# Angling Survey, Crown Open Water, Little Main Restigouche River, New Brunswick



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December, 1977

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December, 1977

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C Minister of Supply and Services Canada 1977 Cat. No. Fs 97-4/1441 ISSN 0701-7618

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#### ABSTRACT

Peppar, J.L. 1977. Angling survey, Crown Open water, Little Main Restigouche River, New Brunswick. Fish. Mar. Serv. MS Rep. 1441:24 p.

In 1975, the lower seven-mile stretch of the Little Main Restigouche River was converted from "Crown Reserve" to "Crown Open" status. A creel census was conducted in this area over the 1975 and 1976 angling seasons. Angling was monitored closely to assess effort, catch and the effectiveness of a mid-season closure placed on the fishery each year. In addition, characteristics and interests of the anglers utilizing the resource were recorded through the use of a questionnaire.

The creel census gathered catch and effort data from 40 percent and 91 percent of the anglers observed in 1975 and 1976, respectively. Total estimated catch in 1975 was 40 Atlantic salmon and 42 brook trout and, in 1976, 87 Atlantic salmon and 125 brook trout.

Key words: Atlantic salmon, creel census, questionnaire, angler residence, effort, harvest, quality, run timing, spawning escapement, juvenile density

#### RESUME

Peppar, J.L. 1977. Angling survey, Crown Open water, Little Main Restigouche River, New Brunswick. Fish. Mar. Serv. MS Rep. 1441:24 p.

En 1975, la section de la rivière Little Main Restigouche, s'étendant de l'embouchure jusqu'a sept milles en amont, a été converti du statut "Réservée la Couronne" a celui de "Libre de la Couronne". Le dénombrement des poissons pris par les pêcheurs y a été fait durant la saison de pêche à la ligne de 1975 et de 1976. La pêche sportive y a été etroitment suivie chaque année afin de déterminer l'importance des prises, l'effort de pêche et les conséquences de la fermeture de la pêche à la mi-saison. Les caractéristiques et les goûts des pêcheurs ont été établis à l'aide d'un questionnaire.

Le dénombrement des prises a permis de recueillir des données sur 40% et 91% des pêcheurs pour les années 1975 et 1976 respectivement. Au cours de ces deux mêmes années, les prises totales se sont élevées respectivement à 40° et 87 saumons de l'Atlantique, et a 42 et 125 ombles de fontaine.

#### INTRODUCTION

In 1975, the New Brunswick Department of Natural Resources converted the lower seven-mile stretch of the Little Main Restigouche River (the former Upper Restigouche Crown Reserve) from "Crown Reserve" status to "Crown Open" status, allowing it to be angled for Atlantic salmon by any licensed New Brunswick resident (Fig. 1). A regulation to this effect was officially confirmed on April 2, 1975 (New Brunswick Fisheries Act Regulation 75-26, by Orderin-Council 75-232).

The adoption of the Crown Open status for the former Upper Restigouche Crown Reserve was seen as a move by the Province of New Brunswick to increase the opportunity for more public salmon angling in the Restigouche River system. This stretch of open water is the only one of its kind in the Restigouche system. Conversion to Crown Open status offered to any licensed New Brunswick angler rather unlimited sport fishing for salmon, especially when compared to the former reserve system. Under the reserve status each angler had to take his chance in a lottery draw, and then, if successful, could fish only three days and on pre-specified dates.

Following a review of available biological data (outlined in this report) and discussions with New Brunswick Fish and Wildlife Branch and federal Conservation and Protection Division personnel, the Resource Branch recommended that no increase in large salmon exploitation be allowed at this time in the Restigouche system. Because of concern that the opening of the former Upper Restigouche Crown Reserve to public angling could result in greatly increased fishing pressure and harvest of salmon, the Fisheries and Marine Service reduced the salmon angling season on the Little Main Restigouche. Angling was closed June 23-July 13 in 1975, and June 21-July 11 in 1976, to help ensure adequate spawning escapement of early-run large salmon. The angling season for the remainder of the Restigouche system remained from June 1 to August 31, in both years.

This report details results of a creel census conducted by Resource Branch personnel over the open angling periods during the 1975 and 1976 seasons. Angling on this seven-mile stretch of Crown Open water was monitored closely over both seasons to assess effort, catch and effectiveness of the closure. In addition to the gathering of catch statistics, characteristics and interests of the anglers utilizing the resource were afforded through the use of a questionnaire.

#### AREA OF STUDY

The creel census covered the lower seven-mile stretch of the Little Main Restigouche River (formerly the Upper Restigouche Crown Reserve). The lower limit of this section of river is delimited by the Montgomery Bridge (adjacent to the New Brunswick Forest Service Ranger Station) and the upper limit (Mile 7) is just below the mouth of Jardine Brook.

# METHODS AND MATERIALS

Two casuals or students were employed to conduct the field survey. Department facilities located outside of Kedgwick, New Brunswick (Hales Brook Camp), were utilized as headquarters; these facilities are handy to the study area--about 3.2-4.8 kilometers downriver of the Montgomery Bridge, the lower limit of the Crown Open stretch. The creel censuses were conducted during the two open angling periods each year, June 1-22 and July 14-August 31 in 1975, and June 1-20 and July 12-August 31 in 1976.

