

STATUS OF FURBEARER RESOURCES ON
THE YUKON-KUSKOKWIM DELTA

W. BRUCE DINNEFORD, Alaska Department of
Fish and Game, Division of Game,
P.O. Box 90, Bethel, Alaska 99559

Abstract: Fur animal harvests and population status were determined from sealing certificates, export and acquisition reports, a trapper questionnaire, and conversations with trappers and fur buyers. Relative to recent years, population (and harvest) levels of fox, mink, muskrat, and beaver appeared depressed during the winter of 1982-83, while lynx and otter levels appeared stable or increased. Climatic conditions and prices paid to trappers were found to be 2 principal factors influencing trapping intensity and harvest levels.

STUDY AREA AND METHODS

Game Management Unit 18, the Lower Yukon and Kuskokwim Rivers, encompasses approximately 41,000 square miles; most of the habitat is characterized by sub-arctic tundra, (Figure 1). Low to moderate precipitation, frequent winds, and a long, open ocean coast influence a large portion of the Yukon-Kuskokwim (Y-K) Delta. Populations of several furbearer species are endemic to the region and are important to local residents. Water-associated species comprise those animals most often observed in trapping efforts (Tables 1 & 2).

Due to large body size, fur quality, and uniformity of color, mink (Mustela vison) inhabiting the Kuskokwim Delta are often sought for commercial markets. Land otter (Lutra canadensis) are taken frequently, accounting for up to one-third of the reported statewide total in some years. Beaver (Castor canadensis) is also highly utilized, both commercially and domestically. Because beaver populations in GMU 18 are expanding, this furbearer will become increasingly important to the residents of the Delta.

During and following the 1981-82 trapping season (Table 3), and continuing in 1982-83, conversations with trappers and fur dealers, a mail-out trapper questionnaire (second year), and personal observation of weather conditions and relative track abundance provided information used to estimate fur animal population trends. Generally speaking, furbearer populations appeared to be healthy and viable. The 1981-82 questionnaire (Table 4) was mailed to 96 trappers.

