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FURBEARERS

Susan M. Abbott, Editor
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Project Title: **Southeast Furbearer Population Management**

Overview: Principal furbearer species in the southeast Alaska region include marten, otters, beavers, mink, wolverines, and lynx. Because the levels of harvest for furbearers are generally a function of market prices, rather than species availability, harvests are not a reliable indicator of population status. However, information from trappers, observations in the field, and harvest data suggest that furbearer populations in the region are stable.

Project Location: GMU 1A and 2 (8,911 mi^2)
Subunit 1A - Ketchikan area including mainland areas draining into Behm and Portland Canals.

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

Project Objectives and Activities: Maintain furbearer populations capable of sustaining harvests at the 1984-85 level as follows:

Species	GMU 1A	GMU 2
Beaver	39	224
Marten	203	1,039
Otter	65	192
Wolverine & Lynx	Occasional	Not present

Seal beaver, marten, otter, lynx, and wolverine as they are harvested and presented for sealing. Contact reliable observers to obtain general information about the status and trends of furbearer populations.

Work Accomplished During the Project Segment Period: The following furbearers were harvested and sealed from Units 1A and 2 between July 1, 1990 and June 30, 1991:

Species	GMU 1A	GMU 2
Beaver	7	180
Marten	261	501
Otter	80	40
Wolverine	7	--

Anecdotal information about population levels was obtained through discussions with trappers and from personal observations made during field activities.

Progress Towards Meeting Project Objectives: Furbearer harvest levels are generally controlled by trapper effort, which is dictated by market prices. Prices are currently low for all species.

All indications suggest that populations of mink and otter are at high levels in both Units 1A and 2. Otter harvest objectives were met in Subunit 1A where a few local trappers continued to focus effort on them despite the low prices. The low harvest in Unit 2 is presumed to be because of a lack of trapper effort rather than to low numbers of otters. Similarly, the low beaver harvests from Units 1A and 2 are believed the result of negligible trapper effort rather than population declines.

Low marten prices did not appear to deter a few local trappers in Subunit 1A where the harvest was above the stated objective. In Unit 2, where road access allows trappers into previously inaccessible areas, the capability for over-harvesting marten remains a concern. However, because of low marten prices, it is difficult to attribute the low harvest to low population levels. Based on past fluctuations in harvest, and information obtained from trappers, the low harvest during 1990-91 was apparently because of a lack of trapper incentive rather than because of population declines. Close attention will be given to marten prices and resulting trapper effort in Unit 2 during the upcoming season.

Seven wolverine were reported harvested from Subunit 1A. This is more than ever reported during a single season.

Project Location: Units 1B and 3 (5,900 mi^2)
Southeast Mainland from Cape Fanshaw to Lemesurier Point and Adjacent Islands

Project Objectives: Maintain furbearer populations capable of sustaining harvest at the 1984-85 levels as follows:

Species	Subunit 1B	Unit 3
Beaver	4	52
Marten	185	250
Otter	15	141
Wolverine	4	3

Work Accomplished During the Project Segment Period: During the sealing process, trappers were questioned about their impressions of populations and regulations. Most felt that populations were in good condition, except for some small areas around communities where trapping effort, especially for marten, may have been excessive. None expressed a desire for more restrictive regulations.

Requests for permits to remove problem beaver were considered. Beaver excluders were recommended instead of removing the beaver.

Progress Towards Meeting Project Objectives: The harvest of furs in any one year is often more an indication of the prevailing market prices rather than of furbearer abundance. Population trends can only be determined over long periods of time, if at all, in this region where trapping is usually a secondary source of income or pursued only as a hobby. As the following table shows, the reported harvest was mixed, compared to the objectives. There were no indications that any populations were being reduced by trapping.

Species	Subunit 1B	Unit 3
Beaver	0	30
Marten	162	101
Otter	21	37
Wolverine	9	2

Project Location: Subunit 1C (7,562 mi^2)
Southeast Alaska mainland, and the islands of Lynn Canal and Stephens Passage lying between Cape Fanshaw and the latitude of Eldred Rock, including Sullivan Island and the drainage of Berners Bay.

Project Objectives and Activities: Maintain furbearer populations capable of sustaining harvest at the 1984-85 level as follows:

Beaver	36
Lynx	1
Marten	245
Otter	34
Wolverine	9

Seal beaver, marten, otter, lynx, and wolverine as they are harvested and presented for sealing. Contact reliable observers to obtain general information on the trapping season.

Work Accomplished During the Project Segment Period: Fur harvest data was collected through the mandatory sealing process interviews. A trapper questionnaire was used to gain additional information regarding target species abundance, prey abundance, trapping conditions, and trapping patterns. Trappers were also asked to comment on the impacts of timber harvest or other development on their traplines. A trapline calendar was also employed to gain insight into trapping pressure and success rates.

Progress Towards Meeting Project Objectives: GMU 1C furbearer populations appear stable. Harvest levels were at, or near, management goals for otter and marten but below for beaver and wolverine. Trappers took 15 beaver, 245 marten, 34 otter, and 5 wolverine. No lynx have been taken in this area since 1984-85. Through the use of trapper questionnaires and activity calendars we should be able to better understand fluctuations in fur harvest in future years.

Project Location: GMU 1D (2,670 mi^2)
That portion of the southeast Alaska mainland lying north of the latitude of Eldred Rock, excluding Sullivan Island and the drainage of Berners Bay.

Project Objectives and Activities: Maintain furbearer populations capable of sustaining harvest at the 1984-85 level as follows:

Marten	100
Otter	6
Wolverine	9

Seal beaver, marten, otter, lynx, and wolverine as they are harvested and presented for sealing. Contact reliable observers to obtain general information on the trapping season.

Work Accomplished During the Project Segment Period: Fur harvest data were collected through the mandatory sealing process interviews.

A trapper questionnaire was used to gain additional information regarding target species abundance, prey abundance, trapping conditions, and trapping patterns. Trappers were also asked to comment on the impacts of timber harvest or other development on their traplines. A trapper activity calendar was also employed to gain insight into trapping pressure and success rates.

Progress Towards Meeting Project Objectives: Furbearer populations within GMU 1D appear stable. However, both wolverine and otter harvests fell to zero this year. It is assumed that the decline in harvest is related to fur prices and interest in trapping rather than fur abundance. Trapper questionnaires received from Subunit 1D trappers in late 1990 suggest no changes in perceived fur population levels.

Marten harvests were near average and, at 104 animals, slightly above management objectives.