Censusing conducted was either "active" or "passive". Active censusing involved surveying the stretch of river by cance or inflatable boat, and censusing fishermen while they were on the water. Passive censusing involved stationing the census clerks at access points to the river and censusing fishermen as they entered or left the water. These access points were mostly confined to three locations: lower end of the open stretch (Montgomery Bridge), accessible by any vehicle; Mile 4 of the open stretch, accessible by four-wheel drive vehicle or similar rough-terrain vehicle; and Mile 7 (upper limit of the open stretch), accessible by rough-terrain

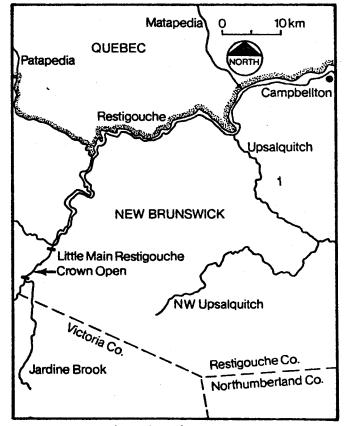


FIG. 1. Restigouche River system, New Brunswick, showing location of Little Main Restigouche Crown Open water.

vehicle only. Thus, total access to the Crown Open stretch of the Little Main Restigouche was limited and could be overed for the purpose of the creel census. /f the two types of censusing mentioned, active censusing was favoured and was included in the survey as much as water conditions and time would allow.

Work schedules of the census clerks were arranged to ensure that at least one was on duty each day of the week (7-day week), and that both were on duty on weekends. By staggering hours of work, as many hours of daylight as possible were covered each day.

The surveys were conducted by talking to the anglers and obtaining information pertaining to number of hours fished, and numbers and weights of all fish caught. These data were recorded on creel-report forms (Appendices A and B) for later analysis. In addition, anglers were asked to complete a questionnaire (Appendices C and D) pertaining to their residence and angling interests. Responses to these questionnaires are summarized in the results section of the report.

## BIOLOGICAL BACKGROUND DATA AND PAST ANGLING HISTORY

Background data on the Little Main Restigouche is limited, especially with regards to the lower seven-mile stretch, or former Upper Restigouche Crown Reserve. Over the period 1971-75, personnel of the lew Brunswick Fish and Wildlife Branch conducted spawning surveys (redd counts) on the Crown Reserve and two major tributaries. Spawning escapements appear to have increased to this part of the Restigouche River system since institution of the commercial fishing ban in 1972, as evidenced by the increased number of redds observed since 1971. Results (Alan Madden, pers. comm.) are presented in the following table.

		dd Count	
Year	Crown Reserve	Jardine Brook	Gounamitz River
1971	-73	12	14
1972	197	97	75
1973	723	no data	115
1974	460	202	112
1975	771	no data	no data

Personnel of the Resource Branch have gathered run-timing data through tag returns from adult salmon angled on the Little Main Restigouche, and juvenile salmon population estimates have been made above the former reserve stretch and on the najor tributaries.

Angling returns (1972-75) from salmon tagged at the Restigouche sampling trap (operated near Dalhousie, New Brunswick, each year since established in 1972) are summarized in the following table (only returns from those tagged and recaptured in the same year).

Recapture	Year	Date	Date
location		tagged	recaptured
Mile 4,	1972	June 20	July 15
Crown Reserve	1974	June 19	July 2
Little Main Restigouche	1972 1972 1973 1973 1975 1975 1975 1975 1975	June 16 June 27 June 18 June 18 June 5 June 30 June 30 June 1	July 9 July 28 July 8 Aug 8 No date No date Aug 2 Aug 23
Boston Brook	1973	July 9 June 15	Aug 16 July 11

Salmon recaptured in the Little Main Restigouche were tagged primarily in the mid- to late-June period, each year. Recaptures were made throughout July and August, one as late as August 23 (in 1975).

The following table summarizes mean juvenile salmon densities obtained by annual electroseining surveys during 1972-75 (six sites total/year):

		n juvenil		
	pe	r 83.6 m <sup>2</sup>	(/100 y	/d²)
Stage	1972	1973	1974	1975
• • • • • • • • • • • • • • • • • • •				
Little Main	Restigo	uche Rive	r	
Fry	1.1	7.2	42.2	33.1
Small parr	<1	<1	9.5	8.5
Large parr	<1	<ī	<1	1.6
Jardine Broo	ok			
Fry	<1	7.7	<1	11.1
Small parr	1.2	1.7	10.6	8.3
Large parr	<1	1.7	<1	2.5
Gounamitz R				
Fry	5.8	31.4	12.8	7.4
Small parr	1.4	<1	6.5	2.7
Large parr	<1	<1	<1	<1

The year 1973 was the first that any changes were expected in juvenile salmon levels resulting from increased escapements to the river in 1972, the first year of the commercial fishing ban. As shown in the table, increased fry levels were observed in this part of the system in 1973 and increased small parr levels in 1974.

Selected statistics from past angling seasons (1972-74) on the Crown Reserve are summarized (Table 1). Data were obtained from internal summaries prepared by the New Brunswick Fish and Wildlife Branch. Salmon harvest in the Little Main Restigouche

is primarily during the late-June to midto late-August period. Angling success, however, appears to be highly related to water conditions, especially those experienced late in the season. Low water levels, usually encountered after late-July, normally result in poorer angling quality for the remainder of the season.

TABLE 1. Upper Restigouche River Crown Reserve salmon angler harvest-selected statistics from 1972-74 seasons (N.B. Fish & Wildlife Branch).

