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DATA FROM THE ARCTIC GRAYLING SPORT FISHERY ON THE  
KAKISA RIVER, NORTHWEST TERRITORIES, 1983 AND 1984

by

G. Low and C.J. Read

Central and Arctic Region  
Department of Fisheries and Oceans  
Winnipeg, Manitoba R3T 2N6

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## ABSTRACT

Low, G., and C.J. Read. 1987. Data from the Arctic grayling sport fishery on the Kakisa River, Northwest Territories, 1983 and 1984. Can. Data Rep. Fish. Aquat. Sci. 642: iv + 12 p.

Data from the creel census and biological sampling programs on the Kakisa River sports fishery for 1983 and 1984 are presented. In 1983, 618 anglers were interviewed. They spent 1 591.5 hours angling with a success rate of 2.0 grayling per angler or 0.8 grayling per angler-hour. The 1983 catch was estimated to be 1 246 grayling of which 52.6% were retained, resulting in a harvest of 714 fish. In 1984, 603 anglers interviewed spent a total of 1 729 hours angling. The success rate was 2.0 grayling per angler or 0.7 grayling per angler-hour. The 1984 catch was estimated to be 1 339 grayling of which 49.1% were retained, resulting in a harvest of 725 fish. A total of 401 Arctic grayling, Thymallus arcticus (Pallas) were sampled for length, weight, age, sex and stage of maturity.

Key words: angling; catch effort; sport fishing; statistics; fishery management; monitoring.

## RÉSUMÉ

Low, G., and C.J. Read. 1987. Data from the Arctic grayling sport fishery on the Kakisa River, Northwest Territories, 1983 and 1984. Can. Data Rep. Fish. Aquat. Sci. 642: iv + 12 p.

Les données recueillies dans le cadre des programmes de recensement des prises et d'échantillonnage biologique appliqués à la pêche sportive sur la Kakisa en 1983 et 1984 sont présentées. En 1983, 618 pêcheurs à la ligne ont été interrogés; ils ont passé au total 1 591,5 heures à pêcher pour prendre 2,0 ombres arctiques par pêcheur ou 0,8 ombre par pêcheur par heure. En 1983, les prises ont été estimées à 1 246 ombres, dont 52,6% n'ont pas été relâchées, pour un total de 714 poissons. En 1984, 603 pêcheurs à la ligne ont été interrogés et ont passé au total 1 729 heures à pêcher pour prendre 2,0 ombres par pêcheur ou 0,7 ombre par pêcheur par heure. Les prises de 1984 sont estimées à 1 339 ombres, et 49,1% n'ont pas été relâchées, pour un total de 725 poissons. Au total, 401 ombres arctique, Thymallus arcticus (Pallas) ont été échantillonnées et les données sur la longueur, le poids, l'âge, le sexe et la maturité ont été recueillies."

Mots-clés: pêche à la ligne; prises/effort; pêche sportive; statistiques; gestion des pêches; contrôle.

## INTRODUCTION

The spawning run of Arctic grayling, *Thymallus arcticus* (Pallas), on the Kakisa River provides a popular spring fishery for the residents of the south Great Slave Lake area and northern Alberta (Moshenko and Low 1983). There is easy access to this spawning concentration of grayling via the Mackenzie Highway and the river provides one of the first angling opportunities of spring. The study area and the Kakisa River sports fishery have been described in detail by Moshenko and Low (1983).

In the spring of 1983 a creel census and biological sampling program was conducted on the Kakisa River as part of an ongoing monitoring program initiated in 1971. The results of previous studies are reported by Falk and Oehlke (1975), Falk et al. (1980), Moshenko and Low (1983) and Dahlke (1983). In the spring of 1984 the creel census and biological sampling program was repeated to coincide with a more detailed stock assessment study of the Kakisa River sports fishery. Results of the stock assessment study and recommendations on future management of the Kakisa River sports fishery will be reported by M. Roberge, Department of Fisheries and Oceans, Winnipeg.

This report presents the results of the 1983 and 1984 creel census studies in tabular form.

## MATERIALS AND METHODS

### CREEL CENSUS AND BIOLOGICAL SAMPLING

In 1983, anglers were censused during the period 22 April to 15 May and in 1984 between 14 April and 08 May. Creel census techniques were adapted from Falk et al. (1973, 1974) and Moshenko and Gillman (1978), and were consistent with creel methods used in previous studies on the river. Anglers were interviewed at the end of their fishing day at the various river access points (Fig. 2). The following information was recorded for each angler: place of residence, number of fish of each species caught, released and retained and the time spent fishing (to the nearest half hour). An angler was considered to be successful if any fish had been caught regardless of size, species or the amount of time spent fishing. The creel was run from morning to late evening and efforts were made to interview all anglers directly. A record of the total number of anglers encountered during the day was kept. Total harvest and effort data were then calculated by extrapolation using data gathered from the actual angler interviews. The creel census period was timed to coincide with the intensive spring fishery for Arctic grayling which occurs shortly after ice break-up.

