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ALASKA DEPARTMENT OF FISH AND GAME
JUNEAU, ALASKA

STATE OF ALASKA
William A. Egan, Governor

DEPARTMENT OF FISH AND GAME
Wallace H. Noerenberg, Commissioner

DIVISION OF GAME
Frank Jones, Acting Director

FURBEARER REPORT

by

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Volume IX
Annual Project Segment Report
Federal Aid in Wildlife Restoration
Project W-17-1, Work Plan A, Jobs 2, 7 & 8

(Printed June 1971)

STUDY PLAN SEGMENT REPORT

FEDERAL AID IN WILDLIFE RESTORATION

STATE:	Alaska	TITLE:	Small Game, and Furbearer Investigations
PROJECT NO.:	W-17-1	TITLE:	Furbearers
STUDY PLAN:	A		
JOB NO.:	2	TITLE:	Harvest of Fur Animals in Alaska
PERIOD COVERED:	July 1, 1968 to June 30, 1969		

ABSTRACT

The 1967-68 estimated harvest of furbearers was 94,792 animals, an increase of approximately 9,500 over the previous season. The only species which decreased was mink. The approximate value of the harvest was $1,001,200. Mink was the most valuable species, beaver second, and marten third. Both the numbers harvested and the value of the harvest changed very little from the previous season.

RECOMMENDATIONS

1. Initiate temporary and independent systems to determine the harvest of individual species or the harvest on specific areas to check the accuracy of harvest estimates based on fur dealer reports and fur export reports.

2. Initiate a system to establish the average price received by trappers for their raw pelts.

3. Collect population data on certain furbearers to determine the effect of trapping on the furbearer populations. This should be done initially in or near urban areas where recreational trapping is becoming more popular.

STUDY PLAN SEGMENT REPORT

FEDERAL AID IN WILDLIFE RESTORATION

STATE: Alaska

PROJECT PLAN: W-17-1

STUDY PLAN: A

JOB NO.: 2

TITLE: Small Game and Furbearer Investigations

TITLE: Furbearers

TITLE: Harvest of Fur Animals in Alaska

PERIOD COVERED: July 1, 1968 to June 30, 1969

OBJECTIVES

1. To estimate the number of animals pelted annually in Alaska, excluding seals and sea otters, by species and area.
2. To determine the approximate value of these furs.
3. To improve the systems used to obtain harvest data.

PROCEDURES

Three data gathering systems are employed to determine the harvest of furbearers in Alaska. Licensed fur dealers are required to report purchases of all raw pelts. Persons shipping furs from Alaska are required to make a report of the kind and number of furs exported, and each beaver pelt must be sealed before being transported from the state. Because fur dealers' reports and fur export reports are also required on beaver pelts, beaver sealing records are used as a check to evaluate the accuracy of fur dealers' reports and fur export reports for furs purchased by fur-dealers; therefore, export reports serve as a check on the accuracy or completeness of fur dealer reports. The reporting period was October 1, 1967 to September 30, 1968. Reports received by the Department during the reporting period are coded for machine punching and compilation.

The new machine compilation program prepared under Project W-13-R-3 was fully implemented for the 1967-68 data. The new program provides for numerous breakdowns of the information which were not previously available.

Export Data

The machine compilation of fur export statistics provides a listing of the export data as described in the following outline:

I. Compilation by type of exporter

A. Trapper or hunter

1. By Game Management Unit and the town from where the furs were exported.

2. By the town from where the furs were exported.

3. By the month in which the pelts were exported.

B. Licensed or recognized fur dealer

1. By Game Management Unit and the town from where the furs were exported.

2. By the town from where the furs were exported.

3. By the month in which the pelts were exported.

C. Other types of exporters

1. By Game Management Unit and the town from where the furs were exported.

2. By the town from where the furs were exported.

3. By the month in which the pelts were exported.

II. Compilation by license number, or fur dealer code number of the exporter. (Export reports made by persons other than trappers or fur dealers without license numbers are listed randomly, generally at the beginning of the compilation.)

Statewide harvest estimates are made from the export report data in the same way as the estimates for the previous three seasons were made. The relationship between the number of beaver harvested since 1961 and the number of beaver exported since 1961 is assumed to be the same as the relationship between the harvest of each species of fur animal, and the corresponding number exported for that species.

Comparing the harvest figures from the beaver sealing with the beaver export reports reveals that the relationship between the number of beaver harvested and the number of beaver exported may vary greatly for any season. Export report data cannot be used to determine the furbearer har-

vest from any specific Game Management Unit because fur dealers export the majority of the pelts, and the export reports reflect the fur dealer's base of operation rather than the location where the furbearers were harvested. This discrepancy becomes very evident when the number of beaver harvested from a Game Management Unit is compared to the number of beaver pelts exported from the Game Management Unit.

Dealer Report Data

The fur dealer data are compiled in a manner very similar to the compilation of the fur export statistics. Fur dealer report statistics are described in the following outline:

I. Compilation of purchases from trappers

   A. By Game Management Unit and town where trapper resides.

   B. By the town in which the trapper resides.

   C. By the month in which the pelts were purchased.

II. Purchases from other fur dealers

   A. By Game Management Unit and town where fur dealer resides.

   B. By the town in which the fur dealer resides.

   C. By the month in which the pelts were purchased.

III. Compilation of all purchases by fur dealer code (lists all purchases made by a fur dealer, plus the name and license number of each person from which the furs were purchased).

Beaver Sealing Data

All beaver are required to be sealed before they are sold or exported from Alaska. These statistics will be compiled and presented under Project W-17-1, Study Plan A, Job No. 7. This information is used to verify the accuracy of the fur export and fur dealer reports.

Value of Furbearer Harvest

Information from auction sales and price listings from fur houses are used to establish the average value of all sizes of pelts and the average value of all qualities of pelts throughout Alaska. Total quantity of pelt value information has decreased considerably in the past few years, therefore the approximate value of the entire fur harvest in Alaska should only be used as a rough estimate.

Prices paid directly to trappers are generally much lower than the listings from auctions and fur houses. The price the trapper receives is incentive for harvesting furbearers, therefore is much more valuable for interpreting variations in the harvest. Amounts paid to trappers are not generally available.

Harvest Data

The statewide estimation of the furbearer harvest is made by comparing the number of beaver sealed to the number of beaver exported and assuming the same relationship exists between the number of other furbearer species harvested to the number listed on fur export reports.

FINDINGS

The 1967-68 estimated harvest of furbearers increased approximately 9,500 animals over the 1966-67 harvest (Table 1). All species showed an increase except mink. The small reduction in the mink harvest was offset by better overall prices; therefore, the value of the mink harvest still increased.

Harvest estimates were prepared in the same way as the harvest estimates from 1964 through 1967. The average value per pelt of the 1967-68 fur harvest is listed in Table 2. There were no significant changes in the average value per pelt. The average increased about $5.00 per mink pelt, and the average white fox value decreased about $5.00. Pelt value changes of other species were insignificant.

Table 1. Furbearer harvest and approximate value.

