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Ministère des Pêches et des
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OTTAWA

1990 Survey of Recreational Fishing in Canada

Selected Results for the Great Lakes Fishery

Economic and Commercial Analysis Report No. 142

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Fisheries
and Oceans

Pêches
et Océans

Canada

1990 Survey of Recreational Fishing in Canada

Selected Results for the Great Lakes Fishery

Surveys Unit
Strategic Policy and Planning Directorate
Department of Fisheries and Oceans
Ottawa, Ontario
K1A 0E6

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ABSTRACT

In January, 1990, the Department of Fisheries and Oceans, in cooperation with all federal, provincial and territorial fishing licensing agencies, undertook the 1990 Survey of Recreational Fishing in Canada.

Information on angling in Canada has been collected at five-year intervals since 1975. In 1980 and 1985, the Great Lakes Fishery Commission requested that information specific to the Great Lakes system be developed in order to determine the economic importance of this fishery. This request was made of both the Department of Fisheries and Oceans and the Fish and Wildlife Service of the United States Department of the Interior since national surveys were being conducted by both agencies.

The surveys in the two countries are no longer carried out in the same year. Canada has maintained the original five-year interval; in the United States, the survey is conducted to coincide with census years. Information for 1990 is presented from the Canadian survey, while the United States information generated on the Great Lakes will have a reference year of 1991.

Prior to the start of the 1990 Canadian survey, the Great Lakes Fishery Commission once again requested that information be collected in such a way as to be able to generate specific data on activity in the Great Lakes fishery. This was done by geographic coding of information on angling in the Ontario portion of the 1990 survey. Data has been generated to reflect activity by both residents of the province and visitors who fished in Ontario and, more specifically, on the Great Lakes.

RÉSUMÉ

En janvier 1990, le ministère des Pêches et des Océans, de concert avec tous les organismes fédéraux, provinciaux et territoriaux chargés de délivrer les permis, a réalisé l'Enquête sur la pêche récréative au Canada en 1990.

L'information sur la pêche récréative au Canada est recueillie aux cinq ans depuis la première enquête en 1975. La Commission des pêcheries des Grands Lacs a réclamé en 1980 et 1985 des données particulières aux Grands Lacs afin de pouvoir établir l'importance économique de la pêche qui s'y pratique. Cette demande a été faite au ministère des Pêches et des Océans et au Fish and Wildlife Service du Département de l'Intérieur des États-Unis, les deux organismes chargés des enquêtes nationales.

Les enquêtes des deux pays n'ont plus lieu la même année. Le Canada continue de suivre son plan quinquennal tandis qu'aux États-Unis, l'enquête coïncide avec le recensement. L'information de 1990 concerne le Canada tandis que l'année de référence pour la partie américaine des Grands Lacs est 1991.

La Commission des pêcheries des Grands Lacs a de nouveau demandé que l'enquête canadienne de 1990 fournisse des données particulières aux Grands Lacs, ce qui fut possible grâce au codage géographique des données ontariennes. Les résultats reflètent la pêche récréative pratiquée par les Ontariens et les visiteurs en Ontario, et plus spécifiquement, dans les Grands Lacs.

TABLE OF CONTENTS

SUBJECT

1.	Data Source	v
2.	Definition of "Great Lakes Areas"	v
3.	Estimates of Effort and Numbers of Anglers	vi
4.	Expenditures	vi
5.	Major Purchases and Investments, Package Deals	vi
6.	Willingness to Pay	vii
7.	Attitudes	vii
8.	Data Processing and Data Availability	vii
9.	Reliability of Data	vii
11.	Contact - Further Information	viii
12.	Highlights	ix
13.	Tables and Figures	

Tables:

1.	Summary of Participation in the Great Lakes Fishery All Anglers	1
2.	Number of Fish Caught by Species in the Great Lakes Fishery Ontario Resident Anglers	4
3.	Number of Fish Caught by Species in the Great Lakes Fishery Ontario Nonresident Anglers	6

Tables (cont'd):

4.	Number of Fish Caught by Species in the Great Lakes Fishery All Anglers	8
5.	Number of Fish Kept by Species in the Great Lakes Fishery Ontario Resident Anglers	10
6.	Number of Fish Kept by Species in the Great Lakes Fishery Ontario Nonresident Anglers	12
7.	Number of Fish Kept by Species in the Great Lakes Fishery All Anglers	14
8.	Investment Expenses Allocated to Great Lakes Fishing Activities Ontario Resident Anglers	16
9.	Investment Expenses Allocated to Great Lakes Fishing Activities Ontario Nonresident Anglers	18
10.	Investment Expenses Allocated to Great Lakes Fishing Activities All Anglers	20
11.	Direct Expenditures Allocated for Fishing in the Great Lakes Fishery Ontario Resident Anglers	22
12.	Direct Expenditures Allocated for Fishing in the Great Lakes Fishery Ontario Nonresident Anglers	25
13.	Direct Expenditures Allocated for Fishing in the Great Lakes Fishery All Anglers	28
14.	Total Additional Amount of Money Anglers Were Willing to Pay to Fish the Same Number of Days on the Great Lakes All Anglers	31
15.	Socio-Economic Profile of Anglers in the Great Lakes Fishery All Anglers - Part 1 (...age, residence area, education.)	32
16.	Socio-Economic Profile of Anglers in the Great Lakes Fishery All Anglers - Part 2 (employment status, personal income, household income)	33

17.	Rating of Attributes Sought by Anglers on the Great Lakes When Selecting the Places Where They Fish All Anglers	34
18.	Rating of Benefits Sought by Anglers on the Great Lakes Concerning Why They Fish Where They Do All Anglers	35
19.	Level of Agreement With Specific Fisheries Management Options All Anglers	36
20.	Assessment of Personal Angling Skills Given by Anglers Who Fished on the Great Lakes All Anglers	37

Figures:

1.	Number of Anglers Who Fished in the Great Lakes Areas in 1990	2
2.	Distribution of Effort of Anglers Who Fished in the Great Lakes Areas in 1990	3
3.	Distribution of Fish Caught by Species by Resident Anglers in the Great Lakes Areas in 1990	5
4.	Distribution of Fish Caught by Species by Nonresident Anglers in the Great Lakes Areas in 1990	7
5.	Distribution of Fish Caught by Species by All Anglers in the Great Lakes Areas in 1990	9
6.	Distribution of Fish Kept by Species by Resident Anglers in the Great Lakes Areas in 1990	11
7.	Distribution of Fish Kept by Species by Nonresident Anglers in the Great Lakes Areas in 1990	13
8.	Distribution of Fish Kept by Species by All Anglers in the Great Lakes Areas in 1990	15
9.	Investment Expenses Allocated to Great Lakes Areas Fishing Activities by Resident Anglers in 1990	17

Figures (cont'd):

10.	Investment Expenses Allocated to Great Lakes Areas Fishing Activities by Nonresident Anglers in 1990	19
11.	Investment Expenses Allocated to Great Lakes Areas Fishing Activities by All Anglers in 1990	21
12.	Proportion of Expenditures Attributable to Recreational Fishing in the Great Lakes Areas by Resident Anglers in 1990	23
13.	Average Amount Spent by Resident Anglers in the Great Lakes Areas in 1990	24
14.	Proportion of Expenditures Attributable to Recreational Fishing in the Great Lakes Areas by Nonresident Anglers in 1990	26
15.	Average Amount Spent by Nonresident Anglers in the Great Lakes Areas in 1990	27
16.	Proportion of Expenditures Attributable to Recreational Fishing in the Great Lakes Areas by All Anglers in 1990	29
17.	Average Amount Spent by All Anglers in the Great Lakes Areas in 1990	30

Appendices:

1.	Great Lakes Areas Map	38
2.	Resident Questionnaire	40
3.	Nonresident Questionnaire	49
4.	Definitions	58
5.	Statistical Reliability of Key Variables	60

1. Data Source

The tables and charts presented in this report have been prepared using data from the Ontario component of the 1990 Survey of Recreational Fishing in Canada, a nationally coordinated study conducted at five-year intervals in all provinces and territories. The purpose of the survey is to provide data on a wide variety of topics of interest to fisheries managers at the various levels of government. The results presented in this report reflect data specifically defined for the Great Lakes Fishery.

2. Definition of "Great Lakes Areas"

Anglers were asked to provide the name of the lake, river or stream on which they fished, the nearest town or village, the number of days fished, the number of fish caught and kept by species as well as other attitudinal and socio-economic information regarding their fishing activities. Estimates for Great Lakes waters were produced using the geographic coding used to identify each town, grouped according to their proximity to Great Lakes waters. The areas defined by the grouped codes form a continuous border along the system, generally one township deep (8 to 24 kilometres). This definition was used to facilitate comparison with the broader definition used in the United States survey. Individuals fishing tributaries of the Great Lakes further inland than defined by the geographic coding are not included as participants in the Great Lakes fishery.