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

Project Objectives: Maintain furbearer populations capable of sustaining harvest at the 1984-85 level as follows:

Beaver	14
Marten	1,355

Work Accomplished During the Project Segment Period: Marten, otters, and beavers were sealed within 30 days of harvest. Furs were examined at sealing, sex was determined, and measurements taken. Trappers were contacted on northeastern Chichagof Island for opinions on declining marten harvests.

Progress Towards Meeting Project Objectives: It is not possible to determine if the objective of maintaining a population adequate to provide a harvest of 12 beavers and 1,355 marten was met. The harvest may not reflect populations. A total of 704 marten and 4 beavers were harvested and sealed. There is no indication that trapping has depressed furbearer populations except on northeastern Chichagof Island where a system of logging roads provides access to most of the habitat. The 1990-91 marten and mink season was canceled by Emergency Order on northeastern Chichagof Island in response to declining marten populations.

Project Location: Subunits 5A and 5B (6,235 $miles^2$)
Cape Fairweather to Icy Bay, eastern gulf coast

Project Objectives and Activities: Maintain furbearer populations capable of sustaining harvest at the 1984-85 level as follows:

Beaver	3
Lynx	1
Marten	44
Otter	2
Wolverine	2

Seal beaver, marten, otter, lynx, and wolverine as they are harvested and presented for sealing. Contact reliable observers to obtain general information on the trapping season.

Work Accomplished During the Project Segment Period: Furs were sealed in Yakutat. Harvest was analyzed from furbearer sealing certificates. Anecdotal information about furbearer abundance was collected opportunistically from hunters, Department staff and Fish and Wildlife Protection officers.

No planning meetings were held during the report period. No surveys were conducted during the report period.

Progress Towards Meeting Project Objectives: Division of Commercial Fisheries staff in Yakutat sealed furbearers as they were presented at that ADF&G office. Residents of Yakutat as well as nonlocal outdoorsmen contributed anecdotal information about furbearer sightings. Three beaver, 1 otter, 56 marten and 3 wolverine were sealed during the trapping year. For the second year in a row, no lynx were taken. Management objectives for beaver, marten, and wolverine were met or exceeded, while otter and lynx objectives were not met. All furbearers killed were taken by local residents except for two other Alaska residents who took the three beaver and one otter.

Comments were made to the Division of Habitat and the U.S. Forest Service about furbearer habitat concerns. Logging of old-growth spruce/hemlock forest continue, which is especially important to marten and other fur species.

Segment Period Project Costs:

	Personnel	Operating	Total
Planned	19.6	2.5	22.1
Actual	19.6	2.5	22.1
Difference	0	0	0

Submitted by:

Bruce Dinneford
Regional Management Coordinator

Project Title: **Southcentral Alaska Furbearer Management**

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

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

Units 9 and 10 (45,500 mi^2) Alaska Peninsula, Aleutian, and Pribilof Islands

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

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

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

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

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

Project Objectives: Develop measurable objectives for all furbearer species throughout the region.

Work Accomplished During the Project Segment Period:

Unit 6: One-hundred-and-two pelts were sealed in the Cordova office (66 beavers, 24 otters, and 12 wolverines). Fourteen river otters were live-trapped for relocation to Utah.

Units 7 and 15: The Kenai Peninsula has a diverse complement of furbearers. The distribution and density of red foxes and marten are limited on the Kenai. Marten, beaver, land otter, wolverine, and lynx pelts were sealed by appointed sealers and ADF&G staff. Fifty-two marten, 69 beavers, 22 river otters, and 11 wolverines were harvested in Unit 7. Sixty-five beavers, 10 river otters, 21 wolverines, and 1 lynx were taken in Unit 15.

Lynx hunting and trapping seasons were closed in 1990-91 because of low numbers of animals. One lynx was accidentally injured during capture as part of a study by the USFWS and died shortly after release.

Unit 8: Beaver and river otter pelts were sealed by appointed sealers and ADF&G staff. Seventeen trappers submitted pelts for sealing. Twelve trappers harvested otters and 7 trappers harvested beavers. Eighty otters (43 males, 36 females, and 1 unknown sex) and

57 beavers was sealed. High individual catches were 23 beavers and 20 otters. The average catch was 6.7 otters/trapper and 8.1 beavers/trapper.

Questionnaires were mailed to 31 trappers who had previously trapped in Unit 8. Fourteen questionnaires were returned and 8 (57%) respondents reported trapping.

Units 9 and 10: Direct observational surveys were not conducted during this report period. An indirect survey to estimate furbearer population trends and relative abundance was accomplished by questionnaires mailed to a select group of trappers. Twenty-eight questionnaires were returned and trappers reported most species were relatively stable except for a slight increase in beaver populations.

Furbearer harvests are derived from furbearer sealing certificates. At this time, complete information is not available from sealing certificates. The preliminary harvest in Unit 9 is 212 beavers, 85 otters, 15 lynx, and 72 wolverines. There are no certificates for Unit 10.

Units 11 and 13: During 1990-91, 6 trappers sealed 13 wolverine (7 males, 2 females, and 4 unknowns) in Unit 11, and 23 trappers sealed 35 wolverine (22 males, 12, females, and 1 unknown in Unit 13. Sealing data for wolverines from both units indicated that the number trapped has declined appreciably in recent years. In Unit 11 the average annual wolverine harvest before 1984 was 27 but wolverine harvests have averaged only 14 since then. In Unit 13 between 1971 and 1982 the average annual take of wolverines was 81 compared to 31 between 1983 and 1989. All wolverine taken in Unit 11 were trapped; whereas in Unit 13, one was shot and the remainder trapped.

In Unit 11, 38 lynx were sealed by 7 trappers and 101 lynx were sealed by 20 trappers in Unit 13. This was the first lynx harvest in these units in 3 years. Kittens comprised 22% of a sample of 73 lynx carcasses purchased from trappers. This figure is below the 50% figure expected during a population high, therefore the population is probably still increasing and a year or 2 away from the peak of the lynx cycle. Two radio-collared lynx from other areas; 1 from Yukon Territory and the other from the Kenai Peninsula were taken in Unit 13 in recent years. This suggests that immigration could be an important component of the cyclic increase in lynx in Units 11 and 13.

No river otters were reported taken from Unit 11 in 1990-91 while 9 trappers sealed 16 otters (9 males and 7 females) in Unit 13. Otter harvests in Unit 11 are low and have changed little over the past 10 years, while in Unit 13 harvests have fluctuated widely, ranging from a high of 68 in 1983 to a low of 5 in 1990. The fluctuations in harvest levels are probably more because of changes in trapper interest and fur prices rather than changes in otter abundance. Nearly all harvest in both units is by trapping.