Statistic	1972	<u>Year</u> 1973	1974
Season	Jun 5- Aug 30	Jun 4- Aug 31	Jun 3- Aug 31
Potential anglers	100	112	124
Potential rod days	300	336	372
Angling harvest reported - grilse - large salmon - trout	181 99 262	22 32 222	43 43 490
No. reporting anglers who fished	91	91	98
Mean no. fish per rod.day.	1.03	0.23	0.28
Mean no. fish per angler	3.10	0.68	0.87
No. successful anglers	77	36	36
Percent successful anglers	85.6	39.6	36.7

"Fish" denotes grilse and large salmon.

<sup>2</sup>Successful in catching at least one grilse or large salmon.

## RESULTS

## WEEKLY SALMON AND TROUT HARVEST

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Weekly catches of salmon and trout taken over the 1975 season by the 152 anglers interviewed are summarized (Table 2). The total harvest of 16 salmon was comprised of 75% grilse and 25% large salmon. Most grilse were caught between July 14 and August 3, and all large salmon (with one exception) were taken during the week of July 21-27. No salmon were caught after August 10. A total of 17 trout was harvested between June 9-22.

Weekly catches of salmon and trout taken over the 1976 season by the 494 anglers interviewed are also summarized (Table 3). The total harvest of 79 salmon was comprised of 76% grilse and 24% large salmon. Grilse were taken throughout the angling period after the closure was lifted, and the majority of large salmon were caught during August. The total harvest of 114 trout was taken during the months of June and July, the majority during June.

TABLE 2. Weekly salmon and trout harvest, Little Main Restigouche River Crown Open, 1975.

	Nunk			
Period	Grilse	large salmon	Totals	No. of trout
Jun 2-8	0	0	0	0
Jun 9-15	0	0	0	15
Jun 16-22	0	1	1	2
Jun 23-Jul 131	· 🗕 /	-		
Jul 14-20	5	0	5	0
Jul 21-27	0	3	3	0
Jul 28-Aug 3	6	0	6	0
Aug 4-10	1	0	1	0
Aug 11-17	0	0	0	0
Aug 18-24	Ō	0	0	Ō
Aug 25-31	Ō	Ō	Ō	0
Totals	12	4	16	17

<sup>1</sup>Area closed to angling.

TABLE 3. Weekly salmon and trout harvest, Little Main Restigouche River Crown Open, 1976.

	Numbe	er of salm	n	
Period	Grilse	large salmon	Totals	No. of trout
Jun 1-6	0	1	1	24
Jun 7-13	0	0	0	45
Jun 14-20	0	1	1	22
Jun 21-Jul 11'	-	-	-	-
Jul 12-18	19	0	19	8
Jul 19-25	3	0	3	· · 1
Jul 26-Aug 1	13	2	15	12
Aug 2-8	5	0	5	0
Aug 9-15	3	6	9	0
Aug 16-22	10	4	14	2
Aug 23-29	6	5	11	0.
Aug 30-31	1	Ō	1	Ō
Totals	60	19	79	114

'Area closed to angling.

#### SALMON ANGLING QUALITY

Of the 152 anglers interviewed over the 1975 season, 11 (7.2%) were successful in catching at least one grilse or large salmon (Table 4). This represents an average of 0.11 fish/angler, or 0.03 fish/ hour fished.

Of the 494 anglers interviewed over the 1976 season, 70 (14.2%) were successful in catching at least one grilse or large TABLE 4. Salmon angling quality, Little Main Restigouche River Crown Open, 1975.

	Num	bers of fish <sup>1</sup> a	angled	Number		
Period	Totals per week	Average per hour fished	Average per angler	of anglers interviewed	Successfu Numbers	ul anglers Percent
Jun 2-8	0	0.00	0.00	2	0	0.0
Jun 9-15	0	0.00	0.00	2	õ	0.0
Jun 16-22	1	0.01	0.05	19	i	5.3
Jun 23-Jul 13 <sup>2</sup>	-			-	-	-
Jul 14-20	5	0.03	0.13	40	4	10.0
Jul 21-27	3	0.03	0.07	43	2	4.7
Jul 28-Aug 3	6	0.05	0.27	22	3	13.6
Aug 4-10	1	0.03	0.05	20	ī	5.0
Aug 11-17	0	0.00	0.00	0	0	0.0
Aug 18-24	0	0.00	0.00	4	Õ	0.0
Aug 25-31	Õ	0.00	0.00	0	Õ	0.0
Totals	16	0.03	0.11	152	11	7.2

<sup>1</sup>"Fish" denotes both grilse and large salmon. <sup>2</sup>Area closed to angling.

salmon (Table 5). This represents an average of 0.16 fish/angler, or 0.05 fish/ hour fished.

## CHRONOLOGICAL DISTRIBUTION OF SALMON HARVEST

Weekly catches and cumulative totals of salmon harvested over the 1975 season are summarized (Table 6). All large salmon had been angled by July 27, and 42% of the grilse catch had been taken by this date. All grilse had been captured by August 10.

Harvest of both large salmon and grilse in 1976 was distributed more evenly over the entire angling season, than in 1975 (Table 7). Few fish were taken before the angling closures—June 23-July 13 in 1975 and June 21-July 11 in 1976.

TABLE 5. Salmon angling quality, Little Main Restigouche River Crown Open, 1976.