A map detailing Great Lakes areas is provided in Appendix 1. Specifically, the areas are defined as follows:

St. Lawrence River:	East of Gananoque to the Ontario-Quebec border.
Lake Ontario:	West from Gananoque to the Niagara peninsula, including the Niagara River to the eastern edge of the city of Fort Erie.
Lake Erie:	West from Fort Erie to Amherstburg.
Lake St. Clair:	North from Amherstburg to the southern edge of Sarnia (including the Detroit and St. Clair rivers).
Lake Huron:	From Sarnia north to Sault Ste. Marie including the St. Mary's River.
Lake Superior:	From north of Sault Ste. Marie to the Ontario-Wisconsin border.

3. Estimates of Effort and Numbers of Anglers

All estimates of effort and numbers are for adults (18 years of age and over for residents; 17 years of age and over for nonresidents). Averages for each lake are based on the numbers of participants determined for each, while those for the system as a whole are based on the total number of participants on any of the lakes in the system (see Table 1). Information in tables referring to totals for Ontario is based on the activities of Great Lakes anglers only. This information is presented in order to reflect the relative degree of importance associated with the Great Lakes when compared to all fishing activities of Great Lakes anglers in Ontario.

4. Expenditures

Although expenditures were collected on a household basis, allocation for the Great Lakes system was based on the fishing activity of individuals. The following procedure was used:

- if all days were spent on the Great Lakes system, all expenditures were assigned to the system. Expenditures for each water body within the system were allocated on the basis of the proportion of time spent on each water body.
- if the days spent on the Great Lakes system represented only a subset of all days in Ontario, the portion of the expenditures to be assigned to the system was estimated using the proportion of activity on the system. Estimates by water body within the system were then allocated on the basis of the amount of activity on each as a percentage of all days on the Great Lakes system.

5. Major Purchases and Investments, Package Deals

In the 1985 report on the Great Lakes fishery, no attempt was made to allocate expenditures made on major purchases and investments or package deals insofar as such purchases could not be "attributed" to Great Lakes fishing. This position has been reconsidered for this report. Expenditures for major purchases and investments have been provided using the allocation of expenditure dollars described above. This has been done both for expenditures made in whole or in part for recreational fishing and for the estimated amount directly attributable to recreational fishing. Expenses incurred for package deals have also been allocated on the basis of the proportion of activity.

6. Willingness to Pay

In 1990, anglers were asked how much they were willing to pay per day, over and above their direct expenditures, before deciding it would have been too expensive to fish the same number of days. The question was based on increased costs for services required for fishing (accommodation, gasoline, supplies, etc.), not for licence fees or similar access charges. For respondents indicating a willingness to pay additional costs, options on a daily amount were provided ranging for a specified amount under \$10, \$10 per day, amounts in \$10 increments to \$100 and then, a specified amount more than \$100 per day. Since the question covered the entire fishing experience in Ontario, it is recognized that the allocation per day within the Great Lakes system may not reflect the willingness to pay had the question been specific to the Great Lakes. The estimates are being provided in order to give the reader some indication of the additional amounts over and above expenses incurred in 1990 for Great Lakes fishing that anglers might be prepared to pay.

7. Attitudes

In this report two tables are provided which reflect anglers' behavioural predispositions with respect to the choice of a place to fish and the reasons why they fish where they do. Anglers were asked to rate options on a scale of 0 (not important) to 5 (extremely important). For purposes of analysis, 0's were recoded to 1's to ensure an odd scale with a mid-range value of 3. As with willingness to pay, these questions were general and did not ask for attitudes with respect to Great Lakes fishing. They are presented solely as indicators of the attitudes of anglers who fished on the Great Lakes.

8. Data Processing and Data Availability

Standard coding and editing procedures used in the 1990 Survey of Recreational Fishing in Canada were used to prepare the data used in this report. Data was analyzed using SPSS Version 3.0 on a Hewlett-Packard 3000-917LX system. System files and raw data files can be generated for analysis.

9. Reliability

Because the information provided in this report is a subset of a larger survey, the reliability of the data should be considered when making statements with respect to the data. It should be noted that all data are presented without rounding to the nearest hundred or thousand. This is not intended to reflect the degree of reliability of the data but was done in this way to facilitate production of tables to reflect data generated from the system. A table indicating the reliability of key variables (as coefficients of variation) is provided in Appendix 5.

10. Contact - Further Information

Additional information or clarification of the results presented in this report may be obtained by contacting the individuals identified below. Access to data or copies of the data can be provided. Detailed information on your requirements should be made, in writing, to the Department of Fisheries and Oceans.

Kieth W. Brickley
Chief, Surveys Unit
Strategic Policy and Planning
Department of Fisheries and Oceans
200 Kent St., M.S. 1186
Ottawa, Ontario
K1A 0E6

Telephone: (613) 993-2264
Facsimile: (613) 990-9574

Douglass Legg, Economist
Social and Economic Research
and Analysis Section
Ministry of Natural Resources
90 Sheppard Ave. E.
Toronto, Ontario
M2N 3A1

(416) 314-1159
(416) 314-2468

HIGHLIGHTS

- o an estimated 831,898 anglers fished on the Great Lakes in 1990; 708,212 residents of Ontario and 123,868 visitors to Ontario, primarily from the United States
- o Great Lake anglers were primarily male (74%), between 25 and 44 years of age (57.4%), living in urban areas (64.8%), with secondary school education (45.1%), employed full-time (70.3%) and with personal income under \$40,000 (64.1%) and household incomes under \$60,000 (60.7 %)
- o Great Lake anglers fished for over 11.6 million days, with residents averaging 14.8 days and nonresidents 9.6 days
- o most days were spent fishing on Lake Huron (4.9 million) followed by Lake Ontario (3.7 million)
- o Great Lakes anglers caught a total of 55.4 million fish of all species and retained 34.0 million (61%) of them
- o of all fish retained on the Great Lakes, smelt ranked first in terms of numbers at 21.1 million, followed in order by perch (5.4 million), walleye (2.7 million) and smallmouth bass (1.4 million)
- o Great Lakes anglers kept 41 fish on average, however, if smelt are excluded, this average drops to just under 18 fish per angler
- o Great Lakes anglers spent an estimated \$712 million on durable goods used in whole or in part for recreational fishing, allocated on the basis of their Great Lakes fishing activity
- o of this amount, they attributed \$434 million (61%) wholly to their recreational fishing activities
- o Great Lakes anglers spent \$413 million on goods and services directly related to their fishing activities, averaging almost \$500 per angler
- o these anglers further indicated they were willing to pay an additional \$161 million, had costs been higher for service-related expenses, before they would have stopped fishing
- o these additional costs averaged \$194 per year, or \$14 per day

TABLES AND FIGURES

TABLE 1
SUMMARY OF PARTICIPATION IN THE GREAT LAKES FISHERY
ALL ANGLERS *

Characteristic	Lake Ontario	Lake Erie	Lake St. Clair	Lake Huron	Lake Superior	St. Lawrence River	Great Lakes System*
Residents							
Number of Anglers	263,776	147,480	34,027	366,352	39,825	24,644	708,212
Males	211,132	109,284	27,570	244,596	27,406	19,588	510,440
Days of effort	2,846,022	1,271,557	370,820	3,245,055	274,017	175,720	8,183,191
Females	52,644	38,196	6,457	121,756	12,419	5,056	197,772
Days of effort	550,771	225,410	47,819	1,334,206	78,040	74,561	2,310,807
Days of effort - total	3,396,793	1,496,967	418,639	4,579,261	352,057	250,281	10,493,998
%	32.4 %	14.3 %	4.0 %	43.6 %	3.4 %	2.4 %	100.0 %
Nonresidents							
Number of Anglers	32,520	26,440	14,397	34,180	13,982	8,858	123,686
Males	27,994	23,127	12,765	27,025	12,011	7,567	104,269
Days of effort	220,290	249,122	150,196	233,308	77,178	55,216	985,309
Females	4,526	3,313	1,632	7,155	1,971	1,291	19,417
Days of effort	38,646	40,767	18,797	74,908	14,641	10,955	198,715
Days of effort - total	258,936	289,889	168,993	308,216	91,819	66,171	1,184,024
%	21.9 %	24.5 %	14.3 %	26.0 %	7.8 %	5.6 %	100.0 %
All anglers							
Number of Anglers	296,296	173,920	48,424	400,532	53,807	33,502	831,898
Males	239,126	132,411	40,335	271,621	39,417	27,155	614,709
Days of effort	3,066,312	1,520,679	521,016	3,478,363	351,195	230,936	9,168,500
Females	57,170	41,509	8,089	128,911	14,390	6,347	217,189
Days of effort	589,417	266,177	66,616	1,409,114	92,681	85,516	2,509,522
Days of effort - total	3,655,729	1,786,856	587,632	4,887,477	443,876	316,451	11,678,021
%	31.3 %	15.3 %	5.0 %	41.9 %	3.8 %	2.7 %	100.0 %