	1963-64		1964-65		1965-66		1966-67		1967-68	
	Number	Approx. Value $	Number	Approx. Value $	Number	Approx. Value $	Number	Approx. Value $	Number	Approx. Value $
Beaver	14,046	281,000	8,556	165,600	11,426	228,500	12,057	299,000	13,342	293,500
Muskrat	49,000	49,000	38,800	40,700	27,100	27,100	41,300	24,800	48,600	38,900
Mink	22,500	500,000	18,400	435,600	15,800	347,600	13,600	310,100	12,100	338,800
Marten	6,200	93,000	10,400	127,600	7,510	112,600	5,510	86,000	7,180	107,700
Land Otter	2,300	57,000	3,270	85,000	4,010	112,300	3,280	75,400	3,380	84,500
White Fox	1,200	22,000	2,320	41,700	1,500	33,000	1,670	41,700	2,120	42,400
Other Fox	1,000	5,000	1,200	13,200	2,080	29,100	2,200	24,200	3,750	37,500
Lynx	4,700	47,000	4,650	102,300	6,210	217,400	1,920	67,200	2,270	55,700
Weasel	1,500	1,500	1,110	1,300	1,240	1,000	1,510	1,900	1,590	2,000
Squirrel	790	300	250	100	290	100	230	100	460	200
Total No.	103,236		88,956		77,166		83,277		94,792	
Total Value		1,055,800		1,013,270		1,108,600		930,400		1,001,200

Table 2. Approximate average value per pelt for all sizes and areas of the 1967-68 fur harvest, based on fur market and fur auction reports.

Beaver	$ 22.00
Muskrat	.80
Mink	28.00
Marten	15.00
Land Otter	25.00
White Fox	20.00
Other Fox	10.00
Lynx	35.00
Weasel	.90
Squirrel	.40
Wolf	40.00
Wolverine	35.00
Coyote	6.00

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APPROVED BY:

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STUDY PLAN SEGMENT REPORT

FEDERAL AID IN WILDLIFE RESTORATION

STATE: Alaska

TITLE: Small Game and Furbearer Investigations

PROJECT NO.L W-17-1

TITLE: Furbearers

STUDY PLAN: A

JOB NO.: 7

TITLE: Beaver: Affidavit Analysis

PERIOD COVERED: July 1, 1968 to June 30, 1969

ABSTRACT

The 1968 beaver harvest increased slightly over the 1967 harvest. The age structure of the entire harvest did not change significantly from the 1967 harvest. The age structure of the harvest from some tributaries in Units 9, 17, 18, 19B and 21B were indicative of overharvest. Units 7, 8, 14, 16, 18 and 20 also had tributaries from which the percentage of kits in the harvest would indicate that further consideration or information was needed.

RECOMMENDATIONS

Improve recording of harvest locations on beaver sealing documents by providing instruction to game biologists, protection officers and string tagging officers.

Initiate a program to improve trapping techniques and arrange better distribution of trappers.

STUDY PLAN SEGMENT REPORT

FEDERAL AID IN WILDLIFE RESTORATION

STATE: Alaska TITLE: Small Game and Furbearer Investigations

PROJECT NO.: W-17-1 TITLE: Furbearers

STUDY PLAN: A

JOB NO.: 7 TITLE: Beaver: Affidavit Analysis

PERIOD COVERED: July 1, 1968 to June 30, 1969

OBJECTIVES

1. To compile, analyze, and summarize available data on utilization of beaver populations.

PROCEDURES

Since 1957, the stretched pelts of beaver have been sealed and measured to enumerate the harvest and separate the entire catch into age classes. In Alaska, beaver hides are traditionally stretched round. The measurement used to establish age classes is the sum of the diameter taken from nose to base of tail and the medial diameter. The young of the year, or kits, are those beaver where the measurement is less than 53 inches; beaver skins measuring between 53 and 59 inches are considered yearlings, and pelts over 59 inches are adults. These data are compiled by Game Management Unit and comparisons are made yearly. The age breakdown, the total number of beaver harvested, the total number of trappers, and the average number of beaver per trapper is compared annually for each Game Management Unit.

Since 1964, several Game Management Units have been subdivided with different seasons and bag limits in the various subdivisions. Prior to 1966, no analysis was made of the harvest within the sub units. The harvest has been broken down by drainages in several Game Management Units to provide information on regulation changes.

FINDINGS

The standard beaver affidavit analysis made since 1957 is presented in Table 1. The 1968 harvest of 13,342 beaver increased only slightly over the 1967 harvest of 12,057. The average number of beaver per trapper in 1968 was 10.2 beaver. This is an insignificant decrease from the 1967 average of 10.4.

Table 1. Beaver affidavit analysis, 1957-68.

Game Mgmt. Unit	Year	Limit	Percent Kits (Under 54")	Percent Kits and Yearlings (Under 59")	Percent Adults (Over 59")	Total No. of Beaver	No. of Trappers	Avg. No. Beaver/ Trapper
1	1957	No open season						
	1958	15	24.8	35.7	64.3	330	38	8.7
	1959	15	24.6	37.7	62.3	69	8	8.6
	1960	15	6.9	31.0	69.0	115	14	8.2
	1961	15	28.5	45.9	54.0	99	12	8.2
	1962	15	21.9	34.2	65.8	42	5	8.4
	1963	15	12.4	31.3	68.6	180	20	9.0
	1964	50	16.1	32.7	67.1	204	17	12.0
	1965	50	17.7	43.5	56.5	62	5	12.4
	1966	50	18.9	44.5	55.0	180	19	9.6
	1967	50	16.2	30.3	69.7	99	12	8.3
	1968	50	13.5	30.8	69.2	104	13	8.0
2	1957	No open season						
	1958	15	22.7	36.4	63.7	22	10	2.2
	1959	15	22.2	37.0	63.0	27	2	13.5
	1960	15				75	13	5.8
	1961	15	25.0	39.2	58.9	56	8	7.0
	1962	15	No harvest reported					
	1963	15	21.1	53.7	46.1	52	5	10.4
	1964	50	21.6	49.7	50.3	157	12	13.1
	1965	50	24.7	54.8	45.2	73	8	9.1
	1966	50	33.3	45.8	54.2	55	9	6.1
	1967	50	32.1	60.7	39.3	28	4	7.0
	1968	50	15.0	45.0	55.0	20	2	10.0
3	1957	No open season						
	1958	15			100.0	115	13	8.35
	1959	15	6.3	6.2	93.8	16	3	5.3
	1960	15				57	17	2.8
	1961	15						
	1962	15	No harvest reported					

Table 1. Beaver affidavit analysis, 1957-68 (continued).

Game Mgmt. Unit	Year	Limit	Percent Kits (Under 54")	Percent Kits and Yearlings (Under 59")	Percent Adults (Over 59")	Total No. of Beaver	No. of Trappers	Avg. No. Beaver/ Trapper
3	1963	15	31.6	57.9	42.1	21	5	4.2
	1964	50	22.5	42.5	57.5	40	3	13.3
	1965	50		33.3	66.6	6	1	6.0
	1966	50			100.0	4	3	1.3
	1967	50	11.1	55.5	44.5	9	4	2.1
	1968	50	19.0	33.3	66.6	21	3	7.0
4*	1962	15	30.5	56.8	33.2	36	3	12.0
	1963					16	1	16.0
	1964	50						
	1965	50			100.0	1	1	1.0
	1966	50	No harvest reported					
	1967	50	6.7	33.4	46.6	15	2	7.1
	1968	50	50.0	50.0	50.0	2	1	2.0
6	1957	20	24.1	40.0	60.0	245	16	15.3
	1958	20	12.9	28.0	72.0	264	15	17.6
	1959	20	14.3	20.2	79.8	168	11	15.3
	1960	40	14.3	35.7	64.3	304	15	20.3
	1961	40	13.2	31.0	68.9	264	15	17.6
	1962	40	13.5	27.1	72.9	155	10	15.5
	1963	50	13.7	24.4	75.6	305	11	27.7
	1964	50	12.3	29.0	71.0	155	8	19.4
	1965	50	20.7	41.5	57.8	135	13	10.4
	1966	50 and no limit***	15.0	38.9	61.1	169	9	18.8
	1967	50 and no limit***	13.5	32.9	67.1	222	7	31.5
	1968	50 and no limit***	7.1	27.5	73.1	113	11	10.3

Table 1. Beaver affidavit analysis, 1957–68 (continued).