	Num	bers of fish <sup>1</sup> a	angled	Number		•
Period	Totals per week	Average per hour fished	Average per angler	of anglers intervi <b>ew</b> ed	Successfy Numbers	l anglers Percent
Jun 1-6	1	0.02	0.20	5	1	20.0
Jun 7-13	0	0.00	0.00	20	0	0.0
Jun 14-20	1	0.01	0.07	15	1	6.7
Jun 21-Jul 11 <sup>2</sup>	-	0.06	—	-	-	<del>-</del> .
Jul 12-18	19	0.05	0.18	103	18	17.5
Jul 19-25	3	0.07	0.12	25	3	12.0
Jul 25-Aug l	15	0.04	0.19	77	12	15.6
Aug 2-8	5		0.09	54	5	9.3
Aug 9-15	9	0.09	0.23	40	7	17.5
Aug 16-22	14	0.05	0.14	98	12	12.2
Aug 23-29	11	0.08	0.25	44	10	22.7
Aug 30-31	1	0.02	0.08	13	ī	7.7
Totals	79	0.05	0.16	494	70	14.2

"Fish" denotes both grilse and large salmon.

<sup>2</sup>Area closed to angling.

	N		North		ve totals	
Period	Numbers harvested Grilse Large salmon		Grilse	ers of fish Large salmon	Grilse	nt of harvest Large salmor
Jun 2-8	0	0	0	0	0	0
Jun 9-15	0	0	0	0	0	0
Jun 16-22	0	1	0	1	0	25
Jun 23-Jul 131	-	-	-	-		-
Jul 14-20	5	0	5	1	42	25
Jul 21-27	Ō	3	5	4	42	100
Jul 28-Aug 3	6	0	11	4	92	100
Aug 4-10	1	0	12	4	100	100
Aug 11-17	0	Ō	12	4	100	100
Aug 18-24	Ō	Ō	12	4	100	100
Aug 25-31	Ō	0	12	4	100	100
Totals	12	4	12	4	_ • •	_ • •

TABLE 6. Chronological distribution of salmon harvest, Little Main Restigouche River Crown Open, 1975.

<sup>1</sup>Area closed to angling.

 TABLE 7. Chronological distribution of salmon harvest, Little Main Restigouche River Crown

 Open, 1976.

	Numbe	rs harvested	Numb	Cumulative totals           Numbers of fish         Percen		
Period	Grilse	Large salmon	Grilse	Large salmon	Grilse	Large salmon
Jun 1-6	0	1	0	1	0	5
Jun 7-13	0	0	0	1	0	5
Jun 14-20	0	1	0	2	0	11
Jun 21-Jul 111	-	_	-	-		. —
Jul 12-18	19	0	19	2	: 32	11
Jul 19-25	3	0	22	2	37	11
Jul 26-Aug l	13	2	35	4	58	21
Aug 2-8	5	0	40	4	67	21
Aug 9-15	3	6	43	10	72	53
Aug 16-22	10	4	53	• 14	88	74
Aug 23-29	6	5	59	19	98	100
Aug 30-31	1	0	60	19	100	100
Totals	60	19	60	19		

<sup>1</sup>Area closed to angling.

#### SUMMARY OF ANGLING EFFORT

Weekly effort data over the 1975 season were also collected (Table 8) on 377 anglers observed. Forty percent (152) of these anglers were interviewed. They fished a total of 529 hours, with most of this effort expended during July 14-August 3. The estimated total number of hours fished by all anglers was 1,383 hours.

Weekly effort data for the 1976

season (Table 9) was tabulated for 542 observed anglers. Ninety-one percent of these anglers were interviewed. They fished a total of 1,489 hours, mostly immediately after lifting of the closure and spread quite evenly throughout the remainder of the season. The estimated total number of hours fished by all anglers was 1,742 hours.

			Hou	rs fished
Period	Numbers Observed	of anglers Interviewed	By anglers interviewed	Estimated total, all anglers
Jun 2-8	14	2	2.50	1.8
Jun 9-15	14	. 2	8.50	60
Jun 16-22	77	19	95.00	385
Jun 23-Jul 13 <sup>1</sup>	_ `	_		-
Jul 14-20	122	40	169.50	517
Jul 21-27	74	43	89.50	154
Jul 28-Aug 3	36	22	116.75	191
Aug 4-10	26	20	35.00	46
Aug 11-17	3	Ō	0.00	0
Aug 18-24	4	4	12.25	12
Aug 25-31	7	Ō	0.00	
Totals	377	152	529.00	1,383

<sup>1</sup>Area closed to angling.

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TABLE 9. Summary of angling effort, Little Main Restigouche River Crown Open, 1976.

			Hou	rs fished
Period	Numbers of anglers Observed Interviewed		By anglers interviewed <sup>1</sup>	Estimated total, all anglers
	······································			
Jun 1-6	9	- 5	51.00	92
Jun 7-13	24	20	69.50	83
Jun 14-20	48	15	81.75	262
Jun 21-Jul 11 <sup>2</sup>	-	-		-
Jul 12-18	105	103	315.00	321
Tul 19-25	25	25	57.75	58
Jul 26-Aug 1	77	77	224.25	224
Aug 2-8	55	54	138.75	141
Nug 9-15	43	40	95.25	102
Aug 16-22	99	98	259.75	262
Aug 23-29	44	44	145.50	146
Aug 30-31	13	13	50.50	51
Totals	542	494	1,489.00	1,742

<sup>1</sup>Minimum, some anglers refused to specify.