* refer to page vi: *3. Estimates of Effort and Number of Anglers.*

FIGURE 1

NUMBER OF ANGLERS WHO FISHED
IN THE GREAT LAKES AREAS IN 1990

RESIDENT ANGLERS

NONRESIDENT ANGLERS

ALL ANGLERS

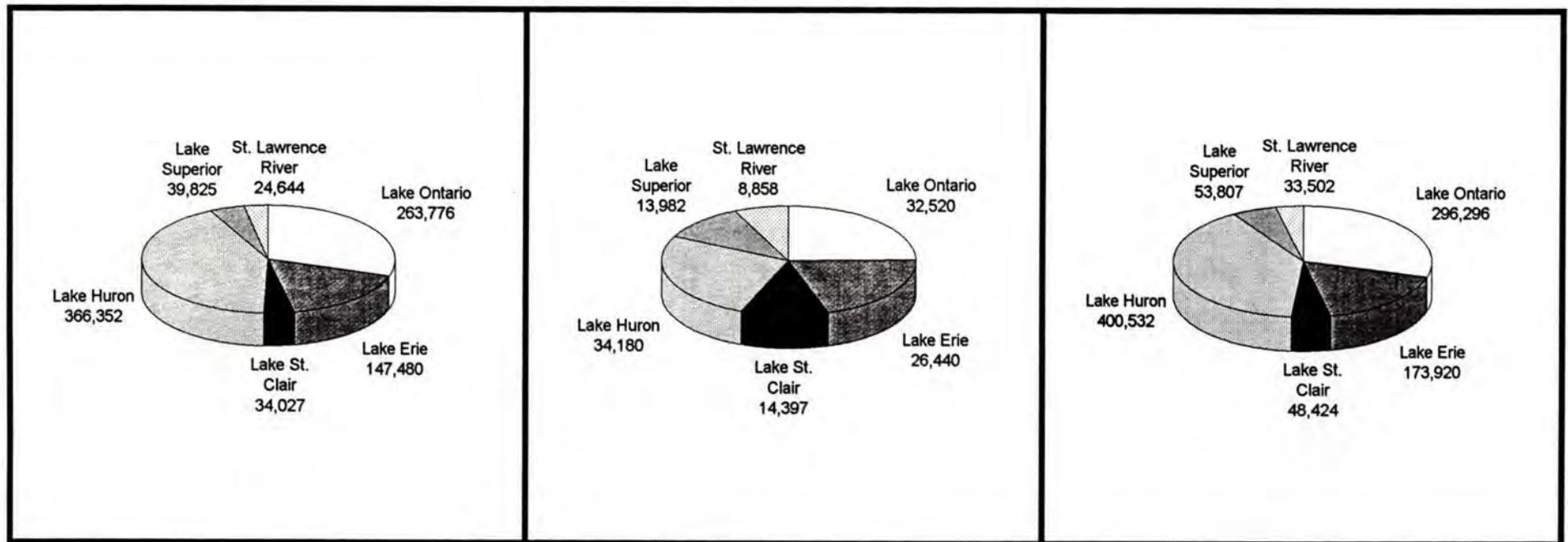
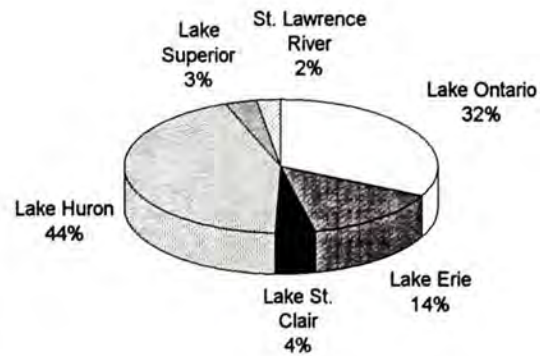


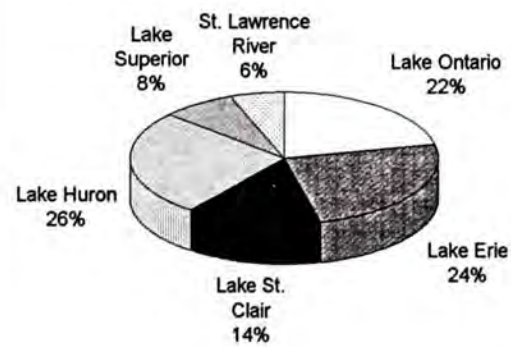
FIGURE 2

DISTRIBUTION OF EFFORT OF ANGLERS WHO FISHED IN THE GREAT LAKES AREAS IN 1990

RESIDENT ANGLERS



NONRESIDENT ANGLERS



ALL ANGLERS

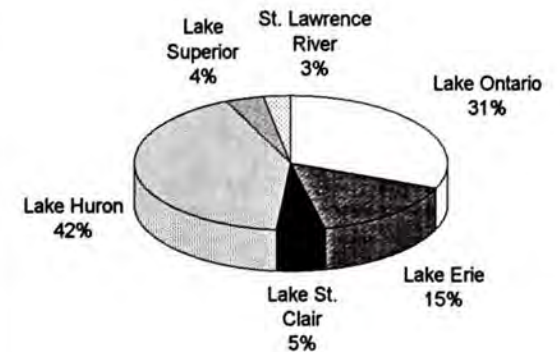


TABLE 2

NUMBER OF FISH CAUGHT BY SPECIES IN THE GREAT LAKES FISHERY
ONTARIO RESIDENT ANGLERS *

Species	Lake Ontario	Lake Erie	Lake St. Clair	Lake Huron	Lake Superior	St. Lawrence River	Great Lakes System	Total Fish Caught	Percent on Great Lakes
Walleye	585,917	805,442	378,992	683,010	207,837	52,350	2,713,548	6,180,821	43.9 %
Pike	225,074	88,548	13,192	849,861	104,864	90,919	1,372,458	3,058,298	44.9 %
Perch	863,205	1,586,014	234,563	2,449,892	118,539	1,446,699	6,698,912	10,390,833	64.5 %
Brook trout	45,221	3,292	0	52,095	62,120	0	162,728	565,557	28.8 %
Lake trout	402,136	9,300	0	477,078	132,663	2,477	1,023,654	1,548,507	66.1 %
Rainbow trout	1,021,074	103,577	3,375	669,766	23,852	6,591	1,828,235	2,200,208	83.1 %
Brown trout	250,980	8,661	1,326	85,879	6,213	412	353,471	659,835	53.6 %
Maskinonge	5,837	985	5,463	8,806	254	3,708	25,053	193,178	13.0 %
Smallmouth bass	786,100	609,155	103,017	2,420,895	46,236	120,142	4,085,545	7,251,230	56.3 %
Largemouth bass	299,093	185,343	63,499	784,689	11,743	74,698	1,419,065	3,160,391	44.9 %
Whitefish	451	121,258	27,622	130,726	4,727	0	284,784	458,582	62.1 %
Chinook salmon	856,467	12,619	0	386,719	16,786	0	1,272,591	1,373,945	92.6 %
Coho salmon	256,935	29,638	1,837	131,366	16,088	0	435,864	591,203	73.7 %
Smelt	599,566	2,372,446	0	16,100,302	44,596	0	19,116,910	21,527,529	88.8 %
Panfish	814,146	361,533	164,912	1,185,564	12,053	36,750	2,574,958	5,069,406	50.8 %
Other fish	699,997	759,476	304,993	858,367	17,871	278,719	2,919,423	6,210,033	47.0 %
Total all species	7,712,199	7,057,287	1,302,791	27,275,015	826,442	2,113,465	46,287,199	70,439,556	65.7 %
Average catch per angler	29	48	38	74	21	86	65	99	