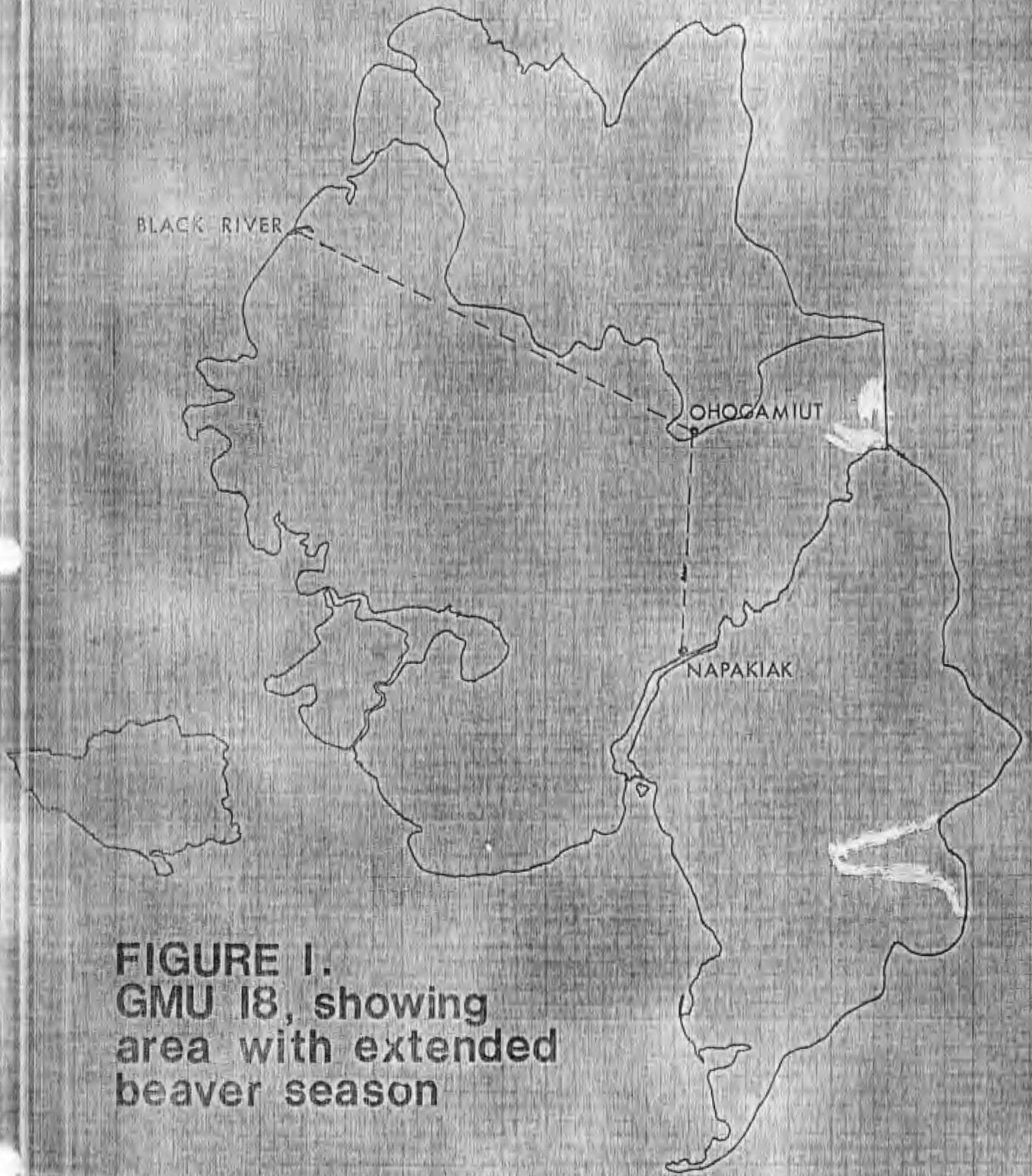


FIGURE 1.
GMU 18, showing
area with extended
beaver season

Table 1. Unit 18 estimated furbearer harvests, 1958-59 to 1981-82.

Year	Red fox	Lynx	Mink	Muskrat	Otter	Wolverine	Beaver
58-59	-	-	25,000	-	-	-	2,766
59-60	-	-	11,000	-	-	-	2,013
60-61	-	-	7,000	-	-	-	1,428
61-62	-	-	-	-	-	4	817
62-63	-	-	-	-	-	5	1,503
63-64	-	-	-	-	-	6	666
64-65	-	-	-	-	-	3	264
65-66	-	-	-	-	-	5	411
66-67	-	-	-	-	-	4	765
67-68	-	-	-	-	-	7	1,423
68-69	-	-	-	-	-	1	975
69-70	-	-	-	-	-	-	946
70-71	-	-	1/	-	-	-	385
71-72	-	-	2/	-	3/	3	961
72-73	4/	-	-	-	5/	9	1,769
73-74	6/	-	1,000-	-	300	11	684
74-75	500	-	1,000-	-	300+	5	1,389
75-76	-	-	-	-	-	29	1,350
76-77	1,000-	25	1,000+	7/	500	1	2,209
77-78	1,000	50	800	-	600	8	1,695
78-79	8/	75	9/	8/	650	9	1,225
79-80	2,750	62	900	15,000	350	13	1,855
80-81	2,500	46	10,000	8,000	600	6	2,396
81-82	3,000	56	13,000	9,000	500	6	1,819

- 1/ Prices reported as depressed.
2/ Record low harvest.
3/ Harvest up from previous years.
4/ Highest harvest in years.
5/ Otter reported abundant in GMU 18.
6/ Population peak.
7/ Population reported not thriving.
8/ Population reported healthy.
9/ Population up, few harvested.

Table 2. Composition, method of taking, chronology of take, and take per trapper of furbearers sealed from Unit 18, 1981-82.

	Wolverine		Lynx		Otter	
	#	%	#	%	#	%
<u>Harvest</u>						
Female	2	33	37	49	136	34
Male	4	67	38	50	228	59
Unknown	0	0	1	1	25	6
Total	6	100	76	100	389	100
<u>Method of taking</u>						
Shooting	1	17	3	4	55	14
Trapping	2	33	67	88	177	46
Snaring	3	50	4	5	106	27
Unknown	0	0	2	3	51	13
Total	6	100	76	100	389	100
<u>Chronology</u>						
August	0	0	0	0	4	1
November	3	50	2	3	127	33
December	0	0	8	11	107	27
January	1	17	23	30	36	9
February	1	17	28	37	58	15
March	1	16	14	18	52	13
April	0	0	0	0	3	1
May	0	0	1	1	2	1
Total	6	100	76	100	389	100
Total trappers	4		26		155	
Take per trapper	1.5		3.0		2.5	

Table 3. Game Management Unit 18 furbearer hunting and trapping seasons, July 1, 1981 - June 30, 1982.