<sup>2</sup>Area closed to angling.

# ESTIMATES OF TOTAL SALMON AND TROUT HARVESTS

The creel census on the Little Main Restigouche River Crown Open during the 1975 angling season gathered catch and effort data from 40% of the total number of anglers observed. They harvested 16 salmon (12 grilse and 4 large salmon) and 17 trout.

This represents at least 40% of the total harvest from the Crown Open; thus, the total harvest from the Crown Open in 1975 was estimated to be at least 40 salmon (30 grilse and 10 large salmon) and 42 trout.

The creel census during the 1976 angling season gathered catch and effort data from 91% of the total number of anglers observed. They harvested 79 salmon (60 grilse and 19 large salmon) and 114 trout.

This represents at least 91% of the total harvest from the Crown Open; thus, the total was estimated to be at least 87 salmon (66 grilse and 21 large salmon) and 125 trout.

#### RESPONSES TO QUESTIONNAIRES

Use of the questionnaire was more limited than the general creel form, because of the time involved in its administration and the possibility of its use being an annoyance to any angler engaged in the act of fishing. In 1975, the questionnaire was completed by 27 (18%) of the 152 anglers interviewed; and, in 1976, by 122 (25%) of the 494 anglers interviewed. Responses to the questionnaires have been compiled by question (Tables 10 to 24).

### Angler Residence

Angler questionned were from 9 different counties (Table 10)—representing 6 cities, 5 towns, 12 villages and 7 communities (Table 11). The majority of anglers came from Restigouche County, mostly from the city of Campbellton, the town of Dalhousie, and the villages of Kedgwick and St. Quentin.

TABLE 10. Question 1: Residence (county) locations of anglers utilizing resource.

Residence location		er of onses	Percent of total response	
(county)	1975	1976	1975	1976
Carleton	3	14	11.1	11.5
Gloucester	-	3		2.5
Madawaska	-	11		9.0
Northumberland	5	-	18.5	
Restigouche	14	71	51.9	58.2
Saint John		4		3.3
Victoria	· 3	8	11.1	6.6
Westmorland	-	2		1.6
York	2	9	7.4	7.4
Totals	27	122		

TABLE 11. Question 2: Residence (city, town, village or community) locations of anglers utilizing resource.

Residence location (specific)		er of onses 1976		ent of esponse 1976
City Bathurst Campbellton Edmundston Fredericton Moncton Saint John	1 2	3 27 10 6 1 4	3.7 7.4 -	2.5 22.1 8.2 4.9 0.8 3.3
Town Dalhousie Grand Falls Hartland Newcastle Woodstock	3 2 - 4 1	9 2 1 - 9	11.1 7.4 - 14.8 3.7	7.4 1.6 0.8 7.4
Village Atholville Bristol Centreville Charlo Florenceville Harvey Kedgwick Nackawic Perth-Andover St. Jacques St. Quentin	- 2 1 - 3 - 1 - 3	2 - - 2 20 1 5 1 9	- 7.4 3.7 - 11.1 - 3.7 - 11.1	1.6 0.8 - 1.6 1.6 16.4 0.8 4.1 0.8 7.4

Tide Head	-	3	-	2.5
Community Arthurette Black Point Burnt Church Flatlands Johnville Lakeville Point La Nim	- 2 1 - 1	1 - 1 1 1	7.4 3.7 - - 3.7	0.8  0.8 0.8 0.8
Totals	27	122		

# Angler Interest in Sport Fishing

The majority (52%-79%) of anglers questionned, responded that they normally sport fish (anywhere) up to 20 days each year (Table 12).

TABLE 12. Question 3: How many days do you normally fish (anywhere) each year?

Number of days		er of onses	Percent of total response	
spent angling	1975	1976	1975	1976
1-5	1	31	3.7	25.8
6-10	4	28	14.8	23.3
11-15	3	24	11.1	20.0
16-20	6	12	22.2	10.0
21-25	3	9	11.1	7.5
26-30	7	8	25.9	6.7
31-35	-	3	-	2.5
36-40	1	-	3.7	· -
41-45	1	-	3.7	_
46-50	-	. 3	-	2.5
51-55	-	-	-	-
56-60	-	2	-	1.7
61-65	1	_	3.7	· _
Totals	27	120		

## Predicted Angling Effort

Approximately 70% of the anglers responded that they had fished, or intended to fish, at least three days on this Crown Open Water (Table 13).

## Past Angling Experience on This Water

Eighty-five percent of the anglers questionned in 1975 had not fished this water as a Crown Reserve; 49% of those questionned in 1976 had fished the water as Crown Open in 1975 (Table 14).

## Change in Angling Effort Due to Change in Angling Status of the Water

Had the angling status of this section of river not changed from Crown Reserve to Crown Open, each angler (up to a limit) would have had an equal chance for three days of fishing. In formulating responses to this question it was assumed,

then, that any response over three days (number of days minus three) would be an estimate of additional days spent angling due to the change in angling status of the water. At least 70% of the anglers questioned in 1975 did not feel that they were spending any additional time angling this water in 1975, as compared to previous years, based on the assumption given above (Table 15). However, fishing opportunity on the former reserve was controlled by draw, and not all of these anglers would have been successful (possibly) in the draw. Therefore, for many of these anglers, it is assumed that the 2-3 days spent angling the Crown Open in 1975 was the result of the change in angling status of the water.