* refer to page vi: *3. Estimates of Effort and Number of Anglers.*

FIGURE 3

DISTRIBUTION OF FISH CAUGHT BY SPECIES BY
RESIDENT ANGLERS IN THE GREAT LAKES AREA IN 1990

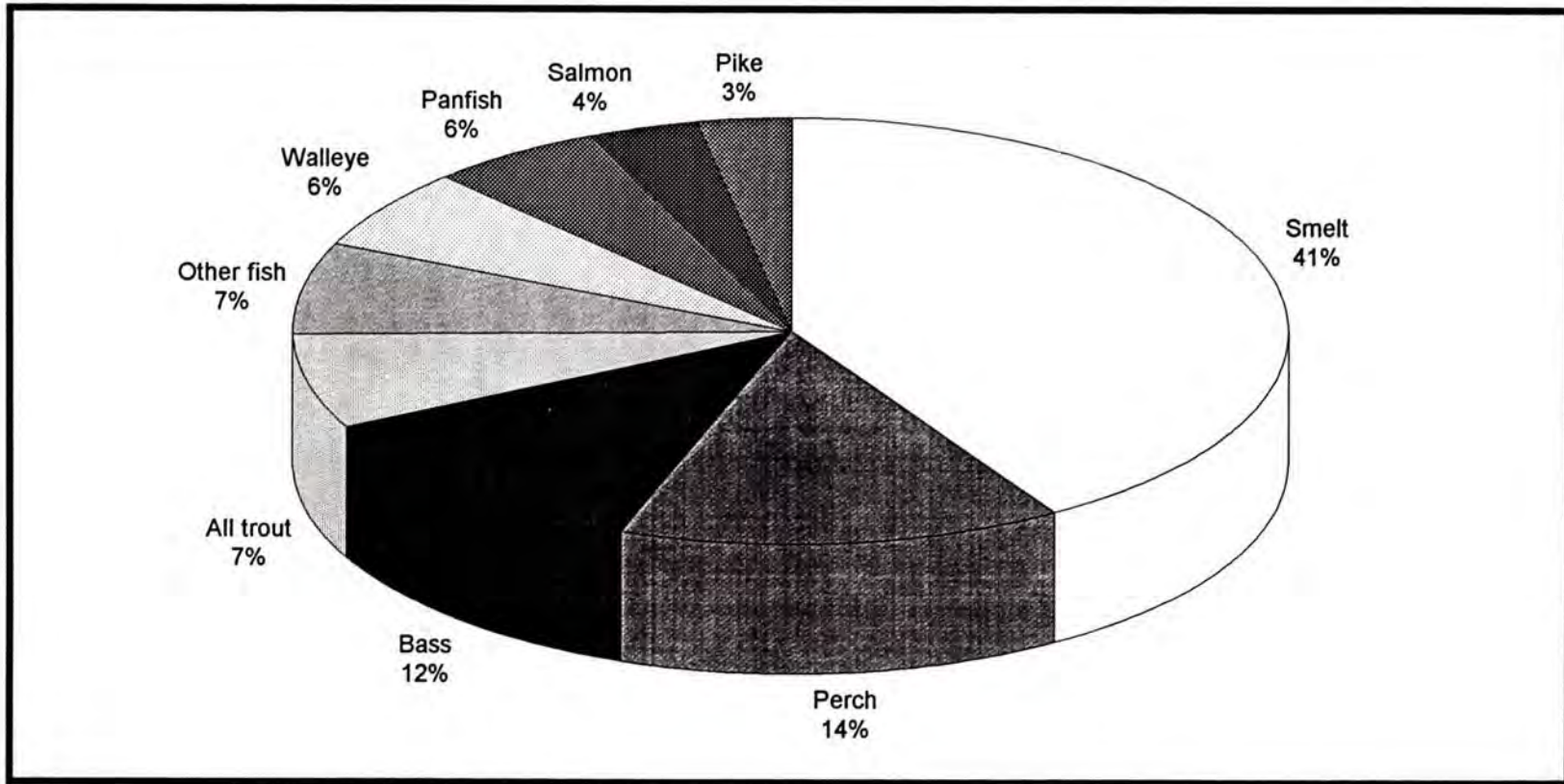


TABLE 3

NUMBER OF FISH CAUGHT BY SPECIES IN THE GREAT LAKES FISHERY
ONTARIO NONRESIDENT ANGLERS *

Species	Lake Ontario	Lake Erie	Lake St. Clair	Lake Huron	Lake Superior	St. Lawrence River	Great Lakes System	Fish Caught in Ontario	Percent on Great Lakes
Walleye	475,245	482,551	441,478	115,200	262,555	21,810	1,798,839	2,141,437	84.0 %
Pike	406,945	56,102	41,672	235,641	150,671	129,047	1,020,078	1,249,853	81.6 %
Perch	275,963	332,146	576,220	745,566	99,634	106,325	2,135,854	2,477,651	86.2 %
Brook trout	4,555	195	0	3,282	39,171	0	47,203	54,326	86.9 %
Lake trout	17,484	244	0	17,649	6,209	0	41,586	42,625	97.6 %
Rainbow trout	10,970	7,690	161	31,153	1,543	292	51,809	55,186	93.9 %
Brown trout	1,607	1,766	49	620	2,382	292	6,716	7,007	95.8 %
Maskinonge	2,772	5,314	16,191	1,178	341	3,973	29,769	35,193	84.6 %
Smallmouth bass	490,184	263,027	150,511	453,322	7,925	142,024	1,506,993	1,711,636	88.0 %
Largemouth bass	146,957	38,855	105,582	56,463	3,116	55,309	406,282	494,991	82.1 %
Whitefish	7731	22,520	10,912	15,969	9,372	876	67,380	69,649	96.7 %
Chinook salmon	15,642	407	244	7,477	0	131	23,901	23,901	100.0 %
Coho salmon	5,248	827	146	2,237	49	309	8,816	8,913	98.9 %
Smelt	0	145,474	0	0	0	0	145,474	147,087	98.9 %
Panfish	484,209	192,543	343,922	229,355	14,484	112,002	1,376,515	1,700,910	80.9 %
Other fish	28,044	123,149	62,796	136,947	8,099	2,276	361,311	378,162	95.5 %
Total all species	2,373,556	1,672,810	1,749,884	2,052,059	605,551	574,666	9,028,526	10,598,527	85.2 %
Average catch per angler	73	63	122	60	43	65	73	86	

* refer to page vi: "3. Estimates of Effort and Number of Anglers."