Game Mgmt. Unit	Year	Limit	Percent Kits (Under 54")	Percent Kits and Yearlings (Under 59")	Percent Adults (Over 59")	Total No. of Beaver	No. of Trappers	Avg. No. Beaver/ Trapper
7	1957	20	22.7	48.0	52.0	75	14	5.4
	1958	20	15.7	34.8	65.2	89	18	5.0
	1959	20	34.0	52.3	47.7	44	8	5.5
	1960	15	17.2	35.4	64.6	393	67	5.0
	1961	15	15.8	22.4	66.0	236	39	6.0
	1962	15	17.3	36.0	64.+	259	57	4.5
	1963	20	24.5	45.2	54.7	106	15	7.1
	1964	20	30.8	61.5	38.5	13	4	3.3
	1965	20	31.7	51.2	48.8	41	9	4.5
	1966	20	12.0	44.0	56.0	25	10	2.5
	1967	20	7.1	28.5	71.5	14	2	7.0
	1968	20	23.6	45.8	54.2	72	10	7.2
8	1957	15	23.6	32.9	67.1	140	15	9.3
	1958	20	21.3	35.7	64.3	235	24	9.8
	1959	20	22.7	40.9	59.1	154	12	12.0
	1960	40	28.4	47.7	52.3	369	25	14.8
	1961	No limit	20.1	34.4	64.9	154	10	15.4
	1962	No limit	18.3	33.3	56.7	185	13	14.2
	1963	No limit	22.7	42.4	55.6	268	22	12.2
	1964	No limit	23.3	48.6	51.4	210	18	11.7
	1965	No limit	33.3	51.0	49.0	102	11	9.3
	1966	No limit	25.6	43.2	56.8	199	16	12.4
	1967	No limit	18.5	40.5	59.5	232	9	25.7
	1968	No limit	28.7	53.1	46.9	205	18	11.4
9	1957	15	17.0	25.9	74.1	1,469	138	10.6
	1958	15	22.4	34.2	65.8	1,515	141	11.0
	1959	15	23.9	34.7	65.3	1,975	170	11.6
	1960	20	21.9	32.9	67.8	1,768	115	15.4

Table 1. Beaver affidavit analysis, 1957-68 (continued).

Game Mgmt. Unit	Year	Limit	Percent Kits (Under 54")	Percent Kits and Yearlings (Under 59")	Percent Adults (Over 59")	Total No. of Beaver	No. of Trappers	Avg. No. Beaver/ Trapper
9	1961	20	19.8	32.0	67.3	2,319	161	14.4
	1962	15	28.3	38.0	62.0	933	82	11.3
	1963	15	19.9	34.9	65.1	2,080	161	12.9
	1964	15	26.3	37.9	62.0	951	91	10.5
	1965	15	17.6	31.4	68.6	494	47	10.6
	1966	40 & 15***	22.6	39.2	60.8	554	49	11.3
	1967	40 & 15***	25.3	39.0	61.0	810	69	11.5
	1968	40 & 15***	25.4	34.9	65.9	536	50	10.7
11	1957	20	12.8	15.4	84.6	39	5	7.8
	1958	20			100.0	20	4	5.0
	1959	20	8.5	16.9	83.1	59	5	11.8
	1960	20	35.0	50.0	50.0	20	2	10.0
	1961	20	5.0	30.0	70.0	20	2	10.0
	1962	20				2	1	2.0
	1963	20				16	3	5.3
	1964	20	5.1	30.8	69.2	39	6	6.5
	1965	20	16.7	25.0	75.0	12	2	6.0
	1966	20	0.0	50.0	50.0	4	2	2.0
	1967	20	3.6	10.7	89.3	28	2	14.0
	1968	20	15.8	33.3	66.7	57	4	14.2
12	1957	5	2.8	13.2	86.8	106	40	2.6
	1958	15	10.5	13.9	86.1	409	85	4.8
	1959	15	11.6	15.1	84.9	423	80	5.3
	1960	15	17.2	35.4	64.6	393	67	5.9
	1961	15	15.8	22.4	66.0	236	39	6.0
	1962	15	17.3	36.0	64.+	259	57	4.5
	1963	15	22.7	32.5	67.5	255	67	3.8
	1964	15	16.0	33.2	66.3	205	63	3.2
	1965	15	6.1	28.3	70.7	99	45	2.2
	1966	15	14.5	32.7	67.3	55	23	2.4
	1967	15	10.8	25.3	74.7	83	23	3.1
	1968	15	16.1	34.5	65.5	87	23	3.8

Table 1. Beaver affidavit analysis, 1957-68 (continued).

Game Mgmt. Unit	Year	Limit	Percent Kits (Under 54")	Percent Kits and Yearlings (Under 59")	Percent Adults (Over 59")	Total No. of Beaver	No. of Trappers	Avg. No. Beaver/ Trapper
13	1957	20	20.0	23.5	71.5	165	24	6.9
	1958	20	12.9	22.5	71.5	473	59	8.0
	1959	20	16.4	28.3	71.7	385	37	10.4
	1960	20	23.2	36.9	63.1	507	59	8.6
	1961	20	23.9	44.3	55.0	206	21	9.8
	1962	20	27.5	34.0	66.0	98	13	7.5
	1963	20	19.1	40.6	59.4	335	51	6.6
	1964	20	20.7	34.8	64.1	376	43	8.7
	1965	20	14.6	36.5	63.5	137	28	4.9
	1966	20	19.1	32.8	67.2	257	41	6.3
	1967	20	14.6	34.3	65.7	213	31	6.3
	1968	20	18.8	34.8	65.3	149	29	5.1
14	1957	20	17.7	36.2	63.8	923	84	11.0
	1958	40	16.4	30.6	69.4	1,204	96	12.6
	1959	40	27.2	50.7	49.3	647	49	13.2
	1960	40	24.1	43.4	56.7	844	68	12.4
	1961	40	23.9	44.3	55.0	877	69	9.8
	1962	40	22.3	45.9	54.1	493	38	12.9
	1963	40	24.9	48.1	51.9	789	83	9.5
	1964	40	21.2	46.0	54.0	655	60	10.9
	1965	40	22.2	43.3	56.7	365	41	8.9
	1966	40	16.7	41.6	58.4	665	99	6.7
	1967	40	17.7	41.0	59.0	463	45	10.1
	1968	40	20.0	42.9	57.0	382	50	7.6
15	1957	20	17.2	37.9	62.1	303	26	11.7
	1958	40	16.4	27.5	72.5	360	30	12.0
	1959	40	29.8	46.4	53.6	168	15	11.2
	1960	40	17.5	35.3	64.7	379	20	18.9
	1961	40	15.1	33.9	66.1	438	20	21.9
	1962	40	17.7	33.9	66.1	180	14	12.8

Table 1. Beaver affidavit analysis, 1957-68 (continued).

