

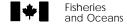
# Sport Fishing In The Northwest Territories, 1985

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Norinwest
Territories Renewable Resources





Pêches et Océans

# SPORT FISHING IN THE NORTHWEST TERRITORIES, 1985

#### Introduction

etails about sport fishing in the D etails about sport and Son Northwest Territories in 1985 were obtained to evaluate the importance of this fishery to the public, anglers, the sport fishing industry and fisheries management agencies. The Survey of Sport Fishing in the N. W. T. was a federal-territorial effort, conducted in 1986; at the federal level by the Department of Fisheries and Oceans, Central and Arctic Region in Winnipeg, and the Surveys Unit, Economic and Commercial Analysis Directorate in Ottawa; at the territorial level by the Department of Renewable Resources and the Department of Economic Development and Tourism.

The 1985 survey was the third in a series carried out at five year intervals as part of a nationally co-ordinated study conducted by Canada's federal, provincial and territorial fisheries agencies. Thus, not only does this report provide basic information on the Northwest Territories sport fishery in 1985, it also makes an important contribution to an understanding of Canada's sport fishery.

# Survey Background

n 1970, representatives of Canaf I dian fisheries agencies began to meet periodically to discuss matters of common concern. At these meetings, known as the Canadian Sport Fisheries Conferences, it was realized that effective management required a national framework of basic information regarding the size, value, socioeconomic performance and potential of Canada's sport fisheries. The size of this task was realized at the outset; no comprehensive information existed, and partial coverage from the only previous survey, conducted in 1961, indicated that millions of Canadians and hundreds of millions of dollars were involved.

It was also realized that sport fishing data were required regularly, and that all fisheries agencies must work together to provide such information. Plans made at the 1972 and 1974 conferences were implemented in January 1976 when the provincial, territorial and federal fisheries agencies launched the first nationally coordinated set of surveys. The success of the 1975 survey led to a

second survey in 1980 and the commitment to continue the surveys at 5-year intervals.

These studies have been successful in two important ways. First, they provided Canadians with the first authoritative data on the magnitude and importance of Canada's sport fisheries. Second, they demonstrated that, despite regional differences, consistent and comparable data can be generated from a common group of questions administered throughout Canada.

Sixty-seven percent (1,260) of the questionnaires sent to persons who had purchased angling licences in the Northwest Territories in 1985 were completed and returned to provide the basis for the information given in this report. After extrapolating information from these returns, gathering information on known licence numbers, comparing estimates and holding discussions with fisheries management personnel, this overall description of sport fishing in the Northwest Territories was developed.



#### The Resource Base

The Northwest Territories span a geographic area of approximately 3,400,000 square kilometres, of which 173,300 square kilometres are fresh water bodies. Primarily two lakes dominate this area, Great Bear and Great Slave lakes, each comparable in area taking up a total of 59,700 square kilometres. The diversity of lakes, rivers, and geography throughout the territories provide an impressive range of sport fishing opportunities.

The principal species of fish found in the Northwest Territories include lake trout, Arctic charr, Arctic grayling, walleye and northern pike.

Lake trout is the most sought after and perhaps most reputable of the northern species, mainly due to its reputation for often reaching "trophy-size". This is especially appealing to the many anglers visiting the N. W. T. It is found in numerous waters throughout the territories.

Arctic charr are distributed throughout the northern coastal waters of the Arctic Ocean and its connecting rivers. Arctic grayling are abundant in the clear water of most lakes and streams of the N. W. T. as well as along the clear water tributaries of rhe Mackenzie River.

Walleye, a highly prized recreational species, is restricted to the Mackenzie river systems. Northern pike are typically inhabitants of shallow waters, lakes and streams in the territories.

The tradition for fishing in the Northwest Territories has long been related to its remoteness and nature of its population. It is characterized as a relatively undeveloped region of Canada with a population of approximately 52,200 persons distributed throughout 64 communi ties, the largest being the capital of Yellow-knife. The package plans offered by its lodge industry give access to a significant nonresident fishery, which greatly enhances tourism.