Four trappers sealed 17 beavers (6% kits) in Unit 11 and 20 trappers sealed 101 beavers (26%) kits in Unit 13. In Unit 11 beaver harvests have fluctuated in recent years between

a high of 59 in 1985 and a low of 11 in 1990. The Unit 13 beaver harvest was down the past several years from record harvests in 1986 and 1987 of 333 and 300 animals, respectively. It was still slightly higher than the 81 beaver average between 1972 and 1982.

Trapper questionnaires were used the past 4 years to estimate trapping pressure, harvests, and furbearer abundance. This year questionnaires were sent to 113 Unit 11 and Unit 13 trappers and 73 (65%) responded; 16 (22%) did not trap in 1990-91. The primary reason given for not trapping was low fur prices. Respondents from Unit 11 had trapped an average of 13 years, ran lines averaging 45 miles, and generally placed between 25 and 50 sets per line. Snowmachines and highway vehicles were the primary method of transport reported. Unit 11 trappers reported an appreciable increase in both lynx and wolves but little change in other populations. Unit 13 respondents reported an average of 12 years trapping in the unit. Most trappers set between 25 and 50 sets along lines that averaged 48 miles long and used either highway vehicles or snowmachines as transportation. Unit 13 trappers reported higher wolf, red fox, and lynx numbers than for the previous year. Marten were reported as less abundant while numbers of other furbearers were similar.

Only 8 of the 26 aerial transects established in Units 11 and 13 in 1988 to monitor lynx abundance were flown in 1991 and all were in Subunit 13C. All but one transect had lynx tracks and, overall, lynx appeared abundant. Two ground transects were surveyed by snowmachine. Tracks were less numerous than the previous year but some harvest had occurred along the transect routes before the surveys.

An aerial track census for wolverine was flown in Subunit 13A along the eastern slopes of the Talkeetna Mountains and a density estimate of 4.5 wolverines/1,000 km^2 was obtained. This was similar to the estimate of 5.2 wolverines/1,000 km^2 obtained in a portion of Subunit 13D in 1987. Direct extrapolation of these density estimates to the entire unit are not valid as densities vary throughout Unit 13. However, considering the varying densities, average home range size, and relative harvest levels I generated a very crude fall 1990 population estimate of 200 to 250 wolverines for Unit 13.

Unit 14: During the 1990-91 trapping season 135 beavers, 9 river otters, 13 lynx, and 17 wolverines were sealed from Unit 14. The lynx season was re-opened during 1990-91; the last prior open trapping season was 1986-87.

Forty-four beavers were taken in Subunit 14A, and 73, and 18 were taken in Subunits 14B and 14C, respectively. Four otters were taken in 14A and 3 were harvested in 14B. Ten wolverines were taken in Subunit 14A, and 3 and 4 were taken in 14B and 14C, respectively. All lynx from Unit 14 came from Subunit 14A. Returned trapper questionnaires indicated that coyotes, marten, mink, muskrats, red foxes, red squirrels, and weasels were also harvested in Unit 14.

Thirty-one trappers, with an average of 20 years trapping experience, responded to the Department's trapper questionnaire. Of these, 19 trapped during 1990-91. Responses came primarily from trappers who trapped in Unit 14, but also included people who trapped in Unit 16. The majority of respondents listed lynx, wolverine, and marten as "scarce," and all other species as "common or abundant." Most trappers commented that excessive snow depths and low fur prices limited their trapping efforts.

Muskrat pushup count areas were established and surveyed (from both air and ground) on the portion of Palmer Hay Flats State Game Refuge bisected by the Glenn Highway to help identify impacts associated with widening the highway.

Unit 16: During the 1990-91 trapping season 161 beavers, 7 otters, and 5 wolverines were sealed from Unit 16. The hunting and trapping seasons for lynx were re-opened after being closed after the 1986-87 seasons, but no lynx were reported taken. Forty-three beavers were taken in Subunit 16A, and 118 were taken in Subunit 16B. One otter was reported from Subunit 16A and 6 from Subunit 16B. All 4 wolverine were taken in Subunit 16B.

Other species of furbearers reported taken in Unit 16 on the voluntary trapper questionnaire included coyotes, marten, red fox, and weasel.

Unit 17: Preliminary data suggest a harvest of less than 1,000 beavers, a decline from previous years and perhaps the lowest harvest since 1978. Trappers reported that beavers were abundant throughout the unit. Low prices and poor weather conditions were cited for the reduced harvest.

Five coyotes were harvested and although coyotes were not abundant in this unit, local trappers indicated an increase in the number observed in the lower Nushagak and Wood River drainage.

Red foxes seemed to be increasing throughout the unit. Local fur buyers bought 110 foxes, but the actual harvest was considerably greater because many trappers retained fox pelts for personal use since buyers only accepted exceptional pelts. One Arctic fox was caught in the vicinity of Manakotak.

Preliminary data suggested a harvest of approximately 150 otters during this period. This apparently was an increase in harvest over last year, but comparable to the 5-year average. Trappers reported otters were abundant in Subunits 17B and 17C.

Two lynx, both from Subunit 17B, were harvested during this report period. Lynx numbers continue to be very low throughout the unit.

Data on the number of marten taken from the unit were not available for this period. Trappers reported a slight increase in marten numbers along the Nushagak, Mulchatna,

and Wood River drainage. Preliminary data indicated a harvest of 46 wolverine during the 1990-91 season. This is a considerable increase over last year's harvest level but is comparable to the 5-year average. Trappers reported an increase in wolverine numbers throughout the unit.

Progress Towards Meeting Project Objectives:

Unit 6: Population objectives have not been established for fur species. Progress in establishing objectives for furbearers was limited by methods, manpower, budgets, and priorities.

Units 7 and 15: Furbearer populations on the Kenai Peninsula provide benefits to a diverse group of resource users. However, because of low funding and lack of staff, objectives for furbearer management are not currently being achieved. Lynx and beaver censuses have been conducted in small study areas and will possibly be expanded to estimate densities on a subunit level in the future.

The current monitoring of harvests from sealing and reports from trappers suggest all furbearers except lynx are found in harvestable numbers and populations are stable. The lynx population declined during the late 1980s and has not started to increase enough to open a season.

Unit 8: Trapping effort and harvest were extremely low in 1990-91. The harvest of river otters was the lowest in the past 7 years and the take of beavers was the second lowest for the same time period.

Furbearer populations appear high, by subjective appraisal. Currently, trapping is not a significant mortality factor in any furbearer population. Red foxes and beavers are particularly abundant. River otters are potentially susceptible to overharvest and this species should be given priority in developing population assessment and management techniques.