Anglers were interviewed on a daily basis until the catch of grayling dropped off at the end of the spawning run. Once the catch per unit effort had dropped, discouraging most anglers from fishing, the creel census surveys were terminated. Some grayling do stay in the river during the summer months, however catch

and fishing effort are low compared to that during the spawning run (Falk and Dahlke 1975). The summer fishery was not surveyed in 1983 or 1984 and any fish caught after the spring creel census surveys were not included in estimates of total harvest.

A release mortality of 10% was added in the actual harvest retained in order to calculate the total number of grayling killed. This figure is based on hook mortality studies by Falk and Gillman (1975).

A subsample of Arctic grayling from the anglers' creel was taken for fork length (+ 1 mm), round weight (+ 50 g), sex and stage of maturity and scales. Scales were collected and aged using methods reported in Falk et al. (1980). Stage of maturity was determined by examining the gonads and coded according to the maturity stages described in Falk et al. (1980).

## DATA ANALYSIS

All biological data were analyzed using the Amdahl 5850 computer based at the University of Manitoba. The Statistical Analysis System (1982) was used to generate length, weight and age tables and perform basic calculations.

## ACKNOWLEDGMENTS

The authors wish to thank all participating anglers for providing information during the creel census programs. Special thanks to M. Bourque, K. Fisher, G. Hordal and P. Sparling for conducting the creel census and biological sampling. Department of Fisheries and Oceans staff in Hay River provided logistic support. Figures were prepared by Graphic Services and typing was done by D. Norman. A.H. Kristofferson and R.W. Moshenko reviewed the manuscript.

## REFERENCES

- DAHLKE, L.W. 1983. Data on the Arctic grayling sport fishery at Kakisa River, Northwest Territories, 1980. Can. Data Rep. Fish. Aquat. Sci. 80: iv + 11 p.
- FALK, M.R., O.V. GILLMAN, and L.W. DAHLKE. 1973. The 1972 sport fisheries on Great Bear and Great Slave lakes, Northwest Territories. Can. Fish. Mar. Servo Tech. Rep. Ser. CEN/T-73-3: 100 p.
- FALK, M.R., D.V. GILLMAN, and L.W. DAHLKE. 1974. 1973 creel census data from sport fishing lodges on Great Bear and Great Slave lakes, Northwest Territories. Can. Fish. Mar. Servo Oata Rep. Ser. CEN/D-74-5: 28 p.
- FALK, M.R., and D.V. GILLMAN, 1975. Mortality data for angled Arctic grayling and Pike Northern from the Great Slave Lake area, Northwest Territories. Can. Fish. Mar. Servo Oata Rep. Ser. CEN/D-75-1: 14 p.

- FALK, M.R., and L.W. DAHLKE. 1975. Creel and **biological data from streams along the** south shore of Great Slave Lake, 1971-74. Can. Fish. Mar. Servo Data Rep. Ser. CEN/0-75-8: 87 p.
- FALK, M.R., G. LOW, O.V. GILLMAN, and G.W. CARDER. 1980. Data from the Arctic grayling sports fishery on **Kakisa River, Northwest Territories, 1979.** Can. Data Rep. Fish. Aquat. Sci. 190: 13 p.
- MOSHENKO, R.W., and O.V. GILLMAN. 1978. Creel census and biological investigation on **lake trout, Salvelinus namaycush (Walbaum), from Great Bear and Great Slave lakes, Northwest Territories, 1973-76.** Can. Fish. Mar. Servo Manuscr. Rep. 1440: v + 37 p.
- MOSHENKO, R.W., and G. LOW. 1983. Data from **the Arctic grayling sport fishery on the Kakisa River, Northwest Territories, 1971-78.** Can. Data Rep. Fish. Aquat. Sci. 388: iV+27p.
- STATISTICAL ANALYSIS SYSTEM (SAS) INSTITUTE INC. 1982. SAS user's guide: **Ras; cs.** 1982 edition. Cary, NC. 923 p.