<u>Species</u>	<u>Hunting season</u>	<u>Bag limit</u>	<u>Trapping season</u>	<u>Bag limit</u>
Fox, arctic	Sept. 1 ⁰ - Apr. 30	2	Nov. 10 - Mar. 31	No limit
Fox, red	Sept. 1 ⁰ - Feb. 15	2	Nov. 10 - Mar. 31	No limit
Lynx	Sept. 1 ⁰ - Mar. 31	2	Nov. 10 - Mar. 31	No limit
Marten	No open season		Nov. 10 - Mar. 31	No limit
Mink	No open season		Nov. 10 - Jan. 31	No limit
Muskrat	No open season		Nov. 10 - Jun. 10	No limit
Otter, land	No open season		Nov. 10 - Mar. 31	No limit
Wolverine	Sept. 1 ⁰ - Mar. 31	1	Nov. 10 - Mar. 31	No limit
Wolf	Aug. 10 - Apr. 30	4	Nov. 10 - Mar. 31	No limit
Beaver, south of a line from the mouth of Black River to Ohogamiut, west of a line from Ohogamiut to Napakiak, and north of the Kuskokwim River from its mouth to Napakiak.	No open season		Jan. 1, - Jun. 10	40
Beaver, remainder of unit 18.	No open season		Jan. 1, - Mar. 31	20

Table 4. Unit 18 trapper interview form, 1980-81 and 1981-82.

NAME _____

ADDRESS _____

Did you trap this year? _____

Compared to the 1979-1980 season, did you see more, less or about the same number of the following animals or their tracks this year?

<u>Animal</u>	<u>More</u>	<u>Less</u>	<u>Same</u>	<u>Comments</u>
Beaver				
Lynx				
Otter				
Wolverine				
Muskrat				
Mink				
Red Fox				
White Fox				

Were trapping conditions (weather, snow, overflow, ice thickness) better, worse or the same as last year?

Were more people trapping than usual this year?

Did you get better prices for your fur this year?

Comments or Suggestions:

Twenty-five trappers, or 26% of the sample, responded to the questionnaire by commenting on relative abundance of 8 fur animals, trapping conditions, trapping intensity, and income.

Additionally, sealing of beaver, lynx (Lynx rufus), land otter, wolf (Canis lupis), and wolverine (Gulo gulo) was accomplished by Game Division staff in Bethel and St. Mary's, as well as by 20 village sealing agents. Also, some fur buyers sealed fur in the Unit. State sealing certificates were used, wherein trapping location, sex and body dimensions, and trapper's name and residence were recorded. Metal locking tags were affixed to all pelts tendered for sealing.

An attempt to obtain skulls of otters for aging and morphological study was unsuccessful. This program offered a ten dollar reward for the first 50 skulls presented; however, trappers were apparently unwilling to surrender carcasses and skulls due either to unwillingness to retrieve carcasses from the field or to a preference for using carcasses for domestic purposes. Due to the low success of this project it was not continued in 1982-83.

The 1981-82 fur sale records for 30 villages and Bethel were evaluated by summarizing "Report of Acquisition of Furs or Hides" forms (Table 5).

RESULTS

Arctic foxes (Alopex lagopus) were reported to be present in "normal" densities. In 1981-82 red foxes (Vulpes vulpes) appeared to be more

Table 5. Game Management Unit 18 fur sales for 30 villages and Bethel, 1981^{1/}-82