Units 9 and 10: The lack of efficient methods to estimate and directly monitor populations, compounded by unreliable snow conditions, have hampered progress in developing measurable population objectives for furbearers in Units 9 and 10. Currently, the trapper questionnaire, opportunistic observations and sealing requirements are adequate for management purposes. If fur prices and trapping effort lead to increased harvests, more intensive management may be required.

Units 11 and 13: I recommend lengthening the lynx trapping season by Emergency Order in Units 11 and 13 for the 1991-92 season. Lynx are increasing and the Department told trappers seasons would be restricted during the low part of the cycle and liberalized during the high portion. A regulation proposal to lengthen the season was prepared for

the spring 1991 Board of Game meeting, however, the Board tabled all trapping proposals until spring 1992.

More information is needed on the Unit 13 wolverine population. Harvests have declined and new information suggests that the unitwide population is lower than previously thought. Current harvest exceeds 10% of estimated population size and may be too high to allow an increase. I recommend, until additional data indicate otherwise, that harvest be reduced, particularly the harvest of mature females. Females are more vulnerable to trapping after kits are born in February because of the increased energy demands of lactation. This results in more time spent traveling in search of food. I recommend that the wolverine season be shortened by 25 days to end on 31 January.

Low fur prices coupled with deep snows and very cold temperatures tended to reduce trapping pressure again this year. Some species like red fox and mink received very little pressure compared to prior years. Should fur prices improve, as expected, trapping pressure will likely increase.

Units 14 and 16: It would be desirable to develop quantitative management objectives for all furbearer species, but the Department currently does not have the expertise, manpower, or budgets to achieve this goal. Establishing trend area survey transects will aid in developing practical management objectives. Currently, the trapper questionnaire provides only limited insight into the status and trend of furbearer populations.

Unit 17: Pelts were sealed and trappers were interviewed informally during sealing. Trapper questionnaires were sent to 60 local trappers. Sixteen questionnaires were returned and they are currently being analyzed. Population surveys were not conducted.

Segment Period Project Costs:

	Personnel	Operating	Total
Planned	71.8	20.6	92.4
Actual	71.8	20.6	92.4
Difference	0.0	0.0	0.0

Submitted by:

Kenneth W. Pitcher and John N. Trent
Regional Management Coordinators

Project Title: **Region III Furbearer Population and Habitat Management**

Project Location: Units 12, 19, 20, 21, 24, 25, 26B, and 26C

Unit 12

Project Objectives and Activities: Maintain accurate annual harvest records based on sealing documents. Develop more specific population objectives for furbearers. Seal furs as they are harvested and presented for sealing and analyze harvest patterns. Conduct trapper questionnaire and interviews as a basis for determining the status of various furbearer populations.

Work Accomplished During the Project Segment Period: Based upon sealing certificates received in the Tok area office through 13 June 1991, harvests of furbearers during the 1990-91 season were as follows: 1 land otter, 13 wolverines, 19 beavers, and 133 lynx. Harvest of all species remained comparable with the 1988-89 harvests except for lynx. Kitten lynx comprised 17% of the harvest. The total lynx harvest increased significantly (70%). For this reason, an Emergency Order will not be needed again this year to retain the 2-month lynx season during 1991-92.

Discussions with local trappers and others indicated that populations of red foxes, coyotes, and lynx increased. Lower projected market demand and prices continued to reduce trapping effort for lynx. Low projected prices for muskrats, mink, red foxes, and coyotes resulted in less effort expended. Marten numbers were stable to slightly lower this season, probably because of increased abundance of predators. Snowshoe hare populations appear to be declining.

Progress Toward Meeting Project Objectives: Accurate annual harvest records were maintained for furbearer species that require sealing. No progress on developing more specific population management objectives was made because of a vacancy in the Area Biologist position during the last several months of the report period.

Unit 19, and Subunits 21A and 21E

Project Objectives and Activities: Determine annually current status and trends of furbearers and their primary prey species. Assess trapper effort and distribution. Obtain estimates of harvest for furbearer species not required to be sealed. Maintain open communications with area trappers.

Beaver: Manage the various subpopulations to maintain a mean pelt size >50 inches and <25% kits in the annual harvest. Manage the population to maintain a mean density of

not less than 1 active colony per 2 miles of waterway, as determined during annual fall cache surveys.

Marten: Obtain accurate estimates of annual harvests through comparisons of fur acquisition reports, fur export reports, and trapper questionnaires. Manage the population to maintain >50% males in the annual harvest and a ratio of young:adult female of not less than 2:1 in the annual harvest.

Lynx, River Otter, and Wolverine: Maintain accurate annual harvest records based on sealing documents.

Wolverine: Seal furs as they are harvested and presented for sealing and analyze harvest patterns. Manage the population to maintain >50% males in the annual harvests.

Muskrat, Mink, Red Fox, Coyote, Ermine, and Squirrel: Estimate numbers harvested, as well as trends in the respective populations yearly. Conduct trapper questionnaire and interviews as a basis for determining the status of various furbearer populations.

Subunits 21A and 21E: Manage the furbearer population to sustain furbearers at levels high enough to provide for maximum consumptive and non-consumptive use. Seal furs as they are harvested and presented for sealing and analyze harvest patterns. Conduct trapper questionnaire and interviews as a basis for determining the status of various furbearer populations. Assess marten population status through collection and analyses of carcasses. Conduct annual fall beaver cache counts along selected waterways.

Work Accomplished During the Project Segment Period: A preliminary 1990-91 hand tally of sealing certificates in Unit 19 indicates 17 lynx, 20 river otter, 52 wolverine, and 303 beaver pelts were sealed throughout the year. Sealing documents were submitted to Statistics Section for computer entry. Because of poor pelt prices and difficult traveling conditions, trapper effort was apparently well below the level of activity recorded in previous years. Eighty-three marten carcasses were gathered and analyzed for sex and age ratios in the harvest. Preliminary data were analyzed and indicated healthy marten populations.

Trapper questionnaires were mailed to 72 trappers. Responses were received from 27 trappers, and status and trends within the various furbearer and major prey populations were estimated from those responses. Trends in all furbearer and major prey populations were stable or increasing. In addition, data relative to abundance and species composition of small mammals were gathered through trapping transects.

In Subunits 21A and 21E, pelt sealing, trapper questionnaires, and informal discussions with area trappers indicated furbearer populations are generally increasing. Poor pelt prices and difficult traveling conditions led to a decrease in trapper effort throughout most

of the 2 subunits. Mink and beaver populations appear to be expanding, with other furbearer species remaining stable. Preliminary hand tallies of sealing documents revealed only 5 river otters, 6 lynx, 14 wolverines, and 79 beavers sealed for these 2 subunits.