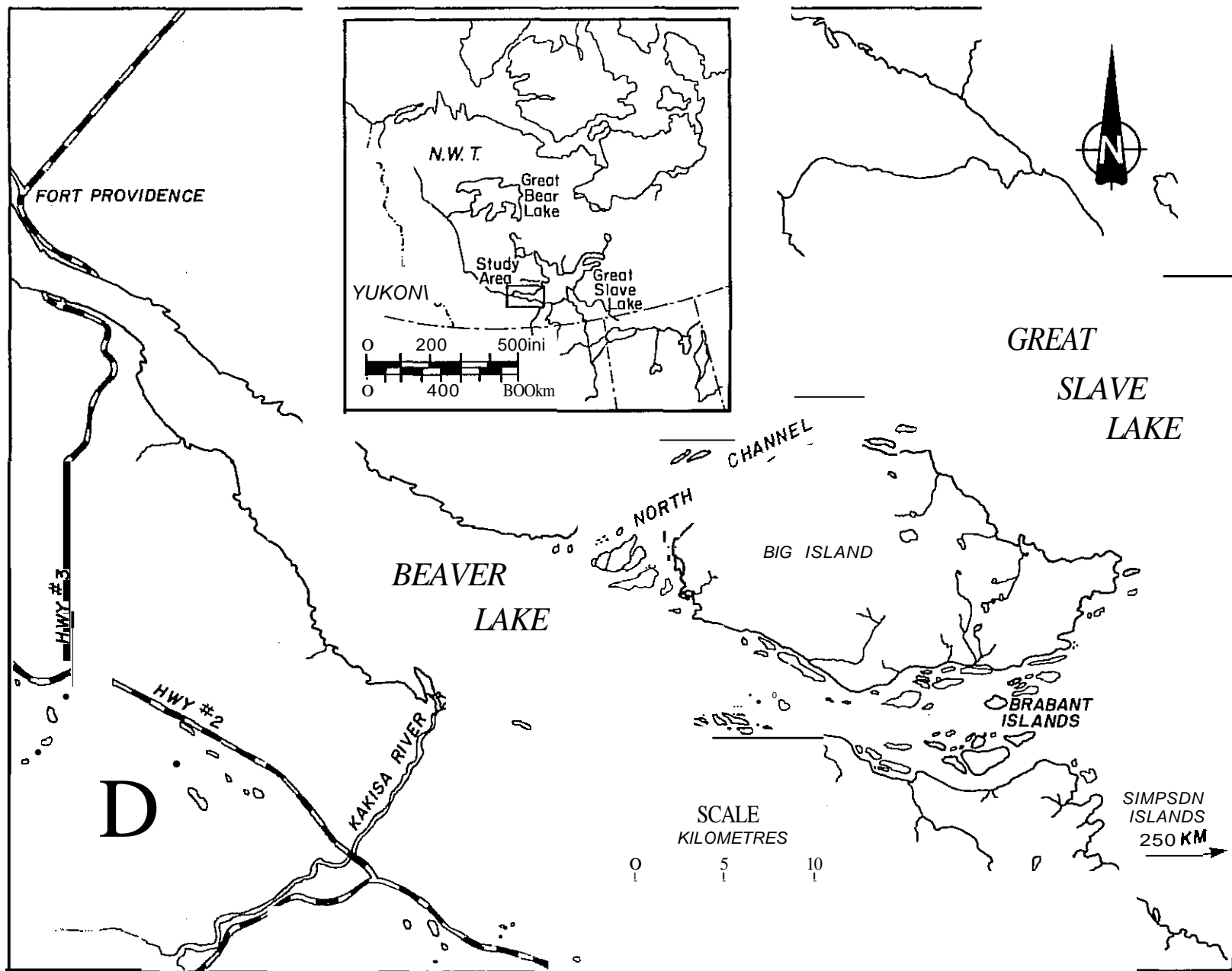


Fig. 1. Map of the upper Mackenzie River area showing the location of Kakisa River,