Location	Number of Trappers ^{2/}	Arctic Red							
		Beaver	Mink	Muskrat	Marten	Otter	Fox	Fox	Lynx
Kiak	14	35	6	310	-	1	-	45	5
Kiachak	33	-	87	1,016	1	1	-	59	4
Ktmautluak	26	-	363	773	-	4	1	43	-
Bethel	54	-	2,372	845	324	37	93	576	10
Behornak	24	-	715	67	-	1	45	71	-
Bevak	31	-	723	51	-	4	46	41	-
Beke	37	8	184	446	-	11	-	141	-
Godnews Bay	5	7	5	-	-	1	-	52	-
Godoper Bay	38	6	933	817	-	10	94	79	-
Kalskag ^{3/}	26	79	18	19	68	18	1	62	61
Kasigluk	42	16	378	1,318	-	15	2	69	-
Kapnuk	36	-	1,142	49	-	2	90	117	-
Kongiganak	23	-	148	-	-	-	10	31	-
Kotlik	12	-	140	-	1	-	6	26	-
Kwethluk	36	50	47	399	-	4	5	81	1
Kwigillingok	12	-	423	-	-	-	10	82	-
Kworyuk	44	-	1	-	-	-	169	596	-
Kwopakiak	23	-	313	222	-	4	-	35	-
Kwopaskiak	22	1	173	746	-	-	-	35	-
Kwotok	19	5	1,309	205	-	27	11	91	-
Kwightmute	8	-	367	-	-	2	17	32	-
Kwanapitchuk	62	22	917	192	-	12	27	129	-
Kwascarville	3	-	19	10	-	-	-	2	-
Kwainhagak	34	-	62	-	-	2	-	210	-
Kwussian Mission	3	12	1	-	5	-	-	10	-
Kwammon Bay	21	-	656	90	-	14	6	30	-
Kweldon Point	1	-	15	-	-	1	-	-	-
Kwoksook Bay	13	-	687	12	-	1	11	11	-
Kwuluksak	7	-	1	224	-	1	-	19	1
Kwuntutuliak	24	-	917	192	-	12	27	129	-
Kwanunak	7	-	350	-	-	2	-	13	-
TOTAL	740	241	13,472	8,003	399	187	671	2,917	82

^{1/} From report of aquisition forms

^{2/} Number of trappers recorded as selling at least one pelt.

^{3/} Upper and Lower Kalskag combined.

abundant than usual, as was the case in the previous 2 winters; however, personal observations indicated that red foxes were not as numerous as in 1980-81, except for several areas reportedly exhibiting densities higher than those of the remainder of the Unit. During the 1982-83 season, red foxes were observed and trapped less frequently than in the previous 3 or more years. Again, local knowledge indicated several refugia of higher red fox density occurring within the area.

During the winter of 1980-81 (and more so in 1981-82) the incidence of rabies on the Y-K Delta appeared higher than in the previous several years. The Environmental Health Laboratory of the Public Health Service Hospital in Bethel reported 28 and 10 confirmed cases of rabid red and white foxes, respectively, collected from the Lower Kuskokwim and Yukon watersheds during the 1981-82 winter. By mid-March of 1983, no foxes determined to be rabid were found within the same geographical area, although 9 rabid red foxes had been reported from upriver, in the Anvik and Grayling area (Bob Kapolka, Pers. Comm.).

Wolves and wolverines were harvested at their common low levels in 1981-82, with a slight increase in wolf numbers in 1982-83. The increased wolf harvest was reported from the Kilbuck Mountain foothills, a portion of the Kuskokwim River drainage.

A slight increase in lynx numbers was noted in the winters of 1982 and 1983. On the upper portion of the Kuskokwim River drainage in Unit 18

(Oweek, Bogus, and Tuluksak Creeks), reported harvest of lynx increased in 1981-82 as did the number of tracks observed. Such an increase was noted along the upriver portions of the Yukon River in 1982-83.

Mink, muskrat (Ondotra zibethica), and otter were all reported to have increased at least in some areas in 1981-82, while preliminary indications were that both mink and muskrat numbers were down in 1982-83. Mink were reported at levels higher than in many years in the Yukon River mouth to Hooper Bay swath in 1981-82, while the number of mink and muskrat purchased by the end of the 1983 winter was considerably lower than in the previous 2 seasons. Muskrats were found to be slightly more numerous than usual in 1981-82 on the Kuskokwim River upstream from Bethel, but significantly reduced throughout the rest of Unit 18 in that year. Comments by trappers and purchases by fur dealers point to decreased muskrat numbers in 1982-83. Land otters were reported to be at higher than average population levels in 1981-82 and may have been equally abundant in 1982-83 in some localities; however, there appeared to be an area-wide decrease in the number of pelts being sealed.