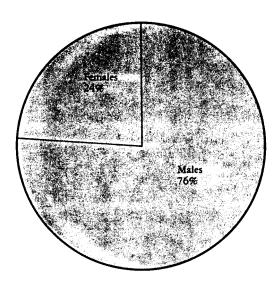
# Angler Profile

here were 16,907 licensed adult anglers in the Northwest Territories in 1985, 53% (8,952) of whom were N. W. T. residents (Table 1). About 87% of rhe residents, and 95% of the 7,955 nonresidents (individuals who do not live in the N. W. T., but purchased a N. W. T. fishing licence) fished in 1985. As well, 3,922 children under the age of 16 living in licensed anglers' households also fished, bringing the total population of active anglers in the territories to 19,271. The impact on the N. W.T.'s sport fishery of the large number of anglers under 16 years of age, who are not covered by this survey, is probably considerable. Seventy-six percent of the active resident adult anglers and 89% of the active adult nonresidents were male (Figure 1). The average age of male anglers was 40 years and of female anglers, 35 years.

Approximately 53% of the non-resident anglers in 1985 were Cana-

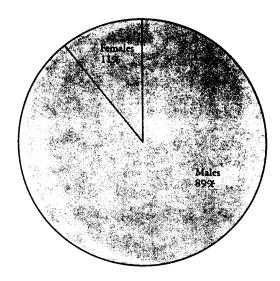
Fig. 1. Sex composition of active anglers.

(A) Resident



7,769 resident anglers

(B) Nonresident



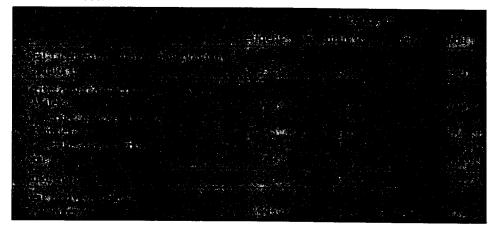
7,580 nonresident anglers

dians, mainly from Alberta (45%) and Ontario (27%). Most of the remaining nonresident anglers were United States citizens who came for the most part, from the West North Central, East North Central, Pacific and Mountain regions (Table 2 – Figure 2).

# Fishing Effort

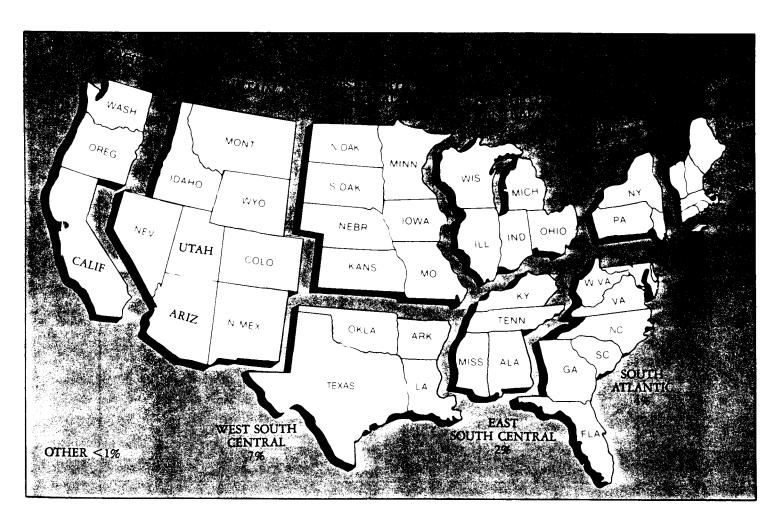
A ngling in the Northwest Territories is a major recreational activity, providing a total of 172,692 angler-days in 1985 (Table 3), and on average, 11.3 days fishing per angler. Resident anglers fished an average of 15.5 days, while nonresidents spent an average of 6.9 days at their sport.