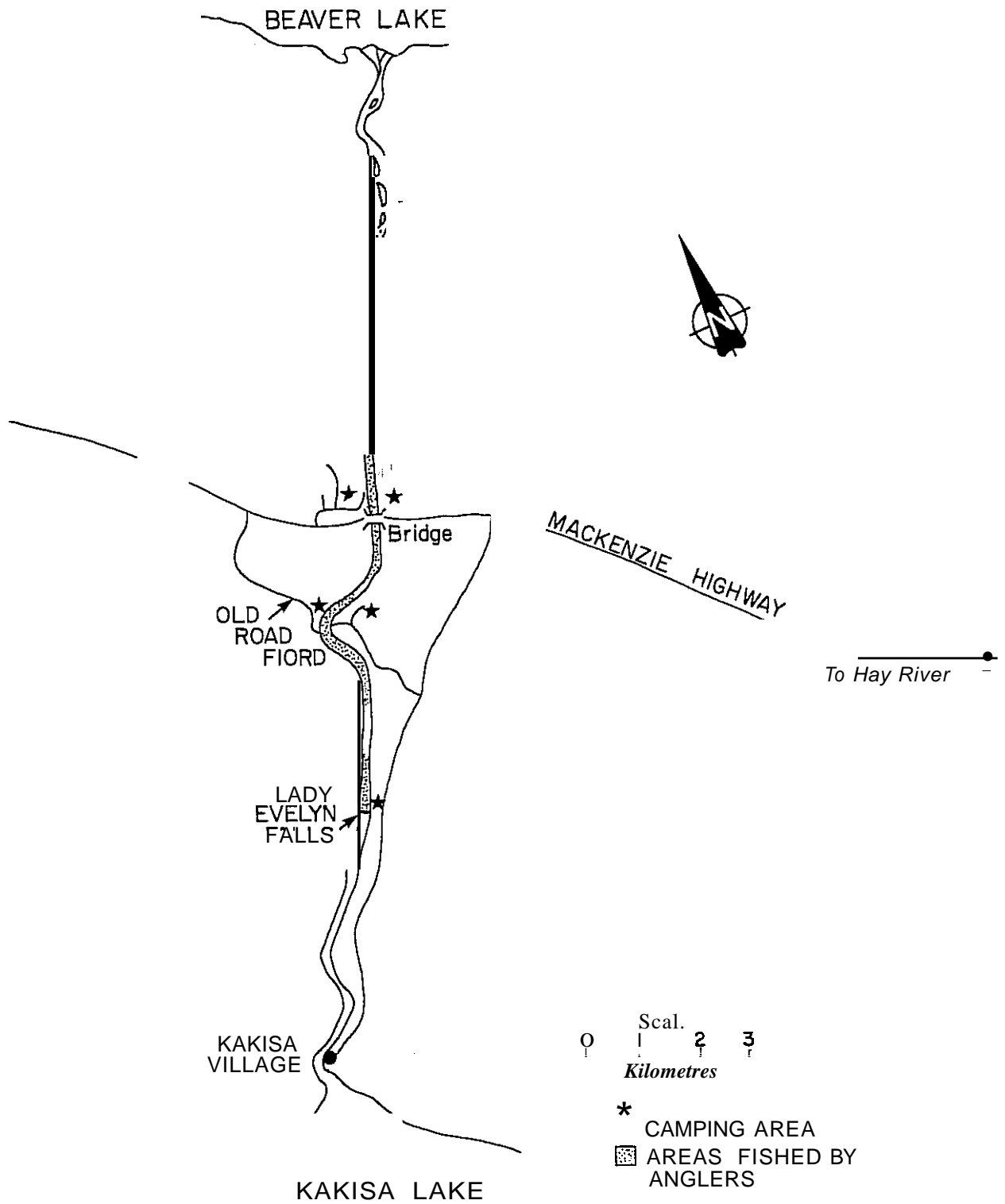


Fig. 2. Map of the Kakisa River showing the camping, fishing and other areas.



Table 1. Creel census summary from Kakisa River, 1983.