Marten, while never abundant in Unit 18, appeared in about the same frequency as in recent years in 1981-82 and the same appeared true for the 1983 season.

Beaver remained abundant through the winter of 1982-83, but preliminary indications point to a harvest lower than that of recent years. The 1980-81 reported harvest of 2,396 was the highest since 1958-59, when a

record 2,766 beavers were sealed. An extended firearms-only season, beginning on May 10, 1982 and running until June 10, 1982, accounted for a small increase in the reported harvest for that year. Reports of beavers blocking fish movements continued to be received by Division biologists.

Climatic factors significantly influenced trapping conditions throughout a sizable portion of the Unit. The only area not strongly affected by warming trends followed by hard freezes in 1981-82 was the Kuskokwim River upstream from Bethel. Elsewhere, above-freezing temperatures were encountered around the last week of November and again during late January and early February. In 1982-83, high water at freeze-up and low snowfall throughout the area contributed to adverse conditions over much of the fur animal habitat.

DISCUSSION

To estimate furbearer harvests, print-outs reporting the export of furs by village, by dealer, and by trapper were employed. However, furs are often transported between villages and game management units, making precise interpretation of export data impossible. Harvest levels estimated in this report have used the export print-outs, sealing certificates, the trapper questionnaire, and personal communication between trappers, furbuyers, and biologists.

Arctic Fox: Export reports accounted for nearly 500 white fox skins shipped from the Unit in 1981-82. Acquisition forms indicate the 1981-82 take numbered about 700, possibly a record harvest. Prices paid

for both fox species were similar in the 2 years. If export reports are an accurate indicator of harvest, then total harvest on the Y-K Delta has increased compared with prior years.

Red Fox: About 3,000 red foxes were harvested in Unit 18 during the winter of 1981-82, or slightly more than during the previous 2 years. The harvest remained high, compared with the previous record high of 2,700 taken in 1979-80. Dealers purchasing fur in the 1983 season reported seeing very few red foxes in the harvest. Although the incidence of rabies in red fox on the Y-K Delta appeared to be higher in 1981-82 than in the previous several years, it is doubtful that the fox population was reduced below historic levels.

Lynx: Seventy-six lynx were reported harvested from Unit 18 during the 1981-82 season, exceeding the 1977-82 average of 56. The previously recorded high harvest of 75 occurred in 1979. The 1982-83 harvest may well establish a new record for the unit, as trappers reported seeing lynx in low numbers further west than normal. Hare densities were apparently high on the Bogus and Ophir Creek watersheds in 1981-82, and many tracks were observed during aerial moose survey efforts. Local pockets of high hare abundance were again reported in 1982-83.

Most lynx harvested in 1981-82 came from the Kilbuck Mountains in the eastern portion of the unit. Sixty-seven animals (88% of the harvest) were trapped. January and February were the months of greatest lynx harvest (23 and 28 respectively), totaling 67% of the take. Twenty-six

trappers reported taking at least 1 lynx. Lynx prices remained high through 1982-83.

Marten: Although export reports put the Unit 18 marten export for 1981-82 at 950 furs, it is quite likely that many of these furs originated in Units 19 or 21. Seven hundred furs were shipped from Bethel. The 1981-82 Unit 18 harvest was probably about 400 animals. *according to Agitation Reports.*

Mink: Mink populations, trapping effort, and prices appeared relatively high in 1981-82 on the western coast. A minimum of 14,000 mink were taken in the 1981-82 season. Trapping conditions were good during early November, when a high proportion of the yearly harvest occurs for the European garment industry. The situation was different in 1982-83, however, when lower than average snowfall occurred in late fall and early winter. Lower prices paid for green mink pelts (reportedly down 30 to 50% from previous years) was probably the major factor in reducing the harvest. Fur dealers reported buying less than half the number of pelts purchased in 1981-82.

Muskrat: Although the effect of warm weather/thawing/refreezing on mink remains unknown, muskrats apparently suffered high mortality in 1981-82 when they were first flooded out and then frozen out. The high water levels at freeze-up in 1982-83 and the subsequent low snowfall (resulting in poor subnivean insulation) will probably be evident in a low harvest for that year. The 1981-82 harvest was probably about 9,000 furs. Trappers reported seeing fewer muskrats than usual in the winters of 1982 and 1983.