Progress Toward Meeting Project Objectives: Sealing of furbearer pelts was accomplished through the use of several village sealing agents, traveling fur buyers, or Department personnel. Analyses of harvest and population trends will be completed when all sealing certificates and acquisition or export forms are submitted.

Eighty-three marten carcasses were collected from area trappers for analysis of sex and age ratios in the harvest. Ratios indicated a healthy and expanding marten population.

Because of conflicting duties, beaver cache surveys were not conducted during the 1990-91 season.

Subunits 20A, 20B, 20C, 20F, and 25C

Project Objectives and Activities: Maintain accurate records of furbearer harvest, pelt export, pelt acquisition, and population trends. Compile and summarize data on sealing certificates, fur export reports, fur acquisition reports, and trapper questionnaires. Manage beaver in the lower Chena River portion of Subunit 20B for an annual fall beaver colony density of <0.5 colonies/river km and mitigate problems arising from beaver activities. Conduct annual fall beaver cache surveys in the lower Chena River and Badger Slough. Open a limited registration trapping season if densities are $\geq$0.5 colonies/km. Issue nuisance beaver permits to remove problem animals. Coordinate with Department of Transportation and Public Facilities (DOT&PF) to minimize dammed culverts and flooded roads.

Manage beaver in Subunits 20A, 20C, 20F, 25C, and the remainder of 20B for an annual subunit harvest that includes <20% kits when the harvest for that subunit exceeds 50 beavers. Determine the proportion of harvested beaver that had pelts $\leq$52 inches (kits). Manage lynx with a tracking harvest strategy, whereby seasons are most liberal when lynx are abundant and most conservative when lynx are scarce. Estimate the annual sex and age of harvested lynx by examining carcasses from Subunits 20A and 20B. Determine whether or not lynx pelt measurements can be used to index the number of kittens in the harvest.

Maintain furbearer trapping seasons during periods of peak pelt primeness. Establish species-specific management objectives by 1992. Seal furs as they are harvested and presented for sealing and analyze harvest patterns. Conduct trapper questionnaire and interviews as a basis for determining the status of various furbearer populations.

Work Accomplished During the Project Segment Period: Preliminary counts of sealing certificates indicate that trappers harvested 14 land otters, 31 wolverines, and 556 beavers in 1990-91. Uniform Coding Unit (UCU) codes were assigned to sealing data to monitor distribution of harvest and supplies distributed to 11 non-department fur sealers.

Trapper questionnaire responses from 1989-90 were summarized and the mailing list for 1990-91 was reviewed. In June 1991, 132 trappers were sent a report on the 1989-90 responses and a 1990-91 questionnaire.

Beaver cache surveys on 26 September (lower Chena River) and 2 October (Badger Slough) indicated a density of 0.6 colonies/river km (29 colonies/52.7 km), which exceeded our management objective. Beaver densities were reduced by implementing a registration trapping season in this area and by issuing nuisance beaver permits to trappers for problem areas. Seventeen beavers were killed by 8 registration trapping permittees during the 1 December-31 January season. In addition, the number of beaver trapped under nuisance permits included 7 beavers taken by 10 permittees between July 1990 and October 1990, and 0 taken by 3 permittees in May and June 1991.

Fifty-one lynx carcasses from Subunits 20A and 20B (46% of the harvest from these subunits) were obtained during this third year of carcass collection. The percentage of kittens had decreased from 30 (13/43) in 1988-89 to 16 (8/51) in 1990-91. With the exception of 1 3-year-old male, all carcasses were from lynx $\leq$2 years old. As in the previous 2 years, more males (29) than females (21) were collected.

Although sample sizes were relatively small, pelt length data did not appear to provide a reliable index to the number of kittens in the harvest. Only 59% (17/29) of the known-age kittens had pelts $\leq$35 inches, which is the size used by some managers to index kittens. Although 82% (23/28) of the kittens had pelts $\leq$36 inches, 20% (6/30) of pelts in this size category were yearlings or adults. This large overlap between age-classes combined with annual changes in age structure reduce the value of pelt length data as an index to kittens. Pelt length data can, however, be useful in detecting an absence of recruitment before the low phase of the cycle.

Progress Toward Meeting Project Objectives: Beaver densities that exceed our management objectives or result in human-beaver conflicts were adequately reduced with a registration trapping season, issuing nuisance beaver trapping permits for problem areas, working with DOT&PF to clear dammed culverts, and by advising the public about ways to avoid beaver damage.

Data from lynx carcass collections, trapper questionnaires, and harvest currently provide adequate information about lynx population status to manage lynx with a tracking harvest strategy. Since 1984-85, the length of the lynx trapping and hunting seasons has changed 4 times in response to changes in lynx abundance. In 1991-92, carcasses will be solicited

from less intensively trapped subunits to compare with data from Subunits 20A and 20B. Pelt length data will also be collected for an additional year to increase sample sizes. These data will be summarized to evaluate the need for changes in regulations before the spring 1992 Board of Game meeting.

Although data on other furbearer species are being reviewed, no additional species-specific management objectives have been established yet. The new target date for establishing these objectives will be FY93.

Progress toward meeting our objectives pertaining to fur export, fur acquisition, and the percentage of beaver kits in the harvest cannot be evaluated until the Statistics Section distributes the 1990-91 furbearer data in fall 1991.

Subunit 20D

Project Objectives and Activities: Maintain viable populations of all furbearers. Seal furs as they are harvested and presented for sealing and analyze harvest patterns. Conduct trapper questionnaire and interviews as a basis to determine the status of various furbearer populations.

Work Accomplished During the Project Segment Period: Pelts were sealed for beaver, lynx, otter, and wolverine trapped in Subunit 20D. During this report period, trappers harvested 1 otter, 7 wolverines, 17 lynx, and 22 beavers.

Trapper questionnaires were mailed to trappers in Subunit 20D. Response to questionnaires will be analyzed during fall 1991.

Progress Toward Meeting Project Objectives: Furbearer populations are apparently stable or increasing. Trappers reported an increase in the number of lynx in the area. Increased lynx numbers were also reflected in the number of lynx sealed.

Objectives were revised to include the following: (1) monitor furbearer population trends and annual harvests of furbearers using sealing documents, fur acquisition reports, fur export reports, trapper questionnaires, and trapper interviews; (2) monitor trends in abundance of furbearer prey species by establishing snowshoe hare and small mammal trend surveys; and (3) determine lynx reproductive status by purchasing and examining lynx carcasses and reproductive tracts.

Subunit 20E

Project Objectives and Activities: Strategic management goals for furbearers in Subunit 20E may be found in the Greater Alaska Furbearer Plan, 1976 Alaska Wildlife

Management Plans. They are: provide for an optimum harvest of furbearers; provide the greatest opportunity to participate in hunting and trapping furbearers; and maintain viable populations of all furbearers.