date	No. anglers		Percent Successful	A. Grayling			N. Pike			Y. Walleye			L.N. Sucker			L. Whitefish			Total Hours Fished	No. Fish Caught	
	Interviewed	Not Interviewed		C <sup>1</sup>	R <sup>2</sup>	K <sup>3</sup>	C	R	K	C	R	K	C	R	K	C	R	K		Per Angler	Per Angler-Hour
22/4"	7	3	70.0	22	10	12	-	-	-	-	-	-	-	-	-	-	-	-	26.0	2.2	0.8
23/4	6	3	66.7	27	18	9	-	-	-	-	-	-	-	-	-	3	3	0	30.0	3.3	1.0
24/4	21	4	84.0	85	42	43	1	1	0	-	-	-	-	-	-	-	-	-	67.5	3.4	1.3
25/4	15	8	65.2	58	17	41	-	-	-	-	-	-	-	-	-	-	-	-	66.5	2.5	0.9
26/4	12	3	80.0	36	7	29	-	-	-	3	0	3	-	-	-	-	-	-	39.5	2.6	1.0
27/4	14	2	88.0	59	24	35	4	4	0	4	0	4	-	-	-	-	-	-	45.5	4.2	1.5
28/4	13	2	86.7	46	28	18	1	1	0	-	-	-	-	-	-	-	-	-	23.5	3.1	2.0
29/4	13	3	81.3	42	17	25	5	4	1	-	-	-	-	-	-	-	-	-	37.0	2.9	1.3
30/4	25	12	67.6	229	179	501	1	9	2	-	-	-	1	0	1	1	0	1	127.5	6.5	1.9
1/5	22	35	38.6	91	47	44	-	-	-	-	-	-	-	-	-	-	-	-	66.5	1.6	1.4
2/5	5	7	41.7	7	0	7	-	-	-	-	-	-	-	-	-	-	-	-	1A.5	0.6	0.4
3/5	5	10	33.3	9	0	9	-	-	-	-	-	-	-	-	-	-	-	-	42.5	0.6	0.2
4/5	4	16	25.0	13	6	7	-	-	-	-	-	-	-	-	-	-	-	-	45.5	0.8	0.3
5/5	12	4	75.0	44	23	21	-	-	-	-	-	-	-	-	-	-	-	-	67.5	2.8	0.7
6/5	25	3	89.3	83	36	47	2	2	0	-	-	-	-	-	-	-	-	-	108.5	3.0	0.8
7/5	35	22	61.4	136	68	68	2	2	0	-	-	-	-	-	-	1	0	1	1A0.0	2.4	0.8
8/5	30	37	44.8	40	6	34	1	0	1	-	-	-	-	-	-	-	-	-	157.0	0.6	0.3
9/5	17	4	81.0	27	0	27	3	3	0	-	-	-	-	-	-	-	-	-	74.5	1.4	0.4
10/5	22	7	75.9	38	1	37	-	-	-	-	-	-	-	-	-	-	-	-	70.0	1.3	0.5
11/5	15	8	65.2	63	36	27	8	2	6	-	-	-	1	0	1	-	-	-	50.5	3.1	1.4
12/5	20	6	76.9	64	24	40	2	0	2	-	-	-	-	-	-	-	-	-	80.0	2.5	0.8
13/5	1	27	3.6	2	0	2	-	-	-	-	-	-	-	-	-	-	-	-	40.0	0.1	0.1
14/5	14	15	48.3	20	2	18	8	1	7	-	-	-	-	-	-	-	-	-	78.0	1.0	0.4
15/5	4	20	16.7	5	0	5	1	0	1	-	-	-	-	-	-	-	-	-	49.5	0.3	0.1
Total Mean	357	261	57.8	1246	591	655	49	29	20	7	0	7	2	0	2	5	3	2	1591.5	2.2	0.8
Percent Retained					52.6			40.8		100.0			100.0			40.0					
No. Caught per angler-hour					0.78			0.03		<0.01			<0.01			<0.01					
No. Caught per angler					2.02			0.07		0.01			0.01			0.01					

Number caught  
Number released  
Number kept

Table 2. Information on the fishing period and creel census from Kakisa River, 19A3.

Spring Fishing Period				Creel Census Period				Angler - Interviews	
From	To	nays	Percent Fi shed	From	To	nays	Percent Censused	Conducted	Possible
22 April	15 May	24	Inn	22 April	15 May	24	Inn	61A	618

Table 3. Information on the catch, effort and catch per unit of effort for Arctic grayling during the creel census period from Kakisa River, 19A3.

No. Anglers	No. Caught	No. Rel eased	No. Retained	Percent Retai ned	Hours Fished	Hours Fished Per Angler	No. Caught		No. Retai ned	
							Per Angl er-Day	Per Angler-Hour	Per Angler-nay	9
618	1246	591	1155	52.6	1591.5	2.6	2.n	0.A	1.1	

Table 4. Information on the total catch and harvest of Arctic grayling from Kakisa River, 19A3.