TABLE 13. Question 5 (1975), 4 (1976): How many days do you plan to fish in this area (total number of days in the Crown Open water)?

Number of angling days		er of onses 1976		nt of esponse 1976
0		2	- `	1.7
1	1	20	3.7	16.7
2	14	48	51.9	40.0
3	4	12	14.8	10.0
4		5		4.2
4 5	2	3	7.4	2.5
6	2 /	6	7.4	5.0
7	-	8	-	6.7
10	-	4	-	3.3
14	1	4	3.7	3.3
15	-	6	_	5.0
16	1	-	3.7	-
17	î	-	3.7	-
20	-	2	-	1.7
71	ī	-	3.7	
	-	120	5.7	
Totals	27	120		

TABLE 14. Question 6 (1975), 5 (1976): Did you fish this water when it was a Crown Reserve? Did you fish this Crown Open stretch in 1975?

		er of onses	Percent of total response	
Response	1975	1976	1975	1976
No	23	62	85.2	50.8
Yes	4	60	14.8	49.2
Totals	27	122		

TABLE 15. Question 7 (1975): How many days do you estimate you are staying longer because there is now "open fishing" available here?

Number of days	Number of responses 1975	Percent of total response 1975
0	. 19	70.4
2	2	7.4
3	2	7.4
11	· 1	3.7
13	1	3.7
14	1	3.7
68	1	3.7
Totals	27	

Angler Interest in Status of Restigouche Angling Waters

The majority of anglers questionned (74%) felt that more of the Restigouche should be open to public angling (Table 16). Of those who responded affirmatively to this question, 50%-80% felt that more of the public angling should be in the form of "Crown Open", as opposed to "Crown Reserve".

TABLE 16. Question 8 (1975), 6 (1976): Do you feel that more of the Restigouche should be open to public angling for salmon? If yes, as "Crown Reserve" or "Crown Open"? If no, why?

Response	resp	er of onses 1976		ent of esponse 1976
No	6	23	22.2	18.9
Yes	20	91	74.1	74.6
No opinion	1	8	3.7	6.6
Totals	27	122		
If yes:		Р	ercent of ye	s response
As Crown Reser	we 2	32 -	10.0	35.2
As Crown Open	16	45	80.0	49.5
As both	2	5	10.0	5.5
As either	-	3		3.3
No opinion	-	6	· –	6.6
Totals	20	91		

# Anglers Preferred Species and Type of Angler Utilizing the Resource

Eighty-five to ninety-three percent of the anglers questionned stated that their most preferred species to catch was salmon, as opposed to trout (Table 17). In 1975, 96% of the anglers questionned stated that they were on this water to angle for salmon (Table 18). The majority of the anglers (44%-60%) considered themselves to be predominantly salmon anglers, as opposed to trout anglers (Table 19). TABLE 17. Question 9 (1975), 8 (1976): What species of fish do you most prefer to catch?

	resp	er of onses	Percent of total response	
Response	1975	1976	1975	1976
Salmon	25	104	92.6	85.3
Trout	2	9	7.4	7.4
Either	-	7	-	5.7
No opinion	-	2	-	1.6
Totals	27	122		

TABLE 18. Question 10 (1975): What species of fish are you most interested in catching here?

Response	Number of responses 1975	Percent of total response 1975
Salmon	26	96.3
Trout	1	3.7
Totals	27	

TABLE 19. Question 11 (1975), 7 (1976): In your opinion, are you predominantly a salmon angler or a trout angler?

		er of Onses	Perce total r	nt of esponse
Response	1975	1976	1975	1976
Salmon	16	54	59.3	44.3
Trout	11	37	40.7	30.3
Both	-	31	-	25.4
Totals	27 .	122		

# Type of Angling Conducted

Fifty-nine percent of the anglers questionned in 1975 stated that they were fishing from the shoreline of the river; whereas, in 1976, the majority (65%) were fishing from a boat on the river (Table 20). The majority (63%-78%) responded that they prefer fishing from a boat, as opposed to shoreline fishing.

# Predicted Angling Effort This Year and Next Year

In 1975, 56% of the anglers questionned stated that they would return to angle again the same year, and 67% would consider returning to angle in 1976 (Table 21).

TABLE 21. Question 13 (1975): Do you plan to fish this area again this year? Again next year?

Response	Number of responses 1975	Percent of total response 1975
Again this y Yes No Probably Totals	ear: 15 11 1 27	55.6 40.7 3.7
<u>Again next y</u> Yes No Maybe Totals	ear: 18 2 7 27	66.7 7.4 25.9

# Change in Angling Status of Water as Reason for Utilizing the Resource

The majority of anglers (57\$-82\$)questionned stated that they would not have made the trip to this water had it not been for the open public angling available (Table 22).

TABLE 20. Question 12 (1975), 9 (1976): What type of fishing are you doing on this trip? What type do you prefer?

Type of		s (doing)		esponses	Number responses	s (prefer)		esponses
angling	1975	1976	1975	1976	1975	1976	1975	1976
Shoreline	16	40	59.3	32.8	5	41	18.5	33.6
Boat	11	79	40.7	64.8	21	77	77.8	63.1
Other	-	3	-	2.5	1	3	3.7	2.5
No Opinion	-	-	-	-	-	1	-	0.8
Totals	27	122			27	122		

TABLE 22. Question 14 (1975), 10 (1976):

If there was no "open fishing", would you have made this trip anyway?

	resp	er of onses	Perce total r	esponse
Response	1975	1976	1975	1976
No	22	70	81.5	57.4
Yes	5	52	18.5	42.6
Totals	27	122		

## Angler Interest in Status of Water

Seventy-five percent of the anglers questionned in 1976 stated that they would apply to fish this water should it be returned to Crown Reserve status (Table 23).