Specific population objectives have not been fully developed for furbearers in Subunit 20E. The following are suggested as interim objectives: maintain accurate annual harvest records based on sealing documents; develop more specific population objectives for furbearers by 1992; seal furs as they are harvested and presented for sealing and analyze harvest patterns; conduct trapper questionnaire and interviews as a basis to determine the status of various furbearer populations.

Work Accomplished During the Project Segment Period: The following furbearers were sealed during this report period: 0 land otters, 3 beavers, 4 wolverines, and 70 lynx. Kittens comprised 40% of the lynx harvest, and the harvest increased 79% over the 319 lynx taken during the 1989-90 season. This demonstrates that the lynx population increased in summer 1990. Wolverine harvest decreased because of a drop in trapping pressure. Wolverine populations appear to be remaining stable.

Expanded trapper questionnaire data were unavailable. Trapper interviews indicated that marten populations were slightly decreasing, fox numbers were slightly up, and coyote abundance was stable.

With the establishment of criteria to implement a tracking harvest strategy for lynx, progress was made on attaining this objective. Setting more specific population objectives for the various species of furbearers may be neither feasible nor necessary in this large remote area.

Progress Toward Meeting Project Objectives: Accurate annual harvest records were kept for species sealed. No work was accomplished on establishing new species management objectives for furbearers in Subunit 20E because the Area Biologist position was vacant during the last several months of this report period.

Subunits 21B, 21C, and 21D

Project Objectives and Activities: Manage a furbearer population which will sustain furbearers at levels high enough to provide for maximum consumptive and non-consumptive use. Seal furs as they are harvested and presented for sealing and analyze harvest patterns. Conduct trapper questionnaire and interviews as a basis to determine the status of various furbearer populations.

Work Accomplished During the Project Segment Period: Based on sealing certificates received in Galena through 21 June 1991, harvest of furbearers from Subunits 21B, 21C, and 21D were 212 beavers, 11 lynx, 11 otters, and 4 wolverines. Harvests of all species were greatly reduced from previous years. Most unit trappers set for lynx, otter, and

wolverine incidentally to marten trapping. Low marten prices directly influenced the amount of effort trappers expended. Based on trapper interviews, questionnaires, and incidental track counts, numbers of lynx and wolverine are higher within the unit. Beaver and otter continue to be abundant.

Progress Toward Meeting Project Objectives: Fur prices and their influence on trappers currently keep harvests low enough to meet the objectives.

Unit 24

Project Objectives and Activities: Manage a furbearer population that will sustain furbearers at levels high enough to provide for maximum consumptive and non-consumptive use. Seal furs as they are harvested and presented for sealing and analyze harvest patterns. Conduct trapper questionnaire and interviews as a basis to determine the status of various furbearer populations.

Work Accomplished During the Project Segment Period: During the report period, sealing certificates in Galena indicate a harvest of 6 otters, 14 wolverines, 135 lynx, and 372 beavers. The unit has many trappers who depend on trapping for their livelihood and they are less influenced by fur price fluctuation. They make a greater effort to trap more when prices are lower.

Progress Toward Meeting Project Objectives: Revised furbearer management objectives were not established during the report period. However, the Area Biologist attended a workshop and conference to assist in developing new objectives to be completed during the next report period.

Subunits 25A, 25B, 25D, 26B, and 26C

Project Objectives and Activities: Determine the relative annual abundance of lynx, marten, snowshoe hares, and beavers by 1991. Determine annual age and sex ratios of harvested lynx and marten by 1991. Develop accurate estimates of annual furbearer harvest by 1991. Identify trapper use patterns by 1991. Determine marten habitat use and dispersal by 1992. Determine lynx habitat use, movements, and density in relation to successional vegetation stages following wildfire (1991 through the lynx population peak). Seal furs as they are harvested and presented for sealing and analyze harvest patterns. Conduct trapper questionnaire and interviews as a basis to determine the status of various furbearer populations.

Work Accomplished During the Project Segment Period: Nearly all furbearers reported in sealing records were harvested in Unit 25. Reported beaver harvest increased 29% from 122 in 1989-90 to 172 in 1990-91. Nearly 81% (139) of these beaver came from Subunit 25D. Reported lynx harvest of 464 was 32% less than the previous year's

total of 685. Harvest from Subunit 25B (269) and Subunit 25D (170) accounted for 58% and 37% of the total, respectively. Kittens composed 25% of the take in Subunit 25B and 19% in Subunit 25D. Overall, 23% of the reported harvest was kittens. Reported otter harvest was very low. The reported wolverine harvest of 48 represented a reduction of 14% from the previous year's total of 56. Males comprised 64% of the harvest for which gender was indicated.

Other activities included purchase and examination of marten carcasses for evidence of a stomach parasite (*Sobolphyme baturini*) and lynx carcasses for evidence of trichinosis; initial testing of the use of aerial track counts to monitor relative abundance/trends of lynx, marten and hares; and gathering information via a questionnaire about specific traplines and proximity of traplines to wildfires.

Progress Toward Meeting Project Objectives: Harvests of all furbearer species sealed by Department personnel were within population management objectives. Specific objectives to determine relative abundance of lynx, marten, snowshoe hares, and beavers as well as marten habitat use and dispersal, were not met because of a vacancy in the Area Biologist position in Fort Yukon from November 1990 through the rest of the report period.

Segment Period Project Costs:

	Personnel	Operating	Total
Planned	67.3	7.5	74.8
Actual	67.3	6.5	73.8
Difference	0.0	1.0	1.0

Submitted by:

Kenton P. Taylor
Regional Management Coordinator

Project Title: **Furbearer Survey and Inventory**

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

Project Objectives: Establish and maintain viable furbearer populations in Unit 18. Monitor harvests through the sealing program, contacts with the public and fur buyers, and an annual trapper questionnaire. Explain and promote compliance with the sealing requirement among local hunters and trappers. Monitor the abundance and population status of furbearers in Unit 18.

Work Accomplished During the Project Segment Period: During the segment period, 1,093 beavers, 4 lynx, 301 river otters and 9 wolverines were sealed or exported from Unit 18. Fur buyer acquisition reports indicate that 64 arctic foxes, 5 cross foxes, 282 red foxes, 1 silver fox, 195 marten, 4,767 mink, 300 muskrats, and 1 weasel were purchased by fur buyers from hunters and trappers residing in Unit 18.