Otter: In 1981-82, 389 otters were sealed in Unit 18, accounting for 21% of the statewide total. Export reports, trapper pressure, and observed otter sign suggest that the actual harvest was about 500 animals. Trapper questionnaire respondents speculated that otters were seen in the same, or slightly higher, numbers than in previous years.

Males comprised 59% of the sealed otter harvest in 1981-82 (Table 2). Most otters (46%) were taken by trapping. The number of otters caught in blackfish traps is unknown, but a high percentage (27%) were reported snared. Most otters were trapped in November and December (33% and 27%, respectively). One hundred fifty-five trappers sealed at least 1 otter each, for a take of 2.5 otters/trapper.

The 1982-83 otter harvest from GMU 18 will probably be lower than in recent years, due to a combination of lower prices and unfavorable climatic conditions for trapping and snowmachine travel.

Wolf: No wolves were recorded in the 1981-82 harvest, but at least 4 were sealed in 1982-83. This apparent increase in the number of wolves in GMU 18 may be in part due to a slight increase in the Unit's moose population. Also, the low snow levels may have made hares and fur animals more vulnerable to predation.

Wolverine: Six wolverines were sealed in Unit 18 in 1981-82, and 1982-83 observations indicated wolverines remain present in small numbers. The 1982-83 harvest will probably be similar to that of recent years.

Beaver: Beaver populations continue to expand to the shores of the Bering Sea in Game Management Unit 18. In fact, beavers are considered by many Unit residents to be more detrimental than beneficial due to the perception that beavers are responsible for reduced fish numbers. This theory remains unproven, and increased fishing pressure is an alternative explanation for reduced fish populations. The interaction between beaver and salmonids, pike, whitefish, and blackfish should be evaluated.

Winter food cache counts have indicated the degree of expansion of the beaver population in GMU 18 (Machida, 1982). Thirty-four and 84 active colonies were found on the Tuluksak River in 1970 and 1981, respectively. This expansion into the downriver, lowland portion of this watershed has probably been mirrored in many Unit 18 systems.

While the unit-wide harvest of beaver per trapper has remained well below the bag limit for the Unit (Table 6), the 1982-83 harvest will probably be lower still. Maximum prices quoted by fur buyers have been \$35 to \$38, and trapping intensity (judging by the number of pelts sealed through mid March 1983) was considerably lower in 1982-83.

Beaver trapping in the area is done as much for meat as for fur. A decline in the percentage of kits harvested in 1981-82 was noted, but the ramifications of this reduction remain unknown.

The spring firearms-only season had an apparently small influence on beaver harvests in 1981-82. Some Unit residents are interested in an

Table 6. Game Management Unit 18 beaver harvest by pelt size, number, of trappers, and take per trapper, 1980 to 1982.

Year	Number of trappers	Number & percent taken by pelt size (inches)				Total	Take/trapper
		0-53	54-59	60-64	65+		
79-80	173	462 (25%)	267 (14%)	428 (23%)	698 (38%)	1,855	10.7
80-81	258	581 (24%)	348 (15%)	566 (24%)	901 (38%)	2,396	9.3
81-82	188	348 (19%)	252 (14%)	461 (25%)	758 (42%)	1,819	9.7

earlier opening date, wishing to utilize beaver as a food source at that time.

Report of acquisition forms (Table 5) can be used to evaluate furbearer harvest. It should be noted that figures from this report do not always correspond to export or sealing certificate data. This may be due to domestic use of furs that are sealed and not sold, furs being exported from Unit 18 that were trapped elsewhere, and fur that is trapped in Unit 18 and exported from the State from some other location.

LITERATURE CITED

- Dinneford, W. B. 1982. Furbearer survey and inventory progress report. Alaska Department of Fish and Game, Annual Report of Survey and Inventory Activities. Federal Aid in Wildlife Restoration Project #_____.
- Machida, S. 1982. Beaver survey and inventory progress report. Alaska Department of Fish and Game, Annual Report of Survey and Inventory Activities. Federal Aid in Wildlife Restoration Project #_____.