No. Caught	No. Released	No. Retained	Estimated Release Mortality	Total Harvest Plus Mortality
1246	591	655	59	714

Table 5. Creel census summary from Kakisa Riv.p.r. lqR4.

date	No. anglers		Percent Successful	A. Grayling			N. Pike			Y. Walleye			L. Whitefish			Total Hours Fished	Nn. Fish caught	
	Interviewed	Not Interviewed		1	2	3	1	2	3	1	2	3	1	2	3		Per Angler	Per Angler-Hour
14/4	3	0	100.0	6	4	7	-	-	-	-	-	-	-	-	-	4.5	7.0	1.3
18/4	3	4	47.9	6	3	3	1	0	1	-	-	-	-	-	-	1A.0	1.0	0.4
19/4	1	3	25.0	3	0	3	-	-	-	-	-	-	-	-	-	6.0	0.7	0.5
20/4	9	13	40.9	61	43	1A	1	1	0	-	-	-	1	0	1	4A.0	7.9	1.3
21/4	15	23	65.2	25	6	19	7	0	7	-	-	-	1	1	0	Q7.0	0.7	0.6
22/4	1A	16	52.9	56	74	37	1	0	1	-	-	-	-	-	-	89.0	1.7	0.7
23/4	9	15	37.5	17	2	15	-	-	-	-	-	-	-	-	-	52.0	0.7	0.3
24/4	5	0	100.0	2A	13	15	-	-	-	-	-	-	-	-	-	15.0	5.6	1.9
25/4	6	9	40.0	17	2	15	-	-	-	-	-	-	-	-	-	21.0	1.1	0A
26/4	33	10	76.7	140	95	45	4	3	1	-	-	-	6	1	5	123.5	3.5	1.2
27/4	51	8	86.4	243	140	103	4	3	1	1	0	1	-	-	-	205.5	4.2	1.2
28/4	77	28	73.3	351	204	147	10	10	0	1	0	1	1	0	1	420.5	3.5	0.9
29/4	58	55	51.3	134	43	91	6	5	1	3	0	3	-	-	-	305.5	1.3	0.5
30/4	10	2	83.3	18	1	17	2	1	1	-	-	-	1	0	1	34.5	1.7	0.6
1/5	11	10	52.4	28	17	16	6	4	2	-	-	-	-	-	-	42.0	1.6	0.8
2/5	9	6	60.0	16	2	14	-	-	-	-	-	-	-	-	-	35.0	1.1	0.5
3/5	1	12	7.7	2	1	1	-	-	-	-	-	-	-	-	-	18.0	0.2	0.1
4/5	8	7	53.3	12	1	11	10	2	8	-	-	-	1	0	1	29.0	1.5	0A
5/5	17	13	56.7	27	5	22	6	1	5	-	-	-	-	-	-	79.5	1.1	0.4
6/5	11	6	64.7	37	75	17	5	5	0	-	-	-	-	-	-	39.5	2.5	1.1
7/5	3	3	50.0	2	0	2	3	0	3	-	-	-	-	-	-	38.0	0.8	0.1
8/5	1	1	50.0	0	0	0	1	1	0	-	-	-	-	-	-	A.0	0.5	0.1
Total Mean	359	244	59.5	17.29	626	603	62	36	26	5	0	5	11	7	Q	1729.0	7.7	0.8

## Percent Retained

No. Caught per angler-hour

No. Caught per angler

49.1

0.71

2.04

41.0

0.04

0.1

100.0

&lt;0.01

0.01

ALA

0.01

0.02

1Number caught

2Number released

3Number kept

Table fi. Information on the fishing period and creel census from Kakisa River, 19A4.

Spring Fishing Period				Creel Census Period				Angler - Interviews	
From	To	nays	Percent Fished	From	To	nays	Percent Censused	Conducted	Possible
14 April	8 May	25	88	14 April	8 May	22	100	103	657

Table 7. Information on the catch, effort and catch per unit of effort for Arctic Grayling during the creel census period from Kakisa River, 19A4.

No. Anglers	No. Caught	No. Released	No. Retained	Percent Retained	Hours Fished	Hours Fished Per Angler	No. Caught		No. Retained	
							Per Angler-Day	Per Angler-Hour	Per Angler-nay	∞
603	1229	526	703	49.1	1729	2.9	2.2	0.8	1.0	

Table A. Information on the total catch and harvest of Arctic grayling from Kakisa River, 19B4.

No. Caught	No. Released	No. Retained	Estimated Release Mortality	Total Harvest Plus Mortality
1339	512	657	518	725

Table 9. Summary of number of anglers and angler-hours by place of residence as determined during the creel census period on Kakisa River, 1983.

Residence	Anglers Interviewed		Angler-Hours	
	Number	%	Number	%
Northwest Territories	417	67.5	1020.0	64.1
Alberta	190	30.7	539.5	33.9
British Columbia	8	1.3	20.0	1.3
Yukon	2	0.3	10.0	0.6
Manitoba	1	0.2	2.0	0.1
Total	618		1591.5	

Table 10. Summary of number of anglers and angler-hours by place of residence as determined during the creel census period on Kakisa River, 1984.