TABLE 23. Question 11 (1976): If this stretch of water was returned to Crown Reserve status, would you apply to fish?

Response	Number of responses 1976	Percent of total response 1976
No	27	22.1
Yes	92	75.4
No opinion	3	2.5
<b>Fotals</b>	122	

# Predicted Angling Effort Next Year if Water Still Crown Open

Ninety-one percent of the anglers questionned in 1976 stated that they intend to fish this water in 1977 should it remain in Crown Open status (Table 24).

TABLE 24. Question 12 (1976): Do you plan to fish this area again next year if it remains Crown Open water?

Response	Number of responses 1976	Percent of total response 1976
No	6	4.9
Yes	111	91.0
No opinion	5	4.1
Totals	122	

EFFECTIVENESS OF MID-SEASON ANGLING CLOSURES

The entire Little Main Restigouche River was closed to angling over the periods June 23-July 13 in 1975 and June 21-July 11 in 1976, to help ensure escapement of early-run large salmon to the headwater areas.

In 1975, the extreme low-water conditions encountered early in the season prevented Resource Branch personnel from making a direct assessment of numbers of salmon in the areas above the Crown Open stretch. However, wardens with the Conservation and Protection Division (equipped with 26-ft canoes, necessary for such lowwater conditions) were able to provide some data from a 15-mile stretch, extending approximately from Boston Brook downriver to the Crown Open water. Waters above the Crown Open stretch are under lease and/or freehold to Irving interests.

On July 1, 1975, the wardens reported that they observed a total of 139 salmon and 30 grilse within the Crown Open area. Two to three weeks later, only a few fish were observed over the same stretch of water. Thus, it is assumed that most of these salmon had migrated further upstream, with a proportion probably going to angling in these waters.

Results of the creel census in 1975 show only one salmon angled (by those anglers censused) before the closure was initiated, June 23. Immediately after opening the waters to angling again on July 14, the salmon angling quality improved. Thus, it is assumed the salmon seen in the waters above the Crown Open stretch during the closure had entered this portion of the system during the closure and, therefore, avoided exploitation by angling. Based on this limited data, it is felt that the closure did effect an escapement of large salmon (and grilse) to the headwater areas and, therefore, the closure was considered worthwhile in meeting its objective.

In 1976, assessment of numbers of salmon was made by observation at the head of the Crown Open water (i.e., Montgomery Bridge) and throughout by canoe, by personnel of the Resource Branch and Conservation and Protection Division.

During the period of the angling closure (June 21-July 11) a total of 96 large salmon and 39 grilse were observed in the Crown Open area. Assuming that these fish were ascending the river, the closure was then successful in allowing an escapement of large salmon to the headwater areas, the original objective in establishing the closure.

## DISCUSSION

With conversion of the Upper Restigouche Crown Reserve into Crown Open angling, large potential increases in angling effort and harvest of salmon were possible. During the last three years as a Crown Reserve (1972-74), the potential number of anglers who could utilize the resource of the reserve ranged from 100-124 per season. However, actual recorded angling pressure ranged from 91-98 anglers per season. Total salmon harvest ranged from a high of 280 fish in 1972 to a low of 54 fish in 1973.

The creel census conducted in 1975 recorded a total of 377 anglers on the Crown Open water over the duration of the season and, in 1976, a total of 542 anglers over the same period of time. In terms of numbers of anglers, then, the effort recorded in 1975 and 1976 was up 4-6 times that recorded in the previous three years. Total salmon harvest was 40 fish and 87 fish for 1975 and 1976, respectively. The salmon harvests for the two years of open angling then, despite the large increases in effort recorded, approximated the levels of harvest of the 1973 and 1974 Crown Reserve years.

The large increases in angling effort in 1975 and 1976 could well have meant an increase in the salmon catches over previous years. The Little Main Restigouche is a rather small and clear stream (as compared to the Main Restigouche below the mouth of Kedgwick River) and, as such, is considered relatively easy to exploit. However, this outcome was prevented by two factors: water conditions and the angling closures imposed.

In 1975, water conditions throughout the Restigouche (and Maritimes in general) were extremely poor for angling. Low-water conditions (with correspondingly higher than normal water temperatures) were experienced early in the season (by late June) and persisted throughout the remainder of the angling season. Angling was slow and poor, as indicated by catches throughout the system. The total angler harvest of salmon from the Restigouche in 1975 was 3,290 fish, down 43% from that of 1974 (5,823 fish). This poorer catch is not considered to have been a result of reduced escapement to the system. Catches of salmon at the Resource Branch's sampling trap at the head of the Restigouche estuary were up considerably over 1974; and, in fact, the total catch of salmon at the trap in 1975 was the highest recorded since trapping was initiated in 1972. It is felt that the low-water conditions throughout the system over the summer may have disrupted upstream migration patterns and timing.

Observations made in 1975 of the waters above the Crown Open stretch did indicate that numbers of large salmon and grilse had migrated through the Crown Open water during the angling closure period. Thus, water conditions and the angling closure both contributed to the escapement of salmon to the headwater areas.

