe sheep was also reduced by moving the boundary for subsistence harvest of sheep under state regulations east from the Dalton Highway to the Middle Fork of the Chandalar River.

Harvest management objectives were achieved. A sample of hunters interviewed on the East Fork of the Chandalar River indicated the goal of providing aesthetically pleasing hunting opportunity was met.

Suitable sites for viewing and photographing sheep were jointly identified with the USFWS and forwarded to the Watchable Wildlife Program in the Department. An exploratory trip up the Dalton Highway was conducted by program personnel. No feedback on earlier recommendations has been received.

Segment Period Project Costs:

	<u>Personnel</u>	<u>Operating</u>	<u>Total</u>
Planned	37.5	6.9	44.4
Actual	37.5	4.0	41.5
Difference	0.0	+2.9	+2.9

Explanation: Excess sheep operating cost reallocated to caribou.

Submitted by:

Kenton P. Taylor
Management Coordinator

Project Title: Dall Sheep Survey and Inventory

Project Location: Units 23 and 26A
Western Brooks Range

Project Objectives: Maintain a minimum population of 800 or more sheep in the Baird Mountains, and 1,100 or more sheep in the Delong Mountains. Conduct aerial and ground sex and age composition surveys in established Trend Count Areas. Monitor hunter harvest and other mortality factors through harvest reporting, permit hunts, public contacts, and field observations. Improve harvest reporting rates among local sheep hunters. Develop updated population objectives in cooperation with the public and other agencies.

Work Accomplished During the Project Segment Period: Aerial sex and age composition surveys were conducted in the Baird Mountains in Unit 23 in July 1990. A total of 718 sheep were counted and the composition is as follows:

7/8-curl rams and larger	32
1/4-curl rams and larger	105
ewes and 1/4-curl rams	380
lambs	133
yearlings	86

The ratio of lambs:100 ewes and 1/4-curl rams was 35.0, and of 7/8-curl and larger rams:100 ewes and 1/4-curl rams was 8.4.

The magnitude of the harvest was monitored through the statewide harvest ticket system, the Unit 23 subsistence harvest ticket system, and the Baird Mountain permit reporting system. Local subsistence hunters who took sheep in Unit 23 during the 1 October-30 April season reported their harvest on a special harvest ticket designed for the subsistence hunt. Hunters who desired to take a ram during the fall season in the Baird Mountains were required to obtain a registration permit. All other hunters reported their harvest using a standard statewide harvest ticket.

Progress Toward Meeting Project Objectives: Aerial survey data collected in the Baird Mountains in July 1990 indicated that sheep numbers declined slightly from July 1989. The number of adults observed declined from 575 to 485, the number of lambs from 170 to 133, and the number of yearlings from 110 to 86. The population has experienced 2 consecutive severe winters since 1988-89 which may have contributed to the decline. In addition, wolf numbers are apparently increasing in both Unit 23 and 26A. Surveys were not conducted in the Delong Mountains, but are planned for July 1991. We recommend that sheep populations continue to be closely monitored to assess changes in population status, particularly those in the Baird Mountains.

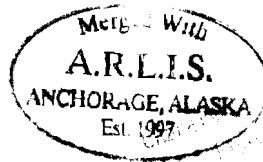
Segment Period Project Costs:

	<u>Personnel</u>	<u>Operating</u>	<u>Total</u>
Planned	11.5	6.0	17.5
Actual	8.2	4.3	12.5
Difference	-3.3	-1.7	-5.0

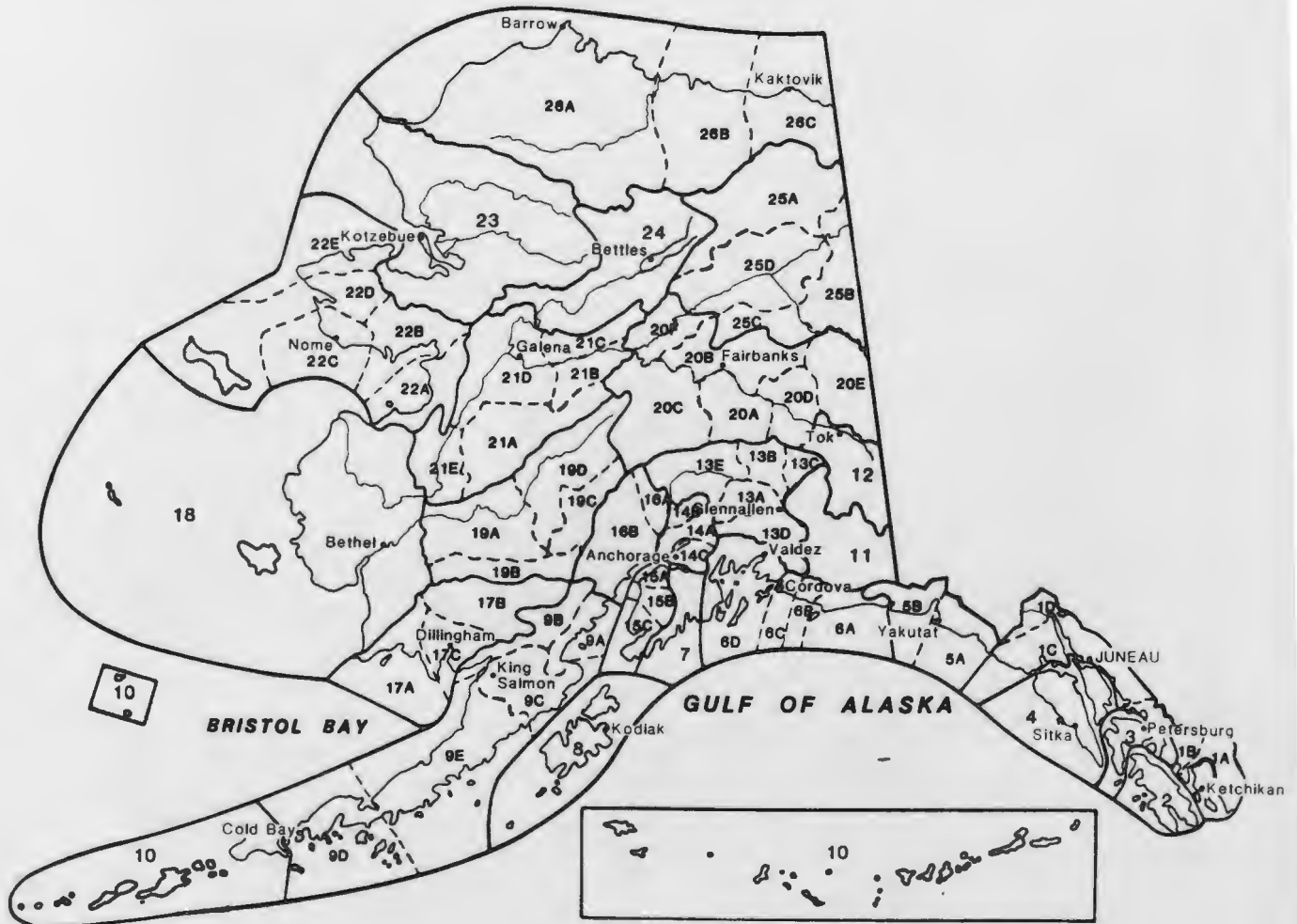
Explanation: A staff vacancy at Kotzebue resulted in less personnel expenditures for this project. In addition, surveys in the Delong Mountains in Units 23 and 26A were not conducted.

Submitted by:

Steve Machida
Management Coordinator



Alaska Game Management Units



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