Residence	Anglers Interviewed		Angler-Hours	
	Number	%	Number	%
Northwest Territories	376	62.4	956.0	55.3
Alberta	224	37.1	764.0	44.2
British Columbia	1	0.2	1.0	0.1
U.S.A.	2	0.4	8.0	0.5
Total	603		1729.0	

Table 11. Creel census summary for Arctic grayling from Kakisa River, 1974-1984.

Year	Angler Interviews		% of anglers Interviewed	Number of grayling reported			% retained	Hours of Fishing Reported	No. of grayling caught	
	Conducted	Possible		Caught	Released	Retained			Per Angler	Per Angler-Hour
1974	114	35B	32	1B5	14	1B1	98	40B	1.6	0.5
1975	150	525	29	17B	19	159	B9	458	1.2	0.4
1976	764	B90	B6	642	41	601	94	2054	0.8	0.3
1977	476	533	B9	4nB	53	365	B7	1079	0.9	0.4
197B	477	506	94	705	66	639	91	1736	1.5	0.4
1979	764	891	86	972	164	808	R3	299n	1.3	0.3
19B0	46B	4R2	97	1297	621	679	52	1276	2.R	1.0
19B3	618	618	Inn	1241i	591	1i55	53	1592	2.n	0.8
1984	603	1i57	92	1229	1i21i	1in3	42	1729	2.n	n.7

Table 12. Biological data by length interval for angled Arctic grayling from Kakisa River, 1983.

LENGTH INTERVAL (MM)	MALES						FEMALES						COMBINED					
	LENGTH(MM)		WEIGHT(G)				LENGTH(MM)		WEIGHT(G)				LENGTH(MM)		WEIGHT(G)			
	N	MEAN	MEAN	SO	K	% MAT	N	MEAN	MEAN	SO	K	% MAT	N	MEAN	MEAN	SO	K	% MAT
290			-				1	293	300	-	1.19	0	1	293	300	-	1.19	a
340	-	-	-	-		-	1	349	480	-	1.13	100	1	349	480	-	1.13	100
350		-	-	-			1	350	490	-	1.14	0	1	350	490		1.14	0
360	2	362	560	14	1.19	0	2	364	570	28	1.18	100	4	363	565	19	1.18	50
370	1	375	700		1.33	100	4	374	683	54	1.30	75	5	374	686	47	1.31	80
380	11	384	676	49	1.19	100	7	362	751	55	1.34	100	16	384	705	63	1.25	100
390	6	395	797	90	1.30	100	11	393	700	226	1.15	100	19	394	741	185	1.21	100
400	16	406	790	55	1.18	100	10	405	824	53	1.24	100	26	406	803	56	1.20	100
410	16	415	863	48	1.21	100	17	413	844	60	1.19	100	33	414	653	66	1.20	100
420	20	424	699	40	1.18	100	15	423	943	112	1.24	100	35	424	918	81	1.21	100
430	14	433	976	59	1.20	100	17	435	947	78	1.15	100	31	434	960	71	1.17	100
440	19	442	962	81	1.14	100	8	443	1049	91	1.21	100	27	442	1001	88	1.16	100
450	4	452	1073	75	1.16	100	3	452	1180	154	1.28	100	7	452	1119	118	1.21	100
460	5	464	1178	75	1.18	100	2	464	1100	85	1.10	100	7	464	1156	60	1.16	100
470		-	-				1	470	1040		1.00	100	1	470	1040		1.00	100
500	-	-		-			1	505	1040		0.84	100	1	505	1080	-	0.84	100
TOTAL MEAN	116	420	884	138	1.19		101	414	863	183	1.20		217	417	874	161	1.20	

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Table 13. Biological data by age group for angled Arctic grayling from Kakisa River, 1983.