Game Mgmt. Unit	Year	Limit	Percent Kits (Under 54")	Percent Kits and Yearlings (Under 59")	Percent Adults (Over 59")	Total No. of Beaver	No. of Trappers	Avg. No. Beaver/ Trapper
15	1963	40	18.1	33.2	66.8	254	25	10.1
	1964	40	19.4	36.3	63.7	237	24	9.9
	1965	40	23.8	52.4	42.8	21	4	5.2
	1966	40	20.0	44.0	56.0	25	7	3.6
	1967	40	24.0	34.0	66.0	50	8	6.2
	1968	40	10.5	36.8	63.2	38	5	7.6
16	1957	20	19.4	41.9	58.1	62	5	12.4
	1958	40	13.7	25.7	74.3	1,148	45	25.5
	1959	40	22.1	39.7	60.3	1,715	72	23.8
	1960	40	15.1	35.3	64.7	2,200	95	23.2
	1961	40	20.9	37.9	62.3	1,309	63	20.7
	1962	40	34.3	43.3	56.7	524	34	15.4
	1963	40	18.1	38.3	61.7	1,305	66	19.7
	1964	40	19.5	38.7	62.3	798	39	20.5
	1965	40	15.7	42.5	57.5	381	17	22.4
	1966	40	15.9	39.6	60.4	510	28	18.2
	1967	40	20.5	43.4	56.6	625	27	23.4
	1968	40	23.2	45.0	55.0	732	59	12.4
17**	1957	10	22.9	36.8	63.2	367	46	8.0
	1958	15	19.1	33.0	67.0	3,165	263	12.0
	1959	10	19.6	29.4	70.6	3,245	369	8.8
	1960	15	24.3	34.2	65.8	3,721	279	13.3
	1961	15	23.1	24.7	65.2	2,849	230	12.3
	1962	15	29.5	41.5	58.5	1,903	175	10.8
	1963	15	23.3	36.8	63.2	2,172	189	11.5
	1964	15	28.4	38.4	61.6	1,766	180	9.8
	1965	15	22.1	34.9	65.1	957	97	9.9
	1966	15	25.2	37.9	62.1	1,424	143	10.0
	1967	15	25.3	37.0	63.0	2,711	215	12.6
	1968	20	25.7	36.4	63.6	3,158	198	15.9

Table 1. Beaver affidavit analysis, 1957-68 (continued).

Game Mgmt. Unit	Year	Limit	Percent Kits (Under 54")	Percent Kits and Yearlings (Under 59")	Percent Adults (Over 59")	Total No. of Beaver	No. of Trappers	Avg. No. Beaver/ Trapper
18	1957	No open season						
	1958	No open season						
	1959	10	31.2	45.1	54.9	2,766	357	7.7
	1960	10	25.7	38.7	61.3	2,013	260	7.7
	1961	10	28.9	44.6	55.3	1,428	187	7.6
	1962	10	34.9	45.1	54.8	817	116	7.0
	1963	10	33.3	50.1	49.9	1,503	202	7.4
	1964	10	30.3	44.7	54.9	666	116	5.7
	1965	10	18.6	36.4	63.6	264	41	6.4
	1966	10	30.6	46.0	54.0	411	66	6.2
	1967	10	31.7	48.6	51.4	765	100	7.6
	1968	10	23.2	38.0	62.0	1,423	194	7.3
19	1957	15	12.5	24.8	75.2	2,200	200	11.1
	1958	20	15.5	24.0	76.0	3,852	256	15.1
	1959	20	16.3	29.3	70.7	4,034	284	14.2
	1960	20	16.7	30.0	70.0	3,128	210	14.9
	1961	20	17.5	30.8	69.1	4,576	307	14.9
	1962	20	19.7	35.2	65.8	3,035	219	13.9
	1963	15	20.0	34.9	65.1	2,250	196	11.4
	1964	25 & 15***	20.0	32.6	67.3	2,148	176	12.2
	1965	25 & 15***	30.7	42.5	57.5	1,290	128	10.1
	1966	25 & 15***	27.6	39.5	60.5	1,510	137	11.0
	1967	25 & 10***	16.3	28.0	72.0	1,105	140	7.1
	1968	25 & 10***	14.0	30.0	70.1	1,368	149	9.2
20	1957	15	8.9	16.6	83.4	641	74	8.8
	1958	20	8.7	19.7	80.3	1,869	152	12.3
	1959	20	4.1	17.7	82.3	1,242	119	10.4
	1960	20	9.1	23.3	76.7	1,540	145	10.6
	1961	20	11.4	24.5	75.5	1,435	129	11.1
	1962	20	15.8	25.7	74.1	1,139	96	10.2
	1963	20	9.6	21.7	78.3	1,514	133	13.3

Table 1. Beaver affidavit analysis, 1957-68 (continued).

Game Mgmt. Unit	Year	Limit	Percent Kits (Under 54")	Percent Kits and Yearlings (Under 59")	Percent Adults (Over 59")	Total No. of Beaver	No. of Trappers	Avg. No. Beaver/ Trapper
20	1964	25	12.2	23.0	76.0	2,176	194	11.2
	1965	25	9.6	24.4	76.7	1,671	163	10.2
	1966	25	14.5	30.5	69.5	1,415	231	6.1
	1967	25	9.0	22.4	77.6	2,164	187	11.1
	1968	25	12.1	27.7	72.2	1,502	152	9.9
21	1957	15	12.3	23.4	76.6	5,460	490	11.1
	1958	20	11.0	22.6	77.4	6,871	499	13.8
	1959	20	12.7	26.2	73.8	5,771	425	13.6
	1960	20	12.0	25.0	25.8	5,945	381	15.6
	1961	20	12.8	28.7	71.1	5,488	356	15.4
	1962	20	13.6	32.4	67.6	3,833	288	13.3
	1963	20	14.5	29.1	70.9	4,638	343	13.5
	1964	20	16.0	31.3	68.6	2,067	212	9.7
	1965	15	13.7	30.4	69.6	1,478	182	8.7
	1966	15	13.8	29.3	70.7	2,760	261	10.6
	1967	15	13.4	27.7	72.3	1,631	166	9.8
	1968	15	16.1	31.3	68.7	2,353	227	10.4
22	1957	No open season						
	1958	10	45.2	54.8	45.2	42	10	4.2
	1959	10	18.8	35.4	64.6	48	14	3.4
	1960	10	25.8	41.9	58.1	62	12	5.2
	1961	10	4.7	14.2	85.7	21	3	7.0
	1962	10	26.1	38.2	61.8	42	7	6.0
	1963	20						
	1964	50	19.4	27.6	72.4	98	14	7.0
	1965	50	2.3	13.6	86.4	44	4	11.0
	1966	50	23.2	37.7	62.3	69	6	11.5
	1967	50	20.3	39.1	60.9	69	7	9.6
	1968	50	26.5	47.1	53.0	68	9	7.6

Table 1. Beaver affidavit analysis, 1957-68 (continued).