FIGURE 4

DISTRIBUTION OF FISH CAUGHT BY SPECIES BY
NONRESIDENT ANGLERS IN THE GREAT LAKES AREA IN 1990

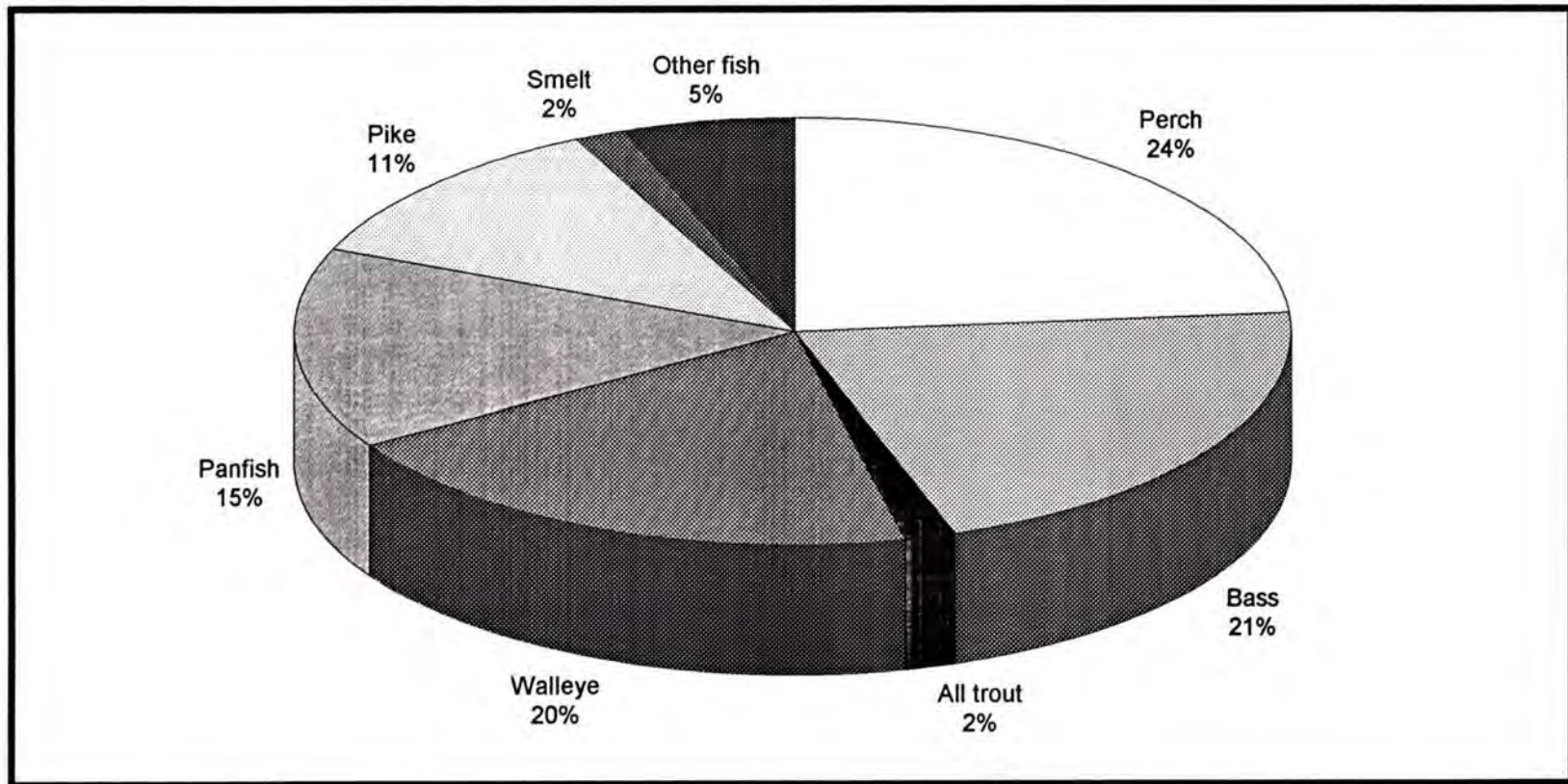


TABLE 4

NUMBER OF FISH CAUGHT BY SPECIES IN THE GREAT LAKES FISHERY
ALL ANGLERS *

Species	Lake Ontario	Lake Erie	Lake St. Clair	Lake Huron	Lake Superior	St. Lawrence River	Great Lakes System	Fish Caught in Ontario	Percent on Great Lakes
Walleye	1,061,163	1,287,992	820,470	798,210	470,391	74,160	4,512,386	8,322,258	54.2 %
Pike	632,019	144,650	54,865	1,085,503	255,534	219,966	2,392,537	4,308,151	55.5 %
Perch	1,139,168	1,918,160	810,784	3,195,458	218,173	1,553,024	8,834,767	12,868,484	68.7 %
Brook trout	49,775	3,487	0	55,376	101,291	0	209,929	619,883	33.9 %
Lake trout	419,621	9,543	0	494,726	138,871	2,477	1,065,238	1,591,132	66.9 %
Rainbow trout	1,032,045	111,267	3,537	700,919	25,395	6,883	1,880,046	2,255,393	83.4 %
Brown trout	252,586	10,426	1,375	86,499	8,595	704	360,185	666,842	54.0 %
Maskinonge	8,609	6,299	21,654	9,985	595	7,681	54,823	228,371	24.0 %
Smallmouth bass	1,276,285	872,182	253,528	2,874,217	54,160	262,166	5,592,538	8,962,866	62.4 %
Largemouth bass	446,049	224,198	169,081	841,152	14,859	130,007	1,825,346	3,655,382	49.9 %
Whitefish	8182	143,777	38,535	146,695	14,099	876	352,164	528,232	66.7 %
Chinook salmon	872,110	13,026	244	394,196	16,786	131	1,296,493	1,397,846	92.7 %
Coho salmon	362,183	30,465	1,983	133,602	16,137	309	544,679	600,116	90.8 %
Smelt	599,566	2,517,920	0	16,100,302	44,596	0	19,262,384	21,674,616	88.9 %
Panfish	1,298,354	554,076	508,834	1,414,919	26,537	148,752	3,951,472	6,770,316	58.4 %
Other fish	728,041	882,625	367,789	995,314	25,970	280,995	3,280,734	6,588,195	49.8 %
Total all species	10,185,756	8,730,093	3,052,679	29,327,073	1,431,989	2,688,131	55,415,721	81,038,083	68.4 %
Average catch per angler	34	50	63	73	27	80	67	97	

* refer to page vi: "3. Estimates of Effort and Number of Anglers."

FIGURE 5

DISTRIBUTION OF FISH CAUGHT BY SPECIES BY ALL ANGLERS IN THE GREAT LAKES AREA IN 1990.

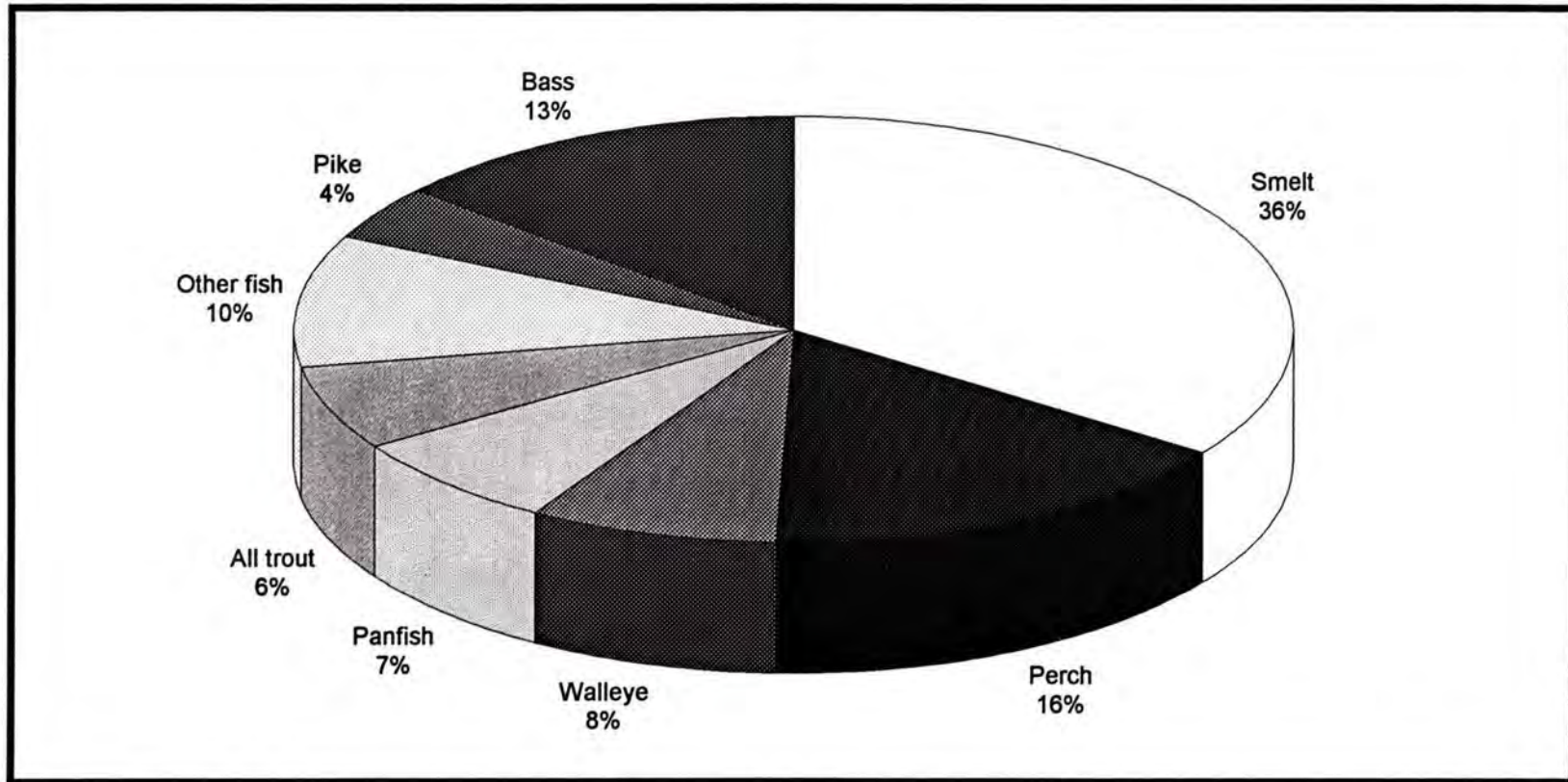


TABLE 5

NUMBER OF FISH KEPT BY SPECIES IN THE GREAT LAKES FISHERY
ONTARIO RESIDENT ANGLERS *

Species	Lake Ontario	Lake Erie	Lake St. Clair	Lake Huron	Lake Superior	St. Lawrence River	Great Lakes System	Fish Caught in Ontario	Percent on Great Lakes
Walleye	332,006	584,426	316,011	443,655	111,839	21,037	1,808,974	3,528,918	51.3 %
Pike	61,577	12,346	2,917	256,352	25,936	10,422	369,550	816,353	45.3 %
Perch	240,244	1,005,928	147,635	1,454,111	92,668	1,140,502	4,081,088	5,414,938	75.4 %
Brook trout	12,859	1,092	0	33,243	47,657	0	94,851	259,760	36.5 %
Lake trout	43,469	5,297	0	232,426	68,966	2,477	352,635	659,145	53.5 %
Rainbow trout	213,717	59,989	2,652	320,079	18,040	6,591	621,068	781,337	79.5 %
Brown trout	76,191	7,698	1,326	34,096	2,941	412	122,664	209,274	58.6 %
Maskinonge	204	0	361	763	0	412	1,740	7,612	22.9 %
Smallmouth bass	73,059	139,471	41,775	705,905	29,330	28,625	1,018,165	1,730,170	58.8 %
Largemouth bass	22,728	64,406	21,631	299,785	6,227	23,849	438,626	749,673	58.5 %
Whitefish	0	8,368	0	84,401	2,170	0	94,939	188,267	50.4 %
Chinook salmon	249,992	7,872	0	218,116	10,242	0	486,222	503,854	96.5 %
Coho salmon	127,479	28,182	1,109	60,823	12,224	0	229,817	261,616	87.8 %
Smelt	599,361	2,371,718	0	16,075,995	43,225	0	19,090,299	20,913,955	91.3 %
Panfish	158,319	132,962	69,734	59,237	1,205	20,182	441,639	810,238	54.5 %
Other fish	168,109	156,622	98,715	363,316	7,233	246,294	1,040,289	2,082,365	50.0 %
Total all species	2,379,314	4,586,377	703,866	20,642,303	479,903	1,500,803	30,292,566	38,917,475	77.8 %
Average kept per angler	9	31	21	56	12	61	43	55	

* refer to page vi: "3. Estimates of Effort and Number of Anglers."