AGE (VR)	MALES								FEMALES								COMBINED							
	N	LENGTH(MM) MEAN	SO	WEIGHT(G)		K	% MAT	N	LENGTH(MM) MEAN	SO	WEIGHT(G)		K	% MAT	N	LENGTH(MM) MEAN	SO	WEIGHT(G)		K	% MAT			
				MEAN	SO						MEAN	SO						MEAN	SO					
3	-	-		-	-	-	1	293	-	300	-	1.19	0	1	293		300	-	1.19	a				
4	2	371	14.8	580	42	1.14	50	-	-			-	-	2	371	14.8	580	42	1.14	50				
5	22	397	14.7	758	84	1.20	95	15	378	16.9	639	203	1.17	87	37	390	18.1	709	154	1.19	92			
6	37	416	16.1	861	93	1.20	100	23	403	13.4	617	99	1.24	100	60	411	16.1	844	97	1.21	100			
7	33	430	15.9	944	115	1.18	100	21	421	21.2	926	107	1.24	100	54	427	18.5	937	111	1.20	100			
8	12	435	22.2	995	156	1.20	100	22	428	17.8	935	156	1.19	100	34	430	19.5	956	157	1.19	100			
9	5	447	8.2	1016	110	1.13	100	13	437	10.9	982	129	1.18	100	18	440	11.1	991	122	1.16	100			
10	1	444		1060	-	1.23	100	3	432	10.3	927	83	1.15	100	4	435	10.2	965	102	1.17	100			
11	2	455	14.8	960	127	1.02	100	1	505	-	1060		0.84	100	3	471	31.0	1000	114	0.96	100			
TOTAL	114							99							213									
MEAN		420	23	885	139	1.19			414	29.0	862	184	1.20			417	25.9	874	161	1.20				
MEAN AGE	6.8																							

Table 14. Biological data by length interval for angled Arctic grayling from KakisB River. 1984.

LENGTH INTERVAL (MM)	MALES						FEMALES						COMBINED					
	N	LENGTH(MM)	WEIGHT(G)		K	% MAT	N	LENGTH(MM)	WEIGHT(G)		K	% MAT	N	LENGTH(MM)	WEIGHT(G)		K	% MAT
		MEAN	MEAN	SO				MEAN	MEAN	SO				MEAN	MEAN	SO		
350	1	356	510	-	1.13	100	1	350	930	-	2.17	100	2	353	720	297	1.65	'DO
360	1	360	560	-	1.20	0	5	363	610	47	1.27	'DO	6	363	602	47	1.26	83
370	5	374	648	69	1.24	'DO	2	373	625	7	1.21	50	7	373	641	58	1.23	86
380	2	386	730	42	1.27	100	2	385	685	21	1.20	100	4	385	708	38	1.24	100
390	1	390	870	-	1.47	100	19	394	763	69	1.24	'DO	20	394	769	71	1.26	100
400	1	404	821	82	1.24	'DO	14	403	819	57	1.25	93	25	404	820	68	1.25	96
410	19	415	885	55	1.24	100	17	412	832	84	1.19	100	37	414	860	73	1.21	97
420	12	424	924	70	1.21	'DO	12	424	904	46	1.19	100	25	424	911	60	1.20	96
430	16	434	1008	55	1.23	100	8	433	1033	75	1.27	100	24	434	1016	62	1.25	100
440	11	445	1076	92	1.22	'DO	5	442	1012	85	1.17	'DO	16	444	1056	93	1.21	'DO
450	8	454	1097	154	1.17	100	4	453	1170	130	1.26	100	13	454	1150	174	1.23	92
460	3	461	1143	35	1.16	100	2	463	1225	318	1.23	100	5	462	1176	167	1.19	'DO
TOTAL MEAN	90	422	931	156	1.23		91	410	857	157	1.24		184	416	896	165	1.23	

Table 15. Biological data by age group for angled Arctic grayling from Kakisa River. 1984.

AGE (VR)	MALES							FEMALES							COMBINED						
	N	LENGTH(MM)		WEIGHT(G)		K	% MAT	N	LENGTH(MM)		WEIGHT(G)		K	% MAT	N	LENGTH(MM)		WEIGHT(G)		K	% MAT
		MEAN	SD	MEAN	SD				MEAN	SD	MEAN	SD				MEAN	SD	MEAN	SD		
4	5	372	10.2	644	93	1.25	100	2	364	4.9	610	71	1.27	'DO	7	369	9.5	634	83	1.25	'DO
5	2	407	6.4	755	92	1.12	100	7	388	21.9	750	145	1.28	86	9	392	20.8	751	130	1.24	89
6	47	414	17.1	886	121	1.24	98	46	406	17.0	834	96	1.25	98	93	410	17.5	860	112	1.24	98
7	26	437	14.0	1018	117	1.22	100	25	419	20.9	909	199	1.22	100	53	428	19.6	960	169	1.22	100
8	7	449	11.6	1093	81	1.21	100	9	439	19.1	993	154	1.17	'DO	16	443	16.6	1037	134	1.19	100
9	1	458	-	1180	-	1.23	100	-	-	-	-	-	-	-	1	458	-	1180	-	1.23	'DO
TOTAL MEAN MEAN AGE	88	422	23	928	156	1.23		89	411	23.2	860	156	1.24		179	416	23.8	893	158	1.23	