In 1976, water conditions on the Little Main Restigouche (and throughout the system) were greatly improved for angling over those of 1975. Angling quality reflected this, with the catch of salmon from the Crown Open over two times that recorded in 1975 (and up an equivalent amount for the entire system as well). However, as in 1975, escapement was effected to the headwater areas through adoption of the angling closure.

Conversion of the lower seven miles of the Little Main Restigouche River from Crown Reserve to Crown Open status offered to any licensed New Brunswick angler rather unlimited sport fishing for salmon. This contrasts with the former reserve system, where each angler had to take his chance in a lottery draw and then, if successful, could fish for only three days on pre-specified dates. The extent of angling effort recorded on this stretch of river in 1975 and 1976 indicated the public's overwhelming response to this opportunity to utilize the resource.

Anglers fishing the Crown Open in 1975 and 1976 were generally in favour of the idea of adopting more open water for angling in the Restigouche River system. Of those anglers favouring the adoption of more open water, the majority felt that it should take the form of Crown Open water, as opposed to Crown Reserve.

Overall, the Crown Open stretch of the Little Main Restigouche for its first two years of operation appeared to be popular and attracted anglers from all over the province of New Brunswick. This stretch of open water, the only one of its kind in the Restigouche system, provided a salmon angling opportunity to many interested New Brunswick anglers, and especially to the local residents. For the first time, many local residents had the opportunity to angle for salmon. Their interest and cooperation over the two years of the survey was high, and the majority interviewed stated that they did intend to return to this water to fish again. Adoption of the Crown Open status appears to have been a successful move on the part of the province, and results of the surveys conducted would support continuation of the current angling status of this water.

#### ACKNOWLEDGEMENTS

The author is most pleased to express his gratitude to the following persons:

P.R. Pickard, Biological Technician, who supervised staff and field activities, compiled all data summaries and assisted with data analysis.

S. Allen, A. Leonard and H. Dolan, students and/or casuals, who conducted the day to day field surveys and who gave ambitious support to all phases of the field activities.

M. Levesque, Fishery Officer, Kedgwick,

New Brunswick, and his wardens, particularly A. Richard and G. Girard, whose assistance and cooperation each year was highly appreciated and a valuable asset to our operations.

A. Madden, District Biologist, New Brunswick Fish and Wildlife Branch, Campbellton, who made available information pertaining to biological background and past angling history of the area.

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# APPENDIX A

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Environnement Canada Pêches et sciences de la mer

River System:         Date:           Tributary:	1 - A
Province and County:	
Check Time     Hours Fished     GRILSE KILLED     LGE SAL KILLED     TROUT KILLED     RELEASED       No.     Wt.     No.     Wt.     No.     Wt.	
Check Time     Hours Fished     KILLED     KILLED     KILLED     Gr     Remain       No.     Wt.     No.     Wt.     No.     Wt.     Lge Sail	
No. Wt. No. Wt. Lige Sai	rks
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# APPENDIX B

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Environment Canada Environnement Canada Fisheries and Marine Pêches et sciences de la mer

DATE:         TIME OF PATROL:       Begen:         Ended:       a.m.         SECTION COVERED:       miles (include written description of section covered)         TOTAL NUMBER OF ANGLERS IN SECTION:	
TIME OF PATROL:       Begen:	
Ended:	
Ended:	
SECTION COVERED: miles (include written description of section covered) TOTAL NUMBER OF ANGLERS IN SECTION:	p.m
TOTAL NUMBER OF ANGLERS IN SECTION:	p.m
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COMMENTS:	
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# APPENDIX C

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	1975 Creel Questionnaire: Restigouche
Date:	Location:
1.	Residence (county):
2.	Residence (city, town, village):
3.	How many days do you normally fish (anywhere) each year?
4.	How many days have you fished in this area?
5.	How many days do you plan to fish in this area?
6.	Did you fish this water when it was a Crown Reserve?
	What years?
7.	How many days do you estimate you are staying longer because there is
	now "open fishing" available here?
8.	Do you feel that more of the Restigouche should be
	open to public angling?
÷	if yes, as Crown Reserveror open water?
	if no, why?
9.	What species of fish do you most prefer to catch?
10.	What species of fish are you most interested in chatching here?
11.	In your opinion, are you predominantly a salmon angler or a
	trout angler
12.	What type of fishing are you doing on this trip?
	What type do you prefer? Doing Prefer
	shoreline on river
	boat on river
	other
13.	Do you plan to fish this area - again this year?
	again next year?
14.	If there was no "open fishing" here, would you have made this trip
	anyway?
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APPENDIX D

Da	te: Location:
1.	Residence (county):
2.	Residence (city, town, village):
3.	How many days do you normally fish (anywhere) each year?
4.	How many days do you plan to fish in this area (total number of
	days in the Crown Open water)?
5.	Did you fish this Crown Open stretch in 1975?
6.	
	public angling for salmon?
	if yes, as "Crown Reserve" or "Crown Open"?
	if no, why?
7.	In your opinion, are you predominantly a salmon angler or a trout
	angler?
8.	What species of fish do you most prefer to catch?
9.	What type of fishing are you doing on this trip?
	What type do you prefer?
	Doing Prefer
	shoreline on river
	boat (canoe) on river
	other
10.	If there was no "open fishing" here, would you have made this
	trip anyway?
11.	
	would you apply to fish?
12.	
	"Crown Open" water?

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