Table 1. Numbers and characteristics of anglers in the Northwest Territories in 1985.



- (a) Individuals who purchased an angling licence in the N.W.T. This group provides the basis for the statistical information presented in this bulletin.
- (b) Individuals under 16 years of age.
- (c) Canadians who live outside the Northwesr Territories.

Fig. 2. Regional distribution of United States residents who held Northwest Territories angling licences in 1985.



Most fishing (95 %) occurred during the summer period April through September (Figure 3). During that time 93% of resident, 98% of nonresident Canadian and over 9% of other nonresident fishing effort was expended. Seventy percent of all effort occurred during July, August, and September. Both residents and nonresidents were most active during this period, expending 65% and 82% respectively of their fishing effort during these summer months.

Fishing effort varied significantly among the eight geographic regions defined for this survey. In large measure, this can be attributed to differences in the size of the resident population in the survey regions. The District of Mackenzie is the most heavily populated district of the N. W.T. and also the most heavily fished. Regions 4 and 5 on Fig. 4 are the geographic regions used in the survey that correspond with this district. Together they attracted 54% of the total fishing effort.

Table 2. Origin of nonresident licensed anglers in the Northwest Territories in 1985.

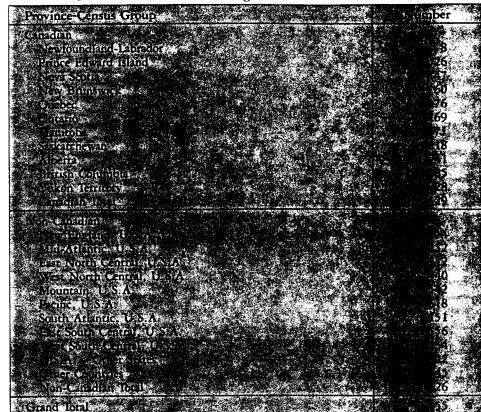


Fig. 3. Angling effort by season in the Northwest Territories in 1985.

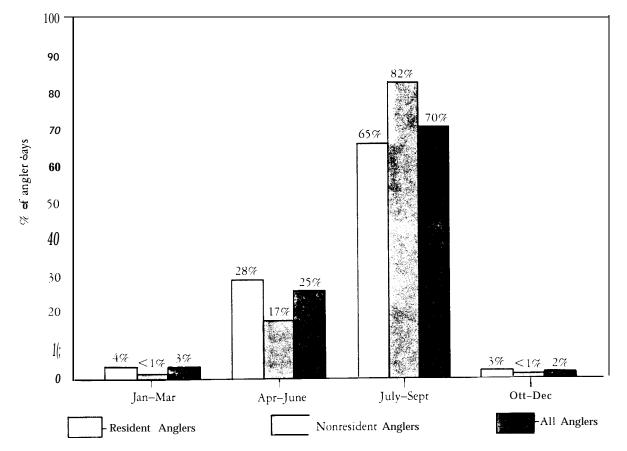


Table 3. Angling effort (in angler days) by season in the Northwest Territories in 1985.



Fig. 4. Percentage of angler-days expended by anglers in each fishing region of the Northwest Territories in 1985.

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7.	20, 80g		
Inuvik Norman Wells	Bay	SAN SAN	Jess Jess Jess Jess Jess Jess Jess Jess
Fort Simpson  Hay River  ALT		Rankin Inlet	Iqaluit