A trapper questionnaire was sent to 200 active trappers residing in Unit 18 asking for opinions and observations about wolf and furbearer population status and harvests. Of the 76 trappers responding from 36 villages, most indicated that furbearers were increasing in number except for lynx, red foxes, and wolves. Abundance indices generated from the trapper questionnaire indicated that beaver, muskrat, red fox, river otter, and mink were the 5 most common species found on traplines. The furbearer trend index for furbearers derived from the questionnaire indicated an increase of all furbearer species except for red fox, lynx and wolves. Some of the less common species found in Unit 18 such as marten and wolverine were also thought to be increasing. Prey species such as snowshoe hares and ptarmigan were also thought to be abundant and increasing throughout Unit 18.

This was the third year public notices were sent to all villages in the unit requesting that all wolf, wolverine, beaver, river otter, and lynx pelts taken by hunting and trapping be sealed. Pelts were sealed at our Bethel office by staff, and in the villages by either appointed sealers or incidentally by staff engaged in other activities. All appointed sealers residing in Unit 18 were contacted at least twice during the year to insure that sealing forms and fur acquisition reports were correctly filled out. During the segment period, 20 individuals served as appointed sealers.

Progress Towards Meeting Project Objectives: Fur prices remained low during the segment period and the reported harvest of most furbearers continued to decline from previous years, particularly for the more common species such as beaver and red fox. Many pelts were not sold this season and either are being held to await more favorable prices or were tanned for local sale or domestic use. Very little trapping of red fox took place because of poor demand and low prices. Beaver harvests declined by approximately

75% compared to the high harvest reported for 1987-88, by 60% compared to the 1988-89, and 50% of the 1989-90 harvest. Because beaver have remained abundant in Unit 18, we believe this decline in harvest was because of lower prices rather than to declining populations.

Familiarity with the sealing requirement appeared to increase this year as a result of the public notices. However, improvement in compliance was not documented. Many beaver and otter pelts are probably being held this year and may be sold early during the next season when fur prices rebound. However, if the price of furs continues to decline, little if any increased trapping effort will occur during the 1991-92 season. There is still a good demand for homemade fur garments such as hats, mittens, mukluks, and handicrafts. Trappers will continue to trap beaver, otter, fox and muskrats for this limited market when it becomes unprofitable to sell the raw hides. The Department will continue to maintain close contact with fur sealers, fur buyers, and tanneries to help document harvest of any furbearers used in this industry.

Project Location: Unit 22 (23,000 mi^2)
Seward Peninsula and that portion of the Nulato Hills draining west into Norton Sound.

Project Objectives: Establish and maintain viable numbers of furbearers in Unit 22. Assess harvest, interview hunter/trappers, and seal all furs presented for sealing. Establish and maintain license vendors and sealers in all Unit 22 villages. Improve compliance with current sealing requirements through public communication and education. Conduct aerial beaver cache counts in selected areas of the unit to develop an index of relative abundance. Minimize conflicts between furbearers and the public.

Work Accomplished During the Project Segment Period: Data obtained from furbearer sealing records indicate the following reported harvest of furbearers.

Beaver: Seven beavers (2 male, 1 female, and 4 of unknown sex) were harvested by 2 residents of Unit 22. Two were taken from Subunit 22A, and the remainder came from Subunit 22B. Harvest chronology data indicate that 5 were taken in February and 2 in May. A breakdown by method of take is as follows: trapping - 4, and snaring - 3.

Lynx: Two lynx were harvested from Subunit 22B during February. Both were trapped by a resident of Unit 22 using a snowmachine as transportation.

Otter: One male otter was harvested from Subunit 22C in April. This animal was reportedly trapped by a resident of Unit 22 while using a snowmachine as the primary mode of transportation.

Wolverine: Thirty-two wolverines (17 male, 7 female, and 8 of unknown sex) were harvested by 22 hunter/trappers. All were Alaska residents and 21 were residents of Unit 22. A breakdown of the harvest by subunit was: 22A - 6, 22B - 14, 22C - 9, and 22D - 3. Chronology of the harvest was: Oct. - 1, Nov. - 5, Jan. - 4, Feb. - 12, March - 7, and April - 3. Twenty-one wolverines were ground shot, 10 were trapped, and 1 was snared. With the exception of a single wolverine taken while using a highway vehicle as the primary mode of transportation, all were taken by individuals using snowmachines.

A school program developed several years ago explaining the importance of wildlife management concepts, rules, and regulations was used extensively throughout Unit 22 schools. Several trips were also made to villages explaining the need for regulations and harvest reporting as well as assisting license vendors.

A considerable amount of time was expended answering and making phone calls, writing articles, sending out mailings of regulation material, and supporting local license vendors.

Progress Towards Meeting Project Objectives: It is suspected that the magnitude of the unreported harvest of some furbearers each year in Unit 22 is substantial. Efforts to inform the public of the importance of wildlife conservation and the need for regulations are starting to show results in some communities as the number of individuals purchasing licenses has increased. Additional contact with local residents, primarily within the villages, needs to occur if more complete compliance with current regulations is to become a reality. Because of inclement weather, beaver cache surveys were not conducted during the report period.

Project Location: Unit 23 (43,000 mi^2)
Kotzebue Sound and western Brooks Range

Project Objectives: Maintain furbearer populations at existing levels in Unit 23. Conduct aerial beaver cache surveys in established trend count areas. Maintain the furbearer sealing and fur buyer reporting programs for monitoring the harvest. Conduct a trapper questionnaire program for monitoring trapper harvests and furbearer population status. Minimize adverse conflicts between furbearers and the public. Develop updated population objectives in cooperation with the public and other agencies.

Work Accomplished During the Project Segment Report Period:

Beaver: Sealing certificate data indicated that only 3 beavers were harvested from Unit 23. The actual harvest was undoubtedly higher because much of the harvest destined for domestic use was probably not sealed.

River Otter: Sealing certificate data indicated that 5 river otters were harvested from Unit 23 during the report period. All 5 animals were ground shot by trappers using snowmachines as transportation.

Wolverine: Sealing certificate data indicated that 27 wolverines (16 males and 10 females) were harvested from Unit 23. Fifteen were ground shot, 10 were trapped, and the method of take for 2 is unknown. One wolverine was taken by a trapper using an aircraft as transportation, 1 using a 4-wheeler ATV, and 24 using snowmachines. Most of the harvest (67%) was taken during December through March.

Lynx: According to sealing certificate data, no lynx were reported harvested in Unit 23. Because of the short hunting/trapping season for lynx and low population densities, few trappers targeted lynx.

Progress Toward Meeting Project Objectives: Lynx densities remained low during 1990-91. Once snowshoe hare populations recover, we anticipate that lynx populations will rebound as well. The feasibility of establishing a lynx track trend count area will be evaluated during the next report period.