FIGURE 6

DISTRIBUTION OF FISH KEPT BY SPECIES BY
RESIDENT ANGLERS IN THE GREAT LAKES AREA IN 1990

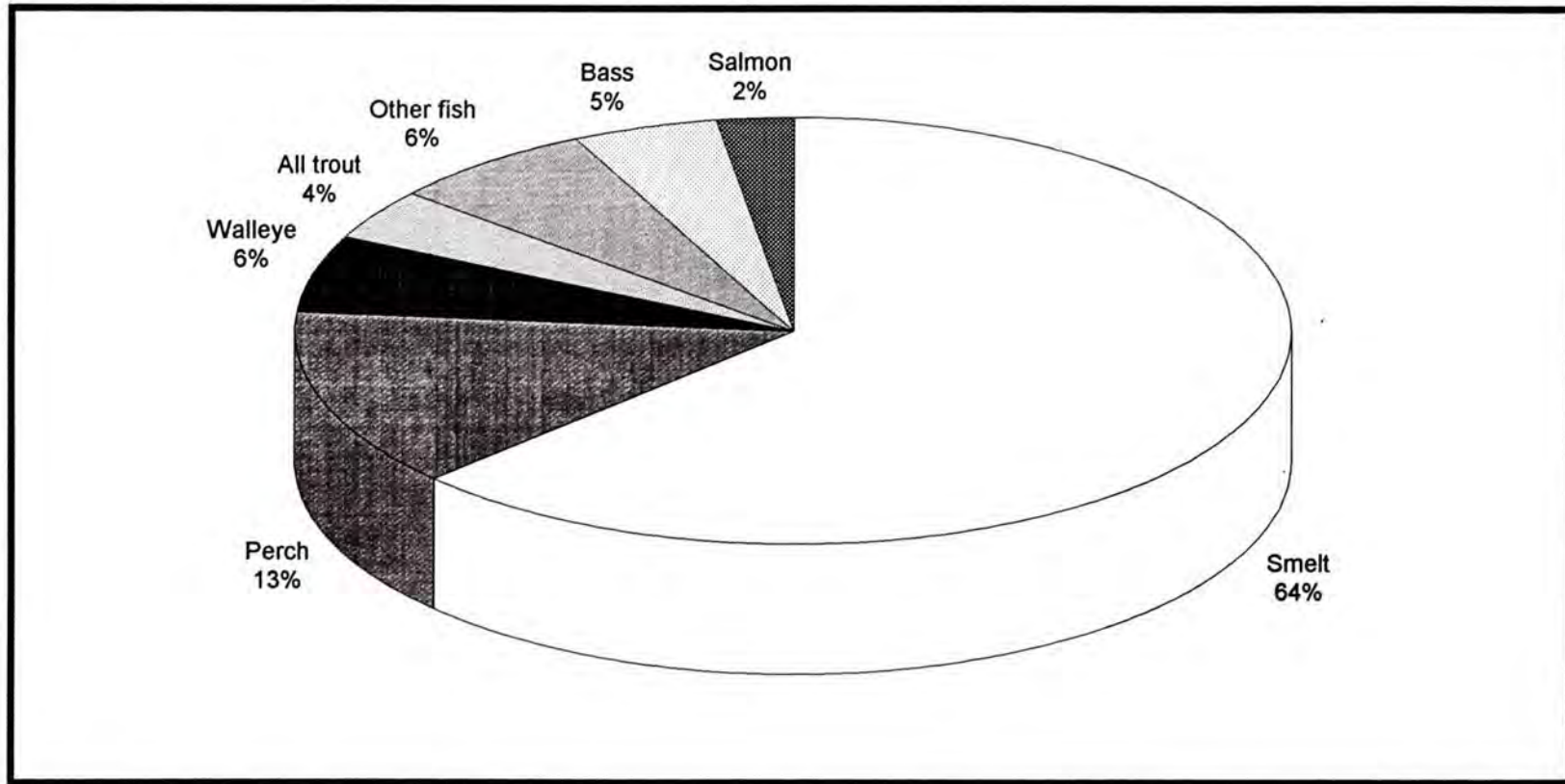


TABLE 6

NUMBER OF FISH KEPT BY SPECIES IN THE GREAT LAKES FISHERY
ONTARIO NONRESIDENT ANGLERS *

Species	Lake Ontario	Lake Erie	Lake St. Clair	Lake Huron	Lake Superior	St. Lawrence River	Great Lakes System	Fish Caught in Ontario	Percent on Great Lakes
Walleye	73,553	368,489	325,501	61,311	89,681	4,555	923,090	1,045,186	88.3 %
Pike	54,420	14,825	4,813	72,637	35,142	11,109	192,946	217,439	88.7 %
Perch	122,886	258,106	503,395	354,948	58,423	45,629	1,343,387	1,534,362	87.6 %
Brook trout	2,657	195	0	2,841	20,456	0	26,149	27,686	94.4 %
Lake trout	6,661	195	0	12,157	3,312	0	22,325	23,365	95.5 %
Rainbow trout	4,874	5,255	0	3,508	633	0	14,270	15,342	93.0 %
Brown trout	1,235	1,376	49	0	1,458	0	4,118	4,410	93.4 %
Maskinonge	0	244	1,119	356	292	583	2,594	3,244	80.0 %
Smallmouth bass	78,235	94,238	46,964	95,832	4,678	16,446	336,393	367,811	91.5 %
Largemouth bass	20,486	15,889	17,486	12,286	163	2,508	68,818	79,761	86.3 %
Whitefish	1672	1,267	0	7,700	4,901	0	15,540	16,788	92.6 %
Chinook salmon	4,059	0	195	5,777	0	131	10,162	10,162	100.0 %
Coho salmon	2,675	583	0	845	49	212	4,364	4,462	97.8 %
Smelt	0	145,230	0	0	0	0	145,230	146,844	98.9 %
Panfish	112,555	78,063	247,041	43,825	9,613	19,372	510,469	637,466	80.1 %
Other fish	10,894	44,887	27,371	38,815	5,176	0	127,143	129,115	98.5 %
Total all species	496,862	1,028,842	1,173,934	712,838	233,977	100,545	3,746,998	4,263,443	87.9 %
Average kept per angler	15	39	82	21	17	11	30	34	

* refer to page vi: "3. Estimates of Effort and Number of Anglers."

FIGURE 7

DISTRIBUTION OF FISH KEPT BY SPECIES BY
NONRESIDENT ANGLERS IN THE GREAT LAKES AREAS IN 1990.