3. Yellowk	knife	4
<b>Res</b> iden		
Nonresi	dent 20.	6%
(A)		
Total	35.	4%

6. District of	Keewatin
<b>Res</b> ident	1.9%
Nonresident	14.7%
Total	5.8%

7. Coastal Charr
Resident 7,4%
Nonresident 6.2%
Total 7.0%

8. Distri	ct of For	Franklin
Nonre		7.5%
771		4.10
Total		4.1%

#### Harvest

In 1985, anglers in the Northwest Territories caught an estimated 672,413 fish of all species and retained 188,557 of them (Table 4). These fish weighed approximately 325,714 kilograms. Resident anglers caught 74% of the fish harvested (by number). Lake trout, walleye and northern pike, were the most widely taken species, accounting for 28.6%, 23.5% and 19.7% respectively of the total harvest (Figure 5). Of the 12 fish retained by each an-

gler on average, 4 were lake trout, 3 were walleye, 2 were pike, and 3 were other species. Walleye, trout and Arctic charr, were the most preferred species among resident anglers, while nonresidents favoured lake trout, Arctic grayling and Arctic charr (Table 5).

## Motivations

Seventy-one percent of the Northwest Territories residents and 22% of the nonresidents, who held

N.W.T. sport fishing licences in 1985, had also fished in the territories in 1984 (Table 6). In addition, 37% of the resident and 11% of the nonresident anglers fished in the territories at the time of the previous survey 5 years ago. More than 25% of the nonresident anglers indicated the N. W. T. was the only place they fished in 1985. Over 1,700 resident anglers (19% of licensed adult resident anglers) fished outside the N. W.T. in 1985, chiefly in British Columbia, Ontario and the Yukon,

Table 4. Numbers of fish caught and retained by species in the Northwest Territories in 1985.

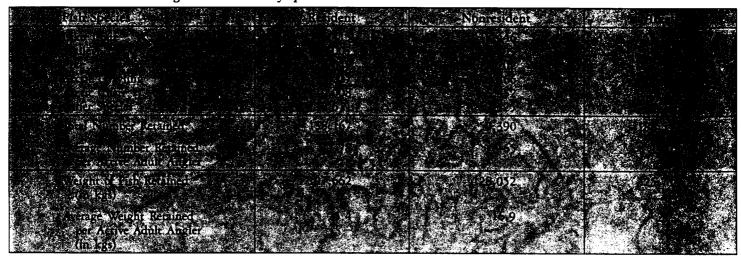


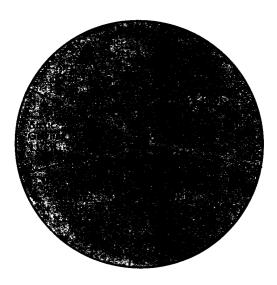
Table 5. Distribution of anglers by the species they most prefer to fish for in the Northwest Territories in 1985. " '

Species Specified As Most Preferred	Resident	Nonresident	All Anglers
	%	%	96
Lake Trout Arctic Grayling	15.9 15.8	29.0 19.9	22.2 17.8
Arctic Charr	* 15.9	19:7	::# <b>47</b> 7
Walleye Other Trout	23.7 18.9	8,8 7,8	16/5 13.6
Northern Pike	6.7	14.4	10.4
Lake Whitefish Other Species	2.9 = 0.2	0.4	1.7 2.1
Total	100.0		100.0

Table 6. Percentage of anglers licensed to fish in the N.W.T. in 1985 who also fished in the territories in the last five years.

Year of	Resident	Non-	All
Activity		resident	Anglers
1980	%	%	%
	37.3	11.0	25.0
1981	43.7	11.5	28.5
.1982	51.0	12.5	.52.9
1983	59.2	17.0	.39.4
1984	70.6	21.8	47.6

Fig. 5 Proportion of fish (by number) retained by active licensed anglers in the Northwest Territories in 1985.



and usually while on vacation, at the cottage, or on business (Table 7).

Nonresident licensed anglers made 12,065 trips to the Northwest Territories in 1985 and actually fished on 8,583 (7 l%) of these trips (Table 8). Respondants stated fishing was the main reason for 42% of their trips, a secondary reason for 19% of their trips and, for another 1070, an activity decided upon after their arrival. The remaining 29% of the trips did not include fishing. Ninety-seven percent of the fishing trips to the Northwest Territories lasted more than one day, the average length of these overnight trips was 10 nights. On these trips they stayed mostly in fishing lodges or camps (32% of the time).