Game Mgmt. Unit	Year	Limit	Percent Kits (Under 54")	Percent Kits and Yearlings (Under 59")	Percent Adults (Over 59")	Total No. of Beaver	No. of Trappers	Avg. No. Beaver/ Trapper
23	1957	15			100.0	5	1	5.0
	1958	No open season						
	1959	15				0	0	
	1960	15				0	0	
	1961	15	12.5	50.0	50.0	8	1	8.0
	1962	15		30.0	70.0	7	2	3.5
	1963	15				3	1	3.0
	1964	15						
	1965	15			100.0	5	1	5.0
	1966	15				0	0	
	1967	20				0	0	
	1968	20	50.0	50.0	50.0	2	1	2.0
24	1957	20	8.2	22.0	78.0	1,486	96	15.5
	1958	25	6.2	23.2	76.8	1,841	105	17.5
	1959	25	6.8	17.6	82.4	1,434	97	14.8
	1960	25	13.0	30.2	69.8	1,375	79	17.4
	1961	25	11.1	30.9	68.5	1,333	88	15.1
	1962	25	8.2	27.8	72.2	1,066	71	15.0
	1963	25	9.5	27.9	72.1	965	70	13.7
	1964	15	6.9	19.0	80.6	578	64	9.0
	1965	15	3.9	22.2	77.7	436	55	7.9
	1966	15	6.9	17.9	82.1	577	69	7.5
	1967	15	7.6	21.7	78.3	432	43	10.0
	1968	20	7.5	24.7	75.3	714	62	11.5
25	1957	15	21.7	31.6	68.4	630	77	8.2
	1958	15	25.9	37.1	62.9	625	77	8.1
	1959	15	21.1	38.3	61.7	725	86	8.4
	1960	15	17.3	33.3	66.7	788	61	12.9
	1961	15	13.4	30.2	69.9	644	70	9.2

Table 1. Beaver affidavit analysis, 1957-68 (continued).

Game Mgmt. Unit	Year	Limit	Percent Kits (Under 54")	Percent Kits and Yearlings (Under 59")	Percent Adults (Over 59")	Total No. of Beaver	No. of Trappers	Avg. No. Beaver/ Trapper
25	1962	15	15.8	29.1	70.9	430	44	9.8
	1963	20	14.6	27.9	72.1	464	63	7.4
	1964	20	18.4	30.9	69.1	488	63	7.7
	1965	20	21.5	35.9	64.1	383	47	8.1
	1966	20	22.1	33.6	66.4	478	88	5.4
	1967	20	22.6	36.6	63.4	265	38	6.4
	1968	20	19.1	36.9	63.1	236	42	5.6
Miscellaneous Areas	1966		22.5	43.8	56.2	80	10	8.0
	1967				100.0	6	3	2.0

Table 1. Beaver affidavit analysis, 1957-68 (continued).

Game Mgmt. Unit	Year	Limit	Percent Kits (Under 54")	Percent Kits and Yearlings (Under 59")	Percent Adults (Over 59")	Total No. of Beaver	No. of Trappers	Avg. No. Beaver/ Trapper
TOTAL	1957		13.8	25.8	74.2	14,344	1,351	10.6
	1958		14.1	26.2	73.8	24,484	1,940	12.6
	1959		17.9	31.0	69.0	25,115	2,223	11.3
	1960		16.4	29.4	70.6	26,504	2,028	13.1
	1961		17.6	32.2	67.4	23,859	1,800	13.2
	1962		19.1	33.4	66.6	15,187	1,289	11.7
	1963		18.5	34.0	66.0	19,619	1,739	11.3
	1964		19.5	33.6	66.3	14,046	1,589	8.8
	1965		17.4	33.4	66.6	8,556	949	9.0
	1966		----	----	----	11,426	1,316	8.8
	1967		18.2	32.8	67.2	12,057	1,165	10.4
	1968		19.1	34.2	65.8	13,342	1,312	10.2

* Either no open season or no beaver taken during 1957-1961 in Units 4, 5, 10 and 26.

** Part of Unit 17 closed in 1957 and 1958.

*** Unit was divided with different bag limits in the subdivisions.

12 year average (1957-68)	17,479
12 year range (1957-68)	8,556 - 26,504
12 year average (1957-68) no. of trappers	1,559

The tributary analysis on selected units has been continued and the pertinent findings will be discussed under the appropriate Game Management Unit.

Game Management Unit 7

The harvest in Unit 7 showed a substantial increase from the four previous years (Table 1). Of the total of 72 beaver taken within the Unit, the largest harvest from any identifiable area or tributary was 27 beaver from the Trail and Snow Rivers. The overall percentage of kits in the harvest was relatively high (23.6 percent). Ten of the 27 beaver taken on the Trail and Snow Rivers (37 percent) were kits. The low harvest and high percentage of kits could possibly be indicative of over-utilization of the areas which were trapped or employment of poor trapping techniques. The quantity of data from Unit 7 is insufficient to draw positive conclusions on the status of the beaver population. Additional field data would be necessary to establish population trends.

Game Management Unit 9

The 1968 harvest in Unit 9 was substantially lower than that in 1967. Only 29 (5.4 percent) of the beaver harvested in Unit 9 came from that portion which has an extended season and a bag limit of 40. Only three (10 percent) of the 29 beaver from that area were kits. It appears that the liberal season and bag limit in that area is commensurate with low trapping effort and that trapping is not adversely affecting the population.

Five-hundred and seven beaver were harvested from the remainder of Unit 9. A very high percentage of kits was harvested from almost all of the drainages in the remainder of Unit 9. The only exception was the Ugashik River which had a total harvest of 148 beaver, comprised of only 10.1 percent kits. The high percentage of kits in the harvest and a reduced harvest are indicative of over-harvest or poor distribution of the harvest which usually results in over-utilization of beaver populations in local areas.

Game Management Unit 8

The harvest of 205 beaver from Unit 8 was not a significant change from the 232 beaver harvested in 1967. The percentage of kits in the harvest increased from 18.5 percent in 1967 to 28.7 percent in 1968. As described in Unit 7, this high percentage of kits could be indicative of over-exploitation of local areas or very poor trapping techniques.

Reports from trappers and biologists in the area have indicated that trapping techniques at Kodiak are conducive to a high harvest of kits. Improving the trapping techniques and the distribution of the harvest would potentially result in better utilization and a higher harvest of beaver from Unit 8.

Game Management Unit 11

The limited harvest and small percentage of kits in the harvest do not indicate any problems in Unit 11.

Game Management Unit 12

No problems are indicated by the tributary analysis of Unit 12.

Game Management Unit 13

The harvest pattern in Unit 13 indicates a few beaver are harvested from numerous streams. The maximum number taken from any one tributary or drainage was 48 from the Delta River. Twelve (26.1 percent) were kits. Because of the distribution of trappers on many streams it is unlikely that overtrapping in Unit 13 is occurring on a significant scale despite the lower harvest in 1968 (Table 1).

Game Management Unit 14

Of the 382 beaver taken from Unit 14, 88 percent came from the drainage of the Little Susitna River and the streams draining into the Knik Arm. Of the 170 beaver taken from the Little Susitna drainage and adjacent lakes, 21.8 percent were kits. Of the 157 beaver taken from the drainages into the Knik Arm, 21.0 percent were kits. While these percentages are not a positive indication of overharvest, they are indicative of potential overharvest and the need for additional field information.

Game Management Unit 15

The harvest of beaver in Unit 15 is too small for the age composition to provide any meaningful information on the status of the population.

Game Management Unit 16

The apparent increase in the harvest from Game Management Unit 16 is partially attributable to the revised compilation of the harvest by drainage. Some of the harvest previously attributed to Unit 13 is now being attributed to Unit 16. The percentage of kits harvested from Game Management Unit 16 is the second highest reported in that Unit since 1957. Numerous tributaries to the Susitna River show a high harvest of kits. The overall harvest on the Susitna River was 379 beaver of which 22.2 percent were kits.