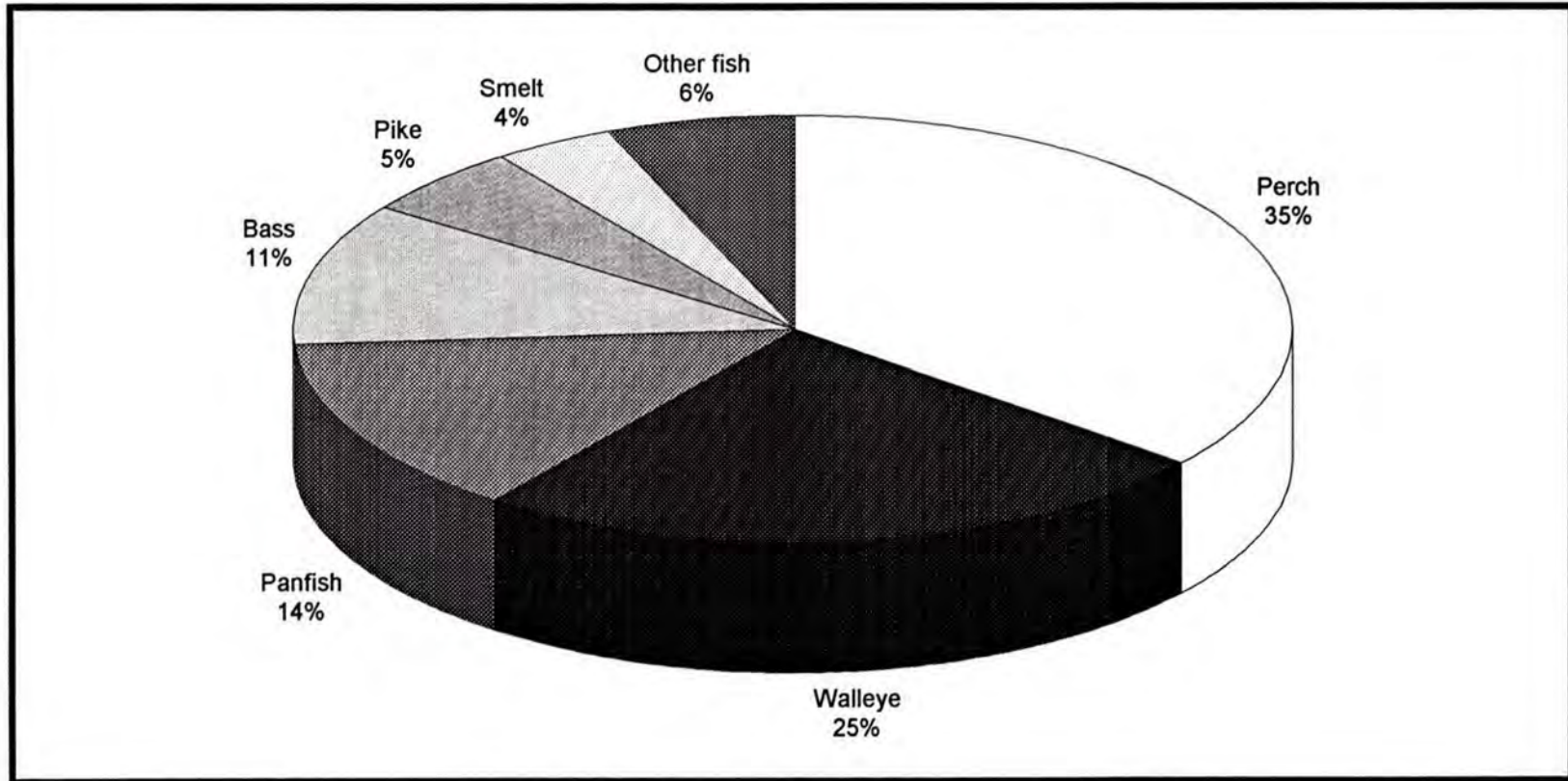


TABLE 7

NUMBER OF FISH KEPT BY SPECIES IN THE GREAT LAKES FISHERY
ALL ANGLERS *

Species	Lake Ontario	Lake Erie	Lake St. Clair	Lake Huron	Lake Superior	St. Lawrence River	Great Lakes System	Total Fish Kept	Percent on Great Lakes
Walleye	405,559	952,915	641,512	504,966	201,520	25,592	2,732,064	4,574,104	59.7 %
Pike	115,997	27,171	7,730	328,989	61,079	21,531	562,497	1,033,791	54.4 %
Perch	363,130	1,264,034	651,030	1,809,060	151,091	1,186,131	5,424,476	6,949,300	78.1 %
Brook trout	15,515	1,286	0	36,084	68,113	0	120,998	287,446	42.1 %
Lake trout	50,130	5,492	0	244,583	72,279	2,477	374,961	682,509	54.9 %
Rainbow trout	218,592	65,244	2,652	323,587	18,673	6,591	635,339	796,679	79.7 %
Brown trout	77,425	9,074	1,375	34,096	4,399	412	126,781	213,684	59.3 %
Maskinonge	204	244	1,481	1,119	292	995	4,335	10,856	39.9 %
Smallmouth bass	151,294	233,710	88,739	801,738	34,008	45,070	1,354,559	2,097,982	64.6 %
Largemouth bass	43,214	80,295	39,117	312,071	6,390	26,356	507,443	829,434	61.2 %
Whitefish	1672	9,635	0	92,101	7,071	0	110,479	205,055	53.9 %
Chinook salmon	254,051	7,872	195	223,892	10,242	131	496,383	514,016	96.6 %
Coho salmon	130,154	28,766	1,109	61,668	12,273	212	234,182	266,078	88.0 %
Smelt	599,361	2,516,949	0	16,075,995	43,225	0	19,235,530	21,060,798	91.3 %
Panfish	270,874	211,025	316,774	103,062	10,818	39,554	952,107	1,447,704	65.8 %
Other fish	179,003	201,509	126,086	402,131	12,409	246,294	1,167,432	2,211,480	52.8 %
Total all species	2,876,175	5,615,221	1,877,800	21,355,142	713,882	1,601,346	34,039,566	43,180,916	78.8 %
Average kept per angler	10	32	39	53	13	48	41	52	

* refer to page vi: "3. Estimates of Effort and Number of Anglers."