Residents and nonresidents alike listed the environment as the most important factor that contributed to their enjoyment of sport fishing in the Northwest Territories in 1985. Natural beauty of surroundings, quality of water, access to wilderness areas and weather conditions were important components of the environmental factor. Other important factors were the size and number of fish caught, escape from daily routine, privacy from other fishing parties, and catching the desired species. Overall, anglers ascribed very

Table 7. Reasons N.W. T. resident anglers fished outside of the Northwest Territories in 1985.

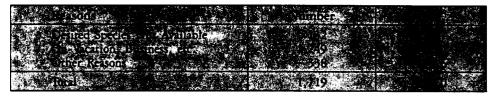
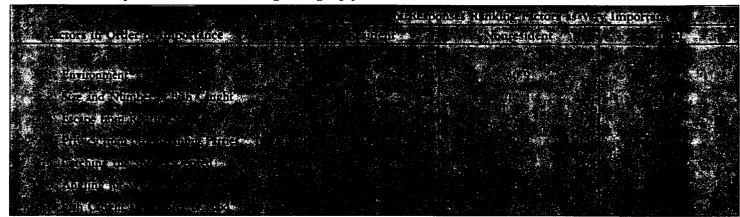


Table 8. Characteristics of nonresident anglers' trips to the Northwest Territories in 1985.

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4 Alexanderistics Alexander Section 1999	. All Control
Trips to the N. W.T All Reasons	
Fishing Trips to the N.W.T.	
6.7 A 40 A 4	
Fishing Trips - Main Reason for Visit	
Secondary Reason for Trip	
** *** ** ** Decided Upon After Arrival (fishing nor planned	nie:
Day Trips (one day only)	( ) ( ) ( ) ( ) ( ) ( )
** A Civernight Trips (more than one day)	
Accommodation Used on Overnight Trips to the N.W.T.	S. Carlotta
and the second of the second o	
Friends and Relatives	. A A A A A A A A A A A A A A A A A A A
Tent or Trailer	- <b>MAN</b> 9.0
Cottages	V4400.2
Camping in Provincial Parks	2.2
Camping on Crown Land	4.1
Camping in Commercial Camp Grounds	2.3
Fishing Lodge or Camps	32.1
Commercial Accommodation	6.8
Other Accommodation	<b>24.</b> 2
Total (84,899 nights)	100.0

Table 9. Relative importance of factors affecting fishing enjoyment in the Northwest Territories in 1985.

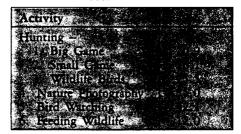


\*Environmental factors include i) natural beauty of surroundings, ii) quality of water, iii) access wilderness areas, and, iv) wearher conditions.

little importance to angling for wild (as opposed to hatchery) fish or for catching fish as a source of food (Table 9).

In 1985, 21% of resident anglers also hunted big game in the Northwest Territories. Twenty-six percent hunted small game, while 26% hunted wildlife birds (Table 10).

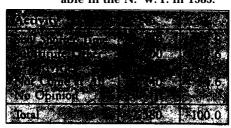
Table 10. Percentage of N.W.T. (licensed) resident anglers who indicated participation in wildlife related activities in 1985.



Approximately 55% of active nonresident anglers indicated they would not have come to the Northwest Territories in 1985 if no sport fishing opportunities were available (Table 11), 40% would have sub-

stituted other activities, and the remaining 6% would have stayed a shorter time.

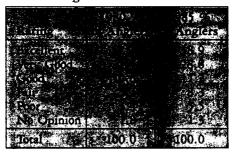
Table 11. Intention of active nonresident anglers if fishing opportunities were not available in the N. W.T. in 1985.