Wolverines apparently remained moderately abundant during 1990-91. However, densities within a 50-mile radius of Kotzebue are believed to be very low because of heavy hunting pressure. As already mentioned for lynx, a survey technique to evaluate the population status of wolverines needs to be developed.

The quality of our sealing data needs improvement. Many furs used domestically are not sealed and the harvest remains unreported. In addition, many people remain confused by the complexity of the hunting and trapping regulations as well as of the sealing requirements. Simplifying the regulations and sealing requirements, and explaining the usefulness of harvest data to people are recommended.

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

Project Objectives: Establish and maintain viable furbearer populations in Subunit 26A. Monitor harvest through the statewide sealing program. Conduct an in-depth review of information collected in the past to obtain population trend information.

Work Accomplished During the Project Segment Period:

Arctic Fox: Arctic foxes were abundant in Subunit 26A. No harvest data are available for arctic foxes. Low fur prices resulted in relatively few foxes being trapped.

Red Fox: No population data are available for red foxes in Subunit 26A. No red foxes were reported harvested.

Coyote: Two coyotes were reported taken from Subunit 26A. No other population or harvest data are available.

Lynx: Lynx population density is very low in Subunit 26A. No lynx were reported harvested in the subunit.

Wolverine: Magoun (1984) estimated a minimum population of 821 wolverines in Subunit 26A. A more recent estimate of population status is not available. Three wolverines were sealed during 1990-91. All were ground shot. A snowmachine was used for transportation for 1, a horse for 1, and 1 was unknown. Two were females and 1 was a male. One was taken in September, 1 in November, and 1 in January. Many more wolverines were harvested and not reported. However, reliable data for the unreported harvest are not available.

River otter: Although river otters are found in Subunit 26A, their densities are very low. No river otters were reported harvested during 1990-91.

Progress Towards Meeting Project Objectives: It is difficult to determine whether current harvest levels are within sustained yield limits because little population and harvest information are available. Additional efforts are needed to assess furbearer population status and monitor the harvest. A village harvest monitoring program, developed in cooperation with the North Slope Borough, is planned to begin in fall 1991. To obtain better furbearer population information, the Department would need to hire an Assistant Area Biologist to work on this project.

Segment Period Project Costs:

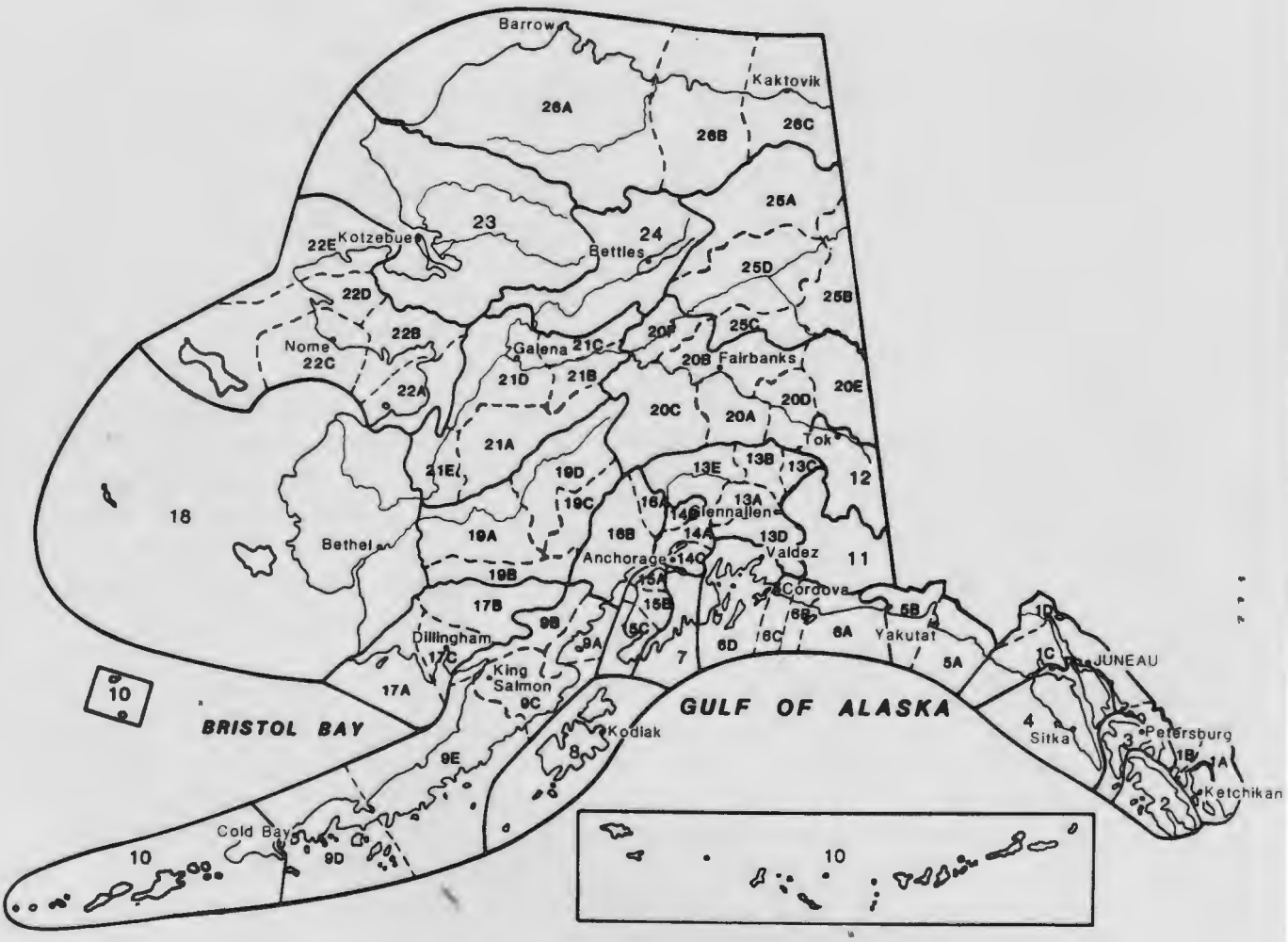
	Personnel	Operating	Total
Planned	21.5	8.9	30.4
Actual	21.5	1.0	22.5
Difference	0	-7.9	-7.9

Explanation: Funds normally taken from this budget to pay fur sealers in Region V were paid from another statewide account. In addition, beaver cache surveys were not conducted this year because of poor fall weather conditions.

Submitted by:

Steven Machida
Regional Management Coordinator

Alaska Game Management Units



WILDLIFE RESTORATION

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