FIGURE 8

DISTRIBUTION OF FISH KEPT BY SPECIES BY
ALL ANGLERS IN THE GREAT LAKES AREA IN 1990

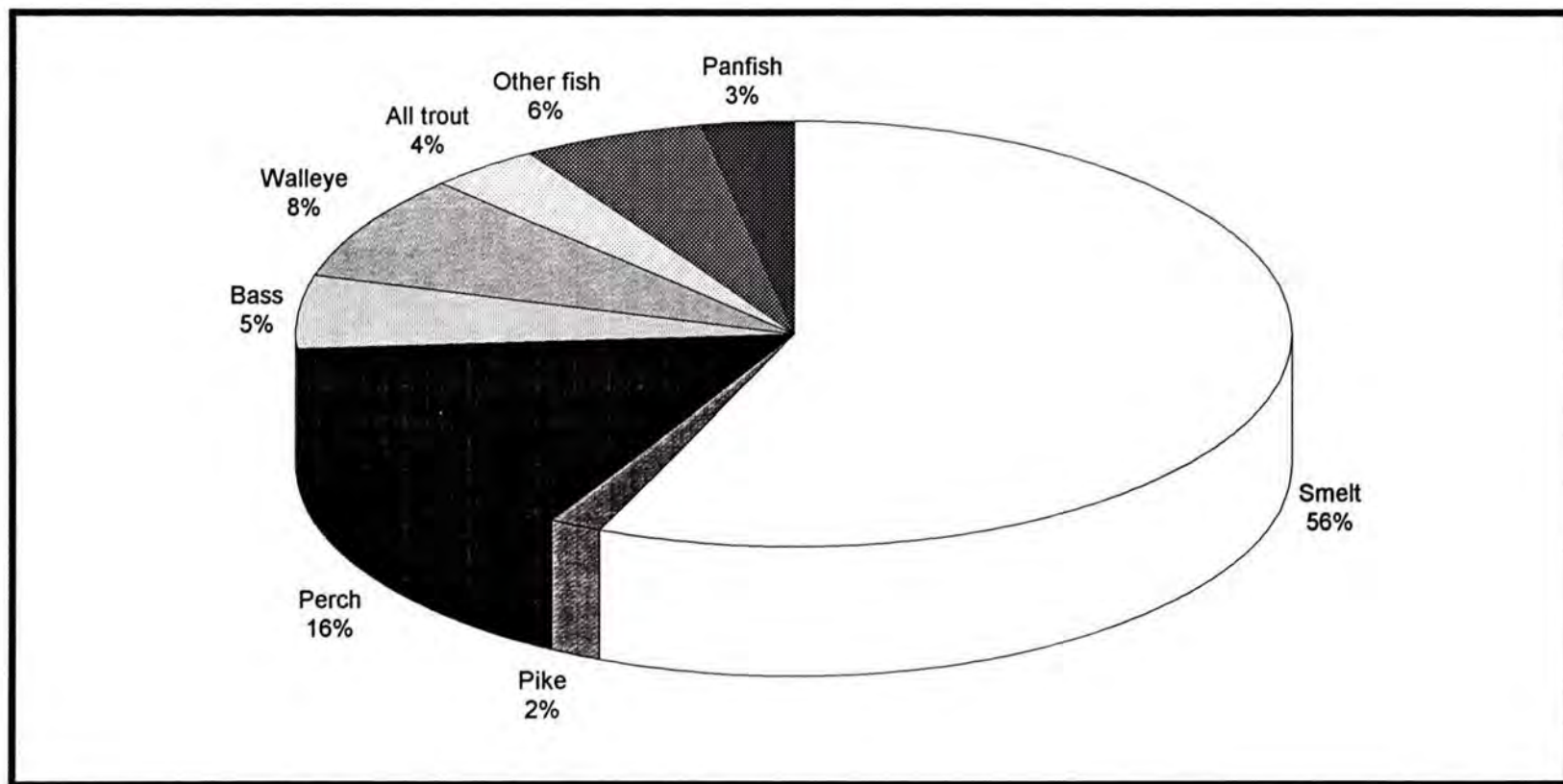


TABLE 8

INVESTMENT EXPENSES ALLOCATED TO GREAT LAKES FISHING ACTIVITIES
ONTARIO RESIDENT ANGLERS

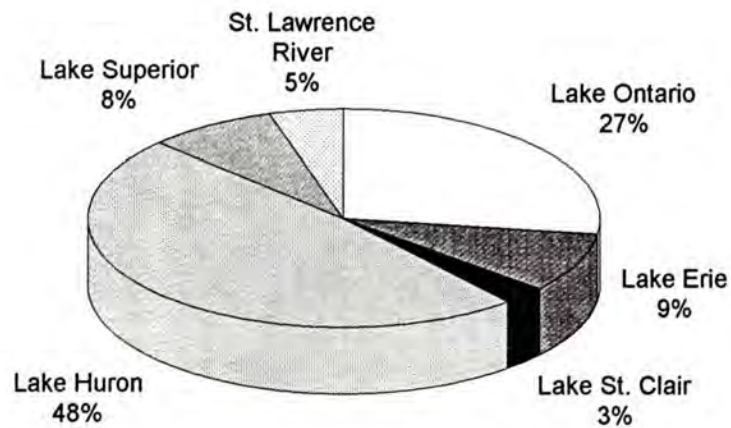
Investment Category	Lake Ontario	Lake Erie	Lake St. Clair	Lake Huron	Lake Superior	St. Lawrence River	Great Lakes System	Amount Spent in Ontario	Percent on Great Lakes
All investment expenses									
Fishing Equipment	19,802,769	6,772,909	1,621,347	16,231,628	2,067,806	776,231	47,272,690	70,185,576	67.4 %
Boating Equipment	46,133,302	23,506,389	9,641,974	83,165,514	23,001,661	13,631,297	199,080,137	288,808,062	68.9 %
Camping Equipment	7,931,166	4,238,933	422,219	30,893,904	2,944,730	678,253	47,109,205	86,828,647	54.3 %
Vehicles	69,316,995	4,940,124	7,205,104	73,594,147	23,606,815	17,111,587	195,774,772	336,730,031	58.1 %
Land and Buildings	42,149,233	22,344,053	0	129,281,984	3,808,609	0	197,583,879	236,835,867	83.4 %
Other investments	5,275,749	1,039,917	314,567	4,282,008	1,105,544	203,397	12,221,182	19,421,747	62.9 %
Total Expenditures	190,609,214	62,842,325	19,205,211	337,449,185	56,535,165	32,400,765	699,041,865	1,038,809,930	67.3 %
Average expenditure per angler	\$722.62	\$426.11	\$564.41	\$921.11	\$1,419.59	\$1,314.75	\$987.05	\$1,466.81	
Attributable to recreational fishing									
Fishing Equipment	19,802,769	6,772,909	1,621,347	16,231,628	2,067,806	776,231	47,272,690	70,185,576	67.4 %
Boating Equipment	41,244,774	17,647,062	8,629,920	65,368,815	15,507,629	11,991,114	160,389,314	238,637,614	67.2 %
Camping Equipment	5,039,089	1,373,573	117,491	9,336,132	1,843,501	624,931	18,334,717	40,198,455	45.6 %
Vehicles	28,660,111	2,378,961	720,510	23,399,076	6,404,375	5,830,597	67,393,630	115,937,986	58.1 %
Land and Buildings	39,996,538	5,901,609	0	73,774,049	1,427,634	0	121,099,830	150,037,277	80.7 %
Other investments	3,474,592	827,002	252,053	3,688,934	798,545	125,382	9,166,508	14,850,260	61.7 %
Total Expenditures	138,217,873	34,901,116	11,341,321	191,798,634	28,049,490	19,348,255	423,656,689	629,847,168	67.3 %
Average expenditure per angler	\$524.00	\$236.65	\$333.30	\$523.54	\$704.32	\$785.11	\$598.21	\$889.35	
Percent attributed to recreational fishing	72.5 %	55.5 %	59.1 %	56.8 %	49.6 %	59.7 %	60.6 %	60.6 %	

FIGURE 9

INVESTMENT EXPENSES ALLOCATED TO
GREAT LAKES AREAS FISHING ACTIVITIES
BY RESIDENT ANGLERS IN 1990

TOTAL INVESTMENT EXPENSES

Total: \$699,041,865



INVESTMENT EXPENSES
ATTRIBUTABLE TO RECREATIONAL FISHING

Total: \$423,656,689

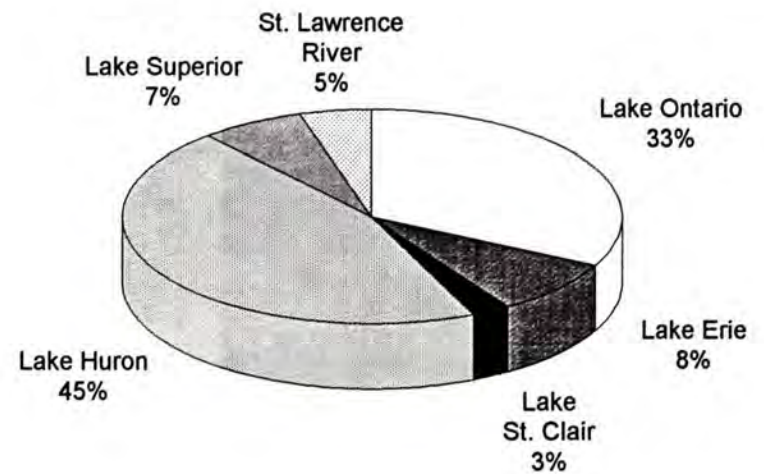


TABLE 9

INVESTMENT EXPENSES ALLOCATED TO GREAT LAKES FISHING ACTIVITIES
ONTARIO NONRESIDENT ANGLERS

Investment Category	Lake Ontario	Lake Erie	Lake St. Clair	Lake Huron	Lake Superior	St. Lawrence River	Great Lakes System	Amount Spent in Ontario	Percent on Great Lakes
All investment expenses									
Fishing Equipment	336,677	208,614	120,788	443,211	80,031	76,928	1,266,249	1,355,033	93.4 %
Boating Equipment	1,911,693	75,750	1,461	1,933,873	30,277	794,713	4,747,767	5,081,430	93.4 %
Camping Equipment	0	57,676	7,916	66,659	349,334	0	481,585	511,528	94.1 %
Vehicles	0	0	0	3,553,861	0	0	3,553,861	4,121,405	86.2 %
Land and Buildings	240,689	732,730	113,509	889,789	166,110	37,507	2,180,334	2,295,267	95.0 %
Other investments	143,414	38,019	30,173	551,665	19,842	18,380	801,493	834,785	96.0 %
Total Expenditures	2,632,473	1,112,789	273,847	7,439,058	645,594	927,528	13,031,289	14,199,448	91.8 %
Average expenditure per angler	\$80.95	\$42.09	\$19.03	\$217.64	\$46.17	\$104.71	\$105.36	\$114.80	
Attributable to recreational fishing									
Fishing Equipment	336,677	208,614	120,788	443,211	80,031	76,928	1,266,249	1,355,033	93.4 %
Boating Equipment	1,695,916	69,131	1,326	1,721,561	26,340	321,706	3,835,980	4,132,370	92.8 %
Camping Equipment	0	57,676	7,916	60,040	348,542	0	474,174	502,662	94.3 %
Vehicles	0	0	0	3,116,853	0	0	3,116,853	3,247,388	96.0 %
Land and Buildings	177,740	352,185	11,351	649,353	135,170	35,826	1,361,625	1,464,834	93.0 %
Other investments	134,179	36,170	28,969	369,796	17,986	15,702	602,802	631,844	95.4 %
Total Expenditures	2,344,512	723,776	170,350	6,360,814	608,069	450,162	10,657,683	11,334,131	94.0 %
Average expenditure per angler	\$72.09	\$27.37	\$11.84	\$186.10	\$43.49	\$50.82	\$86.17	\$91.64	
Percent attributed to recreational fishing	89.1 %	65.0 %	62.2 %	85.5 %	94.2 %	48.5 %	81.8 %	79.8 %	

FIGURE 10

INVESTMENT EXPENSES ALLOCATED TO GREAT LAKES FISHING ACTIVITIES BY NONRESIDENT ANGLERS IN 1990

TOTAL INVESTMENT EXPENSES

INVESTMENT EXPENSES ATTRIBUTABLE TO RECREATIONAL FISHING