In 1985, the majority of active nonresident anglers (85%) rated the quality of fishing in the Northwest Territories as good to excellent; 8% rated fishing as fair, and the remaining 7% rated the quality as poor or did not express an opinion. Overall, the angler ratings of fishing quality reported in this survey are very similar to the 1980 survey results. Although 177C fewer anglers rated the quality of fishing in the Territories as excellent in 1985, an additional 7. 1% and 6.6% of nonresident an-

glers respectively indicated a rating of very good and good (Table 12).

Table 12. 1980-1985 comparison of active nonresident anglers' ratings on the quality of fishing in the N.W.T.



Approximately 88% of the nonresident active anglers indicated they would return to the Northwest Territories to fish in the future (Table 13).

Table 13. Active nonresident anglers' projected future fishing activity in the N.W.T.

STATE STATE OF THE	No.	. %
Plan to return Do not plan to return No plans	54658 484 4 158	87.8 10.1 2.1
Total	7,580	100.0

# Expenditures and investments

In 1985, anglers spent \$15.6 million in the Northwest Territories on supplies and services attributable to their sport fishing (Table 14). Residents spent a total of \$3.8 million, or an average of \$493 per active angler. Nonresidents spent \$11.7 million, or \$1,550 per active angler. Food, lodging and transportation accounted for 80% of the expenditures of resident anglers and 22% of the expenditures of nonresident anglers. (Figure 6). Packages, which included the costs of lodge facilities and outfitter organizations, accounted for 73% of the nonresident expenditures.

Anglers in the Northwest Territories invested \$11.4 million on major durables and properry in 1985 (Table 15), of which \$4.6 million, or 40% was directly attributed to sport fishing activities (Figure 7). The average investment of active resident anglers was \$1,418 and the average investment of active nonresidents was \$52.

Table 14. Expenditures directly attributable to sport fishing in the Northwest Territories in 1985.

Expenditures	Resident _	Nonresident	162
THE WAR		Lance of the particular of	
Food and Lodging	ment 063,148	. \$1. 14943.605  \text	27.03
Transportation Fishing Services	608		793
Pishing Gear	250.890		
Packages 2		e servicini en	-F1-267
- Other	21	1 (1824)90 E	200
F. Total	MARIA ME26345	S 18748 94 5 846	16 18 18 18 18 18 18 18 18 18 18 18 18 18
Average Per Active	جو ارتار جان المار ا	ARABA USAN 89 Jako	* XOJAK
+ Angler			

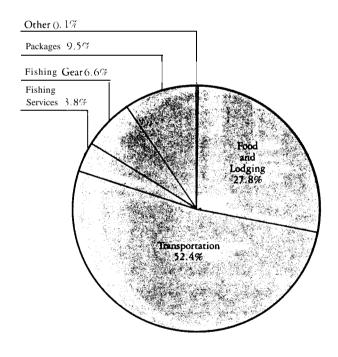
Ninety-seven percent of the investments were made by resident anglers. Northwest Territories residents and nonresidents, indicated that 39% and 81% respectively, of their purchases and investments were for sport fishing.

Overall, anglers spent a total of \$27 million on goods and services in 1985, of which \$20.2 million, or 75% was directly attributable to sport fishing in the Northwest Territories.

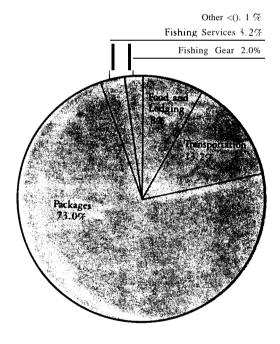
Willingness to Pay

A nglers receive a benefit, above and beyond what they actually spend, which is an important indicator of the economic value of the sport fishery. The survey sought to estimate this economic benefit by asking a question on willingness to pay. Active anglers were asked "if your fishing costs had been higher in the Northwest Territories in 1985 due to increased costs for gasoline,

Fig. 6. Proportion of expenditures attributable to sport fishing in the Northwest Territories in 1985.



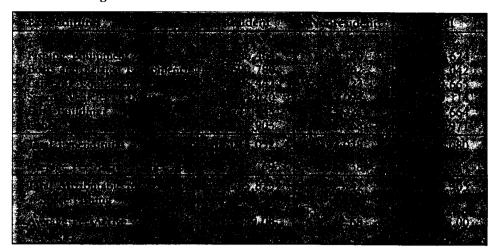
Resident \$3,826,343



Nonresident S I I ,748,194

accommodation, supplies and other services, at what additional daily cost would you have decided not to fish?" Choices were given between \$1.00 and \$100.00 per day. Results were obtained from 69% of the active anglers surveyed. The average additional daily costs at which anglers would have stopped fishing was approximately \$36 for all anglers, for nonresidents slightly higher at \$40. and for residents of the Northwest Territories, slightly lower at \$33. However, these average costs do not properly reflect important differences among anglers. The most frequent responses for nonresident anglers were in the \$50 and \$100 per day ranges (Table 16), which is expected when considering the high cost of travel to the Northwest Territories and the fact that much of the nonresident activity takes place in a more remote and higher fishing quality, lodge-based setting. While resident anglers responses were clustered in the \$10 to \$30 per day ranges, there also were a significant

Table 15. Major purchases or investments relating in whole or in part to sport fishing in the Northwest Territories in 1985.



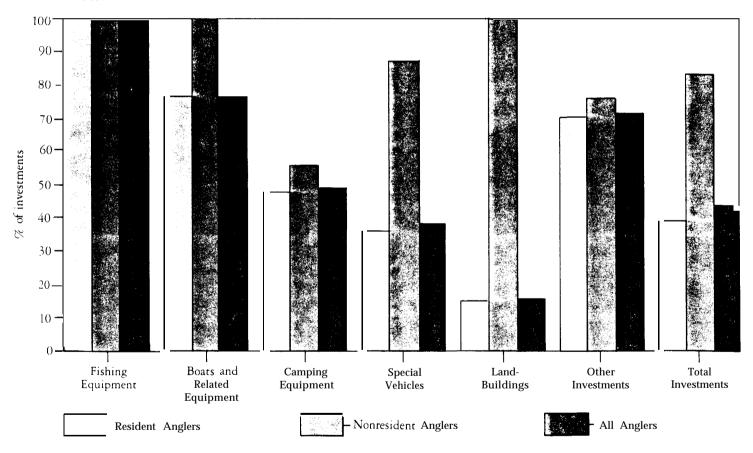
number of resident anglers who indicated their daily costs would have to increase by \$50 or more.

It must also be noted that while the survey suggests there are important benefits which accrue to anglers in terms of their willingness to pay for sport fishing, precise measurement of these benefits will require further analysis.

Comparison with 1980 Results

R esident licence sales and the number of estimated active anglers increased from 1980, by 40% (Table 17). Nonresident licence sales

Fig. 7. Proportion of purchases or investments made by anglers in the Northwest Territories attributable to sport fishing in 1985.



decreased by 9% and the number of estimated active anglers dropped by 10%. Although the number of days fished by residents increased approximately 11%, nonresidents' fishing activity dropped 30% and the average numbers of total days fished by all anglers was down by 6%. The total harvest of all species combined was down 18% including a decline of 38% in the Arctic grayling harvest and a 40% decline in the Arctic charr harvest.

Direct expenditures by all licensed anglers were 59% higher in 1985 than in 1980. The major purchase and investment category totally attributable to sport fishing increased 185%, but some of this difference was lickly due to different wording

of the question and a broader range of suggested categories in 1985.

### Conclusions

The results of the 1985 survey confirm that sport fishing is an important component of the renewable resource economy of the Northwest Territories. This importance has been demonstrated for each of the resident and nonresident sport fisheries.