Two-hundred and fifty-four beaver were taken from the drainage of the Yentna River. Kits comprised 25.6 percent of the total. The high percentage of kits in the harvest from the Susitna and Yentna indicates the need for additional information on the beaver population from these two drainages.

Game Management Unit 17

The increased harvest of beaver from Unit 17 is a result of an emergency extension of the beaver trapping season. Considering the high percentage of kits reported in this Unit in past years, it is inevitable that overharvests have occurred on several tributaries. Table 2 compares the harvest and percentage of kits from several tributaries in Unit 17. Inaccuracies on the sealing documents make it difficult to rely on the comparisons in Table 2. The very large number of beaver harvested from unknown locations on the Nushagak River could offset the known harvest on several tributaries.

The trend toward high percentage of kits in the harvest still persists throughout many parts of Unit 17. Additional field work is urgently needed to identify those streams which are being overexploited.

Game Management Unit 18

The beaver harvest in Unit 18 increased from 765 in 1967 to 1423 in 1968 (Table 1). Reports from the field indicate that the larger harvest is attributable to rather open winter conditions which allowed access to many areas which have not been recently trapped. The reduced percentage of kits (31.7 in 1967 and 23.2 in 1968) tends to verify these observations. The beaver management situation in Unit 18 is complicated because of large areas of marginal beaver habitat and large variations in the effort and success of trappers.

Game Management Unit 19

In response to continuing problems in Unit 19, the Unit was split for the 1964 season with different bag limits in the two subunits. After the 1966 season an analysis was made of the harvest on all tributaries in Unit 19. The 1966 analysis indicated that the original bag limit restriction had been imposed on a larger area than was necessary. The tributary analysis also revealed that these restrictions did not control the problem. The size of the restricted area was reduced in 1967 and both the season and bag limit were reduced in the restricted portion.

On several streams in Unit 19 the percent of kits in the harvest approached or exceeded 20 percent. All of the streams listed in Table 3 fall within the portion of Unit 19 which has the restrictive season and bag limit.

Table 2. Unit 17 beaver harvest by tributary.

	1967		1968	
	Total Harvest	% Kits	Total Harvest	% Kits
Togiak drainage	418	36.8	785	39.4
Misc. rivers vicinity of Togiak	30	35.5	11	36.5
Portage Creek	26	46.2	16	43.8
Wood River & adjacent lakes	88	29.5	267	20.2
Squaw Creek	15	80.0	0	0
Kukwok & Nameless Creek	371	30.7	153	15.7
Klutuk River	151	33.1	0	0
King Salmon River	110	17.3	60	3.3
Chitnuk, Chicknuk & Chechitnuk Rivers	74	6.8	0	0
Tick Chick Lakes	9	22.2	99	34.3
Nushagak unknown	351	21.6	929	19.4
Nushagak drainage not including the Mulchatna	1,640	24.8	1,567	19.8
Mulchatna River	620	18.4	712	24.9
TOTAL UNIT 17 including several tributaries not listed above	2,709	25.3	3,158	25.7

Table 3. Unit 19 tributaries with high percentage of beaver kits in the harvest.

	% Kits	Total Harvest
Swift Creek	41.7	36
Aniak River	19.6	56
Holokuk River	36.8	19
Oskawalik River	28.2	40
George River	41.2	34
Holitna River	20.8	96

Game Management Unit 20

In 1967 there were only two areas of Unit 20 in which the percentage of kits in the harvest was high. The number of drainages or tributaries showing a high percentage of kits increased substantially in 1968 (Table 4). The harvest on many of the streams listed on Table 4 is so small as to be inconclusive. Those streams showing a higher harvest of beaver such as the Chatanika, Kantishna, and Chena Rivers may be indicative of impending population problems.

Game Management Unit 21

In 1968 the harvest and the percentage of kits in the harvest increased in Unit 21. The percentage of kits in the harvest from several tributaries took alarming upswings. Most of the streams listed in Table 5 fall within that portion of Unit 21 described as Unit 21B which has a restricted season. Further restrictions may be needed in Unit 21 if the present trend towards higher numbers of kits in the harvest continues.

Game Management Unit 24

The 1968 harvest in Unit 24 increased to 714 from 432 taken in 1967. The harvest is still much lower than the harvest taken in Unit 24 in 1957 through 1962. The percentage of kits in the harvest remains small and, as in 1967, the tributary analysis does not provide any clues to the cause of the generally low harvest since 1963. The 1968 increase in harvest may be due to the increase in the bag limit and longer open season.

Game Management Unit 25

The harvest from Unit 25 reached a new low in 1968 (Table 1). The scattered distribution of the harvest reported for the 1967 season was also apparent in 1968. Small numbers of beaver were taken from a large number of streams. In 1968 there were slightly less beaver harvested from the Porcupine River and its tributaries. This stream and its tributaries account for a little less than one-half of the beaver harvested from Unit 25. As in 1967, the Porcupine had a high percentage of kits in the harvest. Of the 119 beaver harvested in 1967, 21.6 percent were kits and of the 96 beaver harvested from the Porcupine drainage in 1968, 25 percent were kits. Additional information would be very desirable on the beaver populations in Unit 25, particularly on the Porcupine Drainage.

Table 4. Unit 20 tributaries with high percentage of beaver kits in the harvest.

	% Kits	Total Harvest
Patterson Creek	72.7	11
Baker Creek	18.2	22
Tolovana River unspecific	23.1	27
Chatanika River	17.4	95
Kantishna River	18.6	130
Wood River	37.5	16
Chena River	27.8	36
Shaw Creek	29.0	31
Delta River	31.3	16
Tanana drainage unknown location	22.1	68
Fortymile River	30.0	10

Table 5. Unit 21 tributaries with high percentage of beaver kits in the harvest.

	% Kits	Total Harvest
Anvik River	29.8	104
Paimiut Slough & Holy Cross area	21.7	70
Reindeer River	19.1	47
North Fork of Innoko River	19.8	86
Innoko Flats	22.8	194
Nulato River	30.0	57
Kaiyuk Flats, plus miscellaneous sloughs and creeks along Yukon	19.1	370

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Frank Jones
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Division of Game

STUDY PLAN SEGMENT REPORT

FEDERAL AID IN WILDLIFE RESTORATION

STATE: Alaska

TITLE: Small Game and Furbearer Investigations

PROJECT NO.: W-17-1

TITLE: Furbearers

STUDY PLAN: A

JOB NO.: 8

TITLE: Beaver: Density, Productivity, and Exploitation

PERIOD COVERED: July 1, 1968 to June 30, 1969

ABSTRACT

Beaver cache surveys were conducted in Units 19, 20, and 21. The technique currently in use, when analyzed along with the age structure of the harvest, appears to provide sufficient information to manage beaver within the drainages which were surveyed. The ability to locate beaver caches from an aircraft appears to improve with the experience of the observer. Surveys made from a canoe or kayak along the major channel of the stream within the survey area appear to be more efficient than surveys made from an aircraft. No correlation has yet been made between the number of beaver caches in an area and the beaver population within the area.

RECOMMENDATIONS

Additional work should be done to determine if the number of caches in an area is correlated with the beaver population within the same area. Assuming that a correlation will be established at some later date, cache counts should be established on drainages where the age structure of the harvest indicates a high percentage of kits in the harvest. If the surveys made by canoe or kayak continue to locate more beaver caches over a given stretch of the stream, and if the canoe or kayak surveys also reflect the general increase or decrease in the beaver cache counts as observed from an aircraft, then consideration should be given to deleting the aircraft count where survey by canoe or kayak is more economical.

STUDY PLAN SEGMENT REPORT

FEDERAL AID IN WILDLIFE RESTORATION

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PROJECT NO.: W-17-1

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TITLE: Small Game and Furbearer Investigations

TITLE: Furbearers

TITLE: Beaver: Density, Productivity, and Exploitation

PERIOD COVERED: July 1, 1968 to June 30, 1969

OBJECTIVES

1. To determine productivity and sex and age structure of beaver populations on selected areas.

2. Determine density, population trends, and exploitation rate of beaver populations.

3. Determine if sex and age structures of a population are related to rate of exploitation.

PROCEDURES

No work was accomplished toward Objectives 1 and 3.

Aerial surveys were conducted on several streams in the Yukon and Kuskokwim drainages. The surveys were flown in a small 2-place aircraft, several hundred feet above the terrain, depending upon the sighting conditions. Surveys were flown so the observer could observe all beaver houses and caches within the belt of beaver habitat lying within approximately one mile on each side of the major stream course. All observations of beaver houses with caches, beaver houses without caches, and beaver caches were recorded on 1 to 63,360 or 1 to 50,000-scale maps. Permanent count areas were established in 1966 and 1967, and are described in the Furbearer Report, Volume VIII, Annual Projects Segment Report, Federal Aid in Wildlife Restoration, Project W-13-R-3, Work Plan A. A new count area was established on the Anvik River. The boundaries of this count area will be described later in this report.

In an attempt to establish a technique whereby the number of caches found in one area may be compared with the number of caches found in another area, the number of river miles within a survey area has been established. This figure is determined by tracing the distance of one

channel of the river or rivers within a survey area, with a map-measuring device. The rivers within the beaver count areas commonly contain many islands and branches; therefore, only one channel is used. On those streams which have not been surveyed by canoe the channel measured is that channel which appears from 1 to 63,360 scale maps to be the main channel of the river. On count areas where the entire course of the river has been surveyed by canoe, such as the Chena River, the channel measured is that channel which is actually used when canoeing through the count area. Once established, these figures remain constant for a count area and no allowance is made for minor channel changes which commonly occur each year.

Several of the streams in which counts were made were also traveled by canoe. Beaver caches were again plotted on 1 to 63,360 or 1 to 50,000-scale maps, and compared with aerial surveys over the same portion of the river to determine the relative efficiency of the aerial survey to locate beaver houses and caches on the actual stream course.

FINDINGS

Innoko River Beaver Cache Survey

Description of Area

The 1968 aerial survey of Innoko River was made over the same area described in the previous segment report.

Innoko River Survey Results

Beaver houses and caches were counted on Innoko River. In the previous segment report these counts were compared with the counts made from 1953 to 1957. The previous counts could not be broken down into comparable sections of the original count area. Commencing with the 1966 survey the location of houses and caches have been recorded on 1 to 63,360-scale maps. In the first year, 1966, not all houses were recorded on maps but sufficient records were kept to separate the count area into three recognizable portions. Those portions were the Dishna River tributary, the Mud River tributary, and the Innoko River from the beginning point to the confluence with the Dishna River.

Table 1 compares the three sections of the Innoko count from 1966 to 1968. The overall increase in beaver caches observed is thought to be significant. The increase from 1966 to 1967 may in part be due to the experience of the observer and, therefore, may not reflect a population increase as great as that indicated by the count.

The increase in houses without caches and the total number of both caches and houses without caches is partially a function of the techniques used in the count. Once a house is observed it will continue to be observed in subsequent years, even if it is abandoned and the beaver colony

Table 1. Innoko River aerial beaver cache counts.

Area	Year	Houses With Caches	Houses Without Caches	Total
Innoko River	1966	51	109	160
	1967	83	103	186
	1968	99	142	241
Dishna River	1966	34	26	60
	1967	39	37	76
	1968	66	43	109
Mud River	1966	10	21	31
	1967	11	22	33
	1968	--	--	--
Total Innoko Count	1966	95	156	251
	1967	133	162	295
	1968	176*	207*	383*

* Mud River was not counted in 1968. For the purpose of obtaining comparable total count only for 1968, Mud River was assumed to have the same count as was obtained in 1967.

takes up residence in a new lodge nearby. Little significance should be placed on the number of houses without caches, or the combined number of houses with caches and houses without caches.

The total number of 176 houses with caches observed in 1968 compares favorably with the two previous highest counts of 177 caches in 1953 and 187 caches in 1954.

Chena River Beaver Cache Survey

Description of the Area

The Chena River beaver survey area extends from the bridge crossing the Chena River at approximately Mile 42.5 on the Chena Hot Springs Road (64¼ 54.9' N., 146¼ 24.7' W.) to the Cushman Street Bridge in Fairbanks (64¼ 50.7' N., 140¼ 43.3' W.). For the purpose of these surveys this constitutes approximately 80 river miles of the Chena River. In many places there are several channels of the Chena River and channel changes occur each year as oxbows are cut off and new channels are established. For the purpose of these surveys 80 river miles will be the constant distance used to calculate the number of river miles per house with cache on the main channel of the river.

Chena River Survey Results

In 1968, 58 caches with houses were observed by canoe on the Chena River (Table 2). In Table 3, non-duplicating observations, both aircraft and canoe, are compared for 1967 and 1968. The 1968 count was made in a Cessna 180 aircraft for the dual purpose of training another observer; therefore, the small difference between the 1967 and 1968 count may be due to differences in efficiency rather than significant changes in the number of houses with caches in the count area.

Holitna River Beaver Cache Survey

Description of the Area

The 1968 aerial survey of the Holitna River was made over the same area described in the previous segment report. This area differs significantly from the count area originally established in 1953. Cache counts presented in past reports compared the observations made on the area originally used in 1953. Data presented in this report will be based on the count area described in the previous report, not the count area established in 1953.

Holitna River Beaver Survey Results

Table 4 compares the counts made on the Holitna River, Hoholitna River and Titnuk Creek in 1967 and 1968. The Hoholitna River contained

Table 2. Chena River beaver cache counts made from canoe.

Year	Miles of River Surveyed	Houses With Caches	Average Number of River Miles Per Cache*
1966	74	49	1.5
1967	69	55	1.25
1968	80	58	1.4

* Only caches which are located on the main channel of the river or observed from a canoe on the main channel are included in the count made from canoe.

Table 3. Chena River beaver cache count, combined aircraft and canoe (no duplication).

Year	River Miles in Survey Area	Houses With Caches	Houses Without Caches	Average Number of River Miles Per Cache
1967	80	82	38	.97
1968	80	75	67	1.1

Table 4. Holitna River aerial beaver cache count.

Area	Year	River Miles in Survey Area	Houses With Caches	Houses Without Caches	Average Number of River Miles Per Cache
Holitna River	1967	115	30	5	3.8
Holitna River	1968	115	23	25	5.0
Hoholitna River	1967	119	55	9	2.2
Hoholitna River	1968	119	76	17	1.6
Titnuk Creek	1967	95	28	10	3.4
Titnuk Creek	1968	95	41	19	2.3
Total Holitna River	1967	329	113	24	2.9
	1968	329	140	61	2.35

Table 5. Takotna River aerial beaver cache count. (Partial count on portion of the Takotna River survey area upstream from the Takotna Bridge. See text.)

Year	Houses With Caches	Houses Without Caches	Total
1967	32	9	41
1968	48	24	72

more caches than the Holitna River which is similar in the total number of river miles within the count area. Titnuk Creek compared very closely with the number of stream miles per cache with the Holitna River in 1967. However, in 1968 it averaged less than one half as many miles per cache compared with the Holitna River. In gross appearances the Holitna and Hoholitna Rivers appear to be very similar. Titnuk Creek seems to be significantly different. It is small and very winding.

Takotna River Beaver Cache Survey

Description of the Area

In 1967 the Takotna River was surveyed by aircraft from a point where it intersects longitude 157° 00' W. at 62° 30.0' N. to the confluence with the Nixon River (63° 0.27' N., 155° 40' W.).

The Nixon River tributary was surveyed from 63° 13.4' N., 155° 30' W. to the confluence with the Takotna River. In 1968, due to the lateness of the survey, the Nixon River portion was not surveyed, and only a portion of the Takotna River which was surveyed in 1967 was counted. The portion of the Takotna River which was counted was that portion upstream from the Takotna Bridge to the point where the Takotna River intersects Longitude 157° 00' W.

Takotna River Beaver Cache Survey Results

Table 5 compares the counts made in 1967 and 1968 on that portion of the Takotna River survey area upstream from the Takotna Bridge. The counts indicate a substantial increase in the number of beaver caches in that section of the Takotna drainage.

Birch Creek Beaver Cache Survey

The area surveyed in 1968 was the same area described in the previous segment report.

Birch Creek Beaver Cache Survey Results

Sixty-six houses with caches were observed on the 1967 aerial survey, and 151 houses with caches were observed on the 1968 survey (Table 6). Forty-three miles of the Birch Creek count areas were surveyed by canoe. The results of that survey are presented in Table 7. When the 43-mile section of stream was surveyed by aircraft only, 21 caches were located. Ten additional caches were located by canoe over the same 43 miles of stream. It is not known at this time if a correction figure can be applied to the entire Birch Creek survey area. These results point out the relative efficiency of aircraft versus canoe counts on certain sections of Birch Creek.

Table 6. Birch Creek beaver cache counts.

Year	Houses With Caches	Houses Without Caches	Average Number of River Miles Per Cache
1967*	66	57	2.8
1968**	151	88	1.2

* Aircraft count only.

** Aircraft used over entire count area; canoe used on 43 miles. Counts combined without duplication.

Table 7. Comparison of Birch Creek beaver cache counts made by canoe and aircraft on 43 miles of stream.

Year	Miles of River Surveyed	Houses With Caches Seen by Both Canoe and Aircraft. (No Duplication.)	Average Number of River Miles Per Cache	Houses With Caches Seen by Aircraft Only	Average Number of River Miles Per Cache
1968	43	31	1.4	21	2.0

Table 8. Anvik River aerial beaver cache count.

Year	River Miles in Survey Area	Houses With Caches	Houses Without Caches	Average Number of River Miles Per Cache
1963	103	26	32	3.9

Anvik River Beaver Aerial Survey

Description of the Area

Anvik River was surveyed from its mouth to the confluence with Otter Creek. The survey area also extends up the Yellow River to a point where Yellow River intersects Longitude 116° 30' W. Measuring one channel of the Yellow River and the Anvik River, the survey area was found to include 103 river miles.

Results of Anvik River Beaver Survey

Twenty-six houses with caches were observed on the 1968 aerial survey of the Anvik River (Table 8). Based upon the total length of 103 miles of river, the average was one cache for every 3.9 river miles.

DISCUSSION

Aerial beaver cache counts have been made in Alaska on and off since 1953. They were subsequently discontinued after the initiation in 1957 of the measuring of the beaver pelts to determine the age structure of the harvest. The management program at that time was then based primarily on the age structure of the harvest. As previously discussed in Job A-7, this information did not provide sufficient facts to manage beaver in areas where maximum or overharvests were occurring. The technique described in this report, and in the previous segment report of Job A-8, seems to provide sufficient information, in conjunction with the sealing program, necessary to manage beaver.

Recording the location of beaver caches on permanent maps facilitates the comparison of any portion of the count area at any time in the future. It appears that the second count in any area is likely to be higher than the initial count. This seems to be primarily due to experience with counting the specific area. Precise correlation between the number of beaver within the survey area, and the number of caches is not known; however, gross changes in the cache counts in several areas probably indicate population increases and decreases.

Counts on the Holitna River, where the count area has been broken into three sub-count areas, demonstrates that substantial increases have been observed on two portions of the count area, whereas the number of caches on the Holitna portion has actually decreased. Harvest records tend to support the results of the aerial beaver cache counts.

Innoko River Beaver Cache Survey

The beaver cache counts on Innoko River have shown substantial increases on both the Innoko and Dishna portions of the survey area. These counts are thought to be significant, and to indicate a substantial increase in the beaver population on the Upper Innoko and Dishna Rivers.

Chena River Beaver Cache Surveys

The beaver cache counts made from canoe on the Chena River have shown a relatively stable number of caches observed, when the differences in the length of river surveyed are adjusted by determining the average number of river miles per beaver cache. A less efficient aerial count technique was deployed in 1968 and there was a decrease in the number of caches seen from the aircraft. There was also an increase in the average number of river miles per cache on the canoe survey which tends to support the results of the combined aircraft and canoe survey, which indicates a slight decline in the overall number of caches in the Chena River beaver cache survey area. It would appear for management purposes that the mannitude of the decrease is insignificant.

Holitna River Beaver Cache Survey

The beaver cache counts on the Holitna River have provided us with the best insight to the applicability of this technique for managing beaver in areas of high utilization. As mentioned earlier in this report, there may be a tendency to obtain a higher count the second year in an area, even though the population has remained relatively unchanged. In consideration of this tendency it should be pointed out that the count decreased on the Holitna River in 1968, while substantial increases were observed on the Hoholitna River and Titnuk Creek. Reports from residents in the area indicate that substantial beaver populations have existed in the past on the Holitna River, and also that populations on the Hoholitna River have at times been considerably higher than they are at present. The present trapping effort appears to be more concentrated on the Holitna River, primarily because several trappers reside year-round on the Holitna River and their efforts tend to be less related to beaver populations than trapping efforts on the Hoholitna and Titnuk Creek.

Takotna River Beaver Survey

The Takotna River beaver survey area was not completely surveyed in 1968. Only that portion of the Takotna River upriver from the Takotna River Bridge was surveyed. This portion did show an increase in houses with caches; however, on such a limited portion of this count it is difficult to say if this increase actually reflected an increase in the beaver population.

Birch Creek Beaver Cache Survey

The large increase in number of houses with caches on Birch Creek in 1968 was thought to be largely due to an improvement in counting efficiency. A small portion of the Birch Creek count area had been checked by canoe in 1966 and 1967. This check revealed that the 1967 aerial count was not as efficient as was desired. A longer check area was utilized in 1968 and a

substantial number of additional houses with caches were located. This pattern is very similar to the results of canoe and aerial surveys on the Chena River. It may be found desirable for future counts to adjust the results of the aerial survey if future canoe checks substantiate the inability to locate beaver caches along the stream banks from an airplane.

Anvik River Beaver Aerial Survey

A new survey area was established on the Anvik River located near the town of Anvik on the Yukon River. The number of caches located for the survey was very small, averaging only one cache for every 3.9 miles of river. It would appear that the beaver population in this area is very low. At this time it is not known if the low population is due to the quality of the habitat or other factors, such as trapping, which may influence the beaver population.

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