In 1985, the sport fishery provided recreation activity to 7,800 adult resident anglers who fished for 120,700 days. Based on population estimates for the Northwest Territories in 1985 of 33,400 individuals\* 16 years of age and over, one N. W.T. resident in 4 sport fished in

1985. The survey has shown that resident anglers receive a non-priced benefit, above and beyond what they actually spend, which is an important indicator of the economic benefits they derive from the sport fishery. As noted above, precise measurement of these economic benefits will require more detailed analysis.

The survey has indicated continued growth in resident angling activity, with increases in the number of licensed anglers, the number of active anglers, and the number of days fished. This growth has resulted

Table 16. Willingness of active anglers to pay additional costs for fishing in the Northwest Territories in 1985.

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	· d.	<b>78.4</b>		
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Table 17. 1980-1985 comparisons of angler characteristics, days fished, species harvest and expenditures in the Northwest Territories.

		Resident		Alexander and the	Nonresiden		7. 30	Total	
	## <b>198</b> 0	學1985	% Change	**1980	1985	% Change	1980	1985	Change
Total Licensed Angling Population	6,394	<b>8,95</b> 2	40%	8,730		; <del>-</del> .9%	15,124	16,907	12%
Total Active Adult Anglers	2 5,636	7,769	38%	:8,409	, 47,580	_10%	14,045	15,349	9%
Total Days Fished ('000)	108.3	120.7	11%	75.0	52.2	-30%	1 <b>83</b> .3	- 172.9 - 27.29	÷6%
Total Fish Caught and Retained ('000)	159.9	138.2	-14%	68.7	50.4	-27%	228.6	188.6	. – 18%
Total Direct Expenditures ('000)	31,564.9	<b>\$3,826.3</b>	145%	<b>\$8</b> ,223.7	\$11,748.2	43%	\$9,788.6	\$15,574.5	59%
Major Purchases and Investments ('000)	\$2,901.6	\$11,014.1	280%	33145.9	\$397.1	192%	\$3,047.5	\$11,411.1	274%
Total Attributable to Sport fishing ('000)	\$1,508.8	<b>\$4</b> ,265.8	183%	\$108.6	\$523.5	198%	\$1,614.4	\$4,602.5	185%

<sup>\*</sup> Statistics Canada — Postcensal Annual Estimates of Population, June 1985 – Volume 3.

in an increase in the direct value of the fishery to participants and in the economic impacts on those businesses providing goods and services to resident anglers.

The survey has also indicated the importance of the nonresident sport fishery. In 1985, the territorial sport fishery provided recreation activity to 7,600" adul t nonresident anglers who fished for 52,200 days. The survey has shown that nonresidents also receive a non-priced benefit above and beyond what they actually spend, which may be greater than that for residents. While this benefit does not accrue to either the territorial or Canadian economy, it has important implications in planning for the

management of nonresident access ro the sport fishery.

In the Northwest Territories, the nonresident fishery has long been a significant source of tourism, employment and income. In 1985, nonresident anglers made direct expenditures of \$11,748,194 and major purchases of \$397,028 which are attributable in whole or in part to sport fishing. The package plan sales of the lodge industry represented 73% of the total nonresident direct expenditures, indicative of the continuing role of the lodges in attracting tourists to the Northwest Territories. The economic impacts of nonresident anglers expenditures generate significant employment and

income opportunity in the Northwest Territories.

The 1985 survey suggests there has been a decline in the number of nonresident anglers, and a significant reduction in nonresident fishing pressure and harvest. The current dollar comparison of 1980 and 1985 nonresident direct expenditures suggests a 43% increase in expenditure. However, because prices increased an identical amount for the same period, it seems the economic impacts from the nonresident fishery have, in fact, remained constant. The static nature of this sector should be of concern to the lodge industry and to territorial economic development agencies.

Cambridge Bay, N.W.T.



' 'Department of Regional Industrial Expansion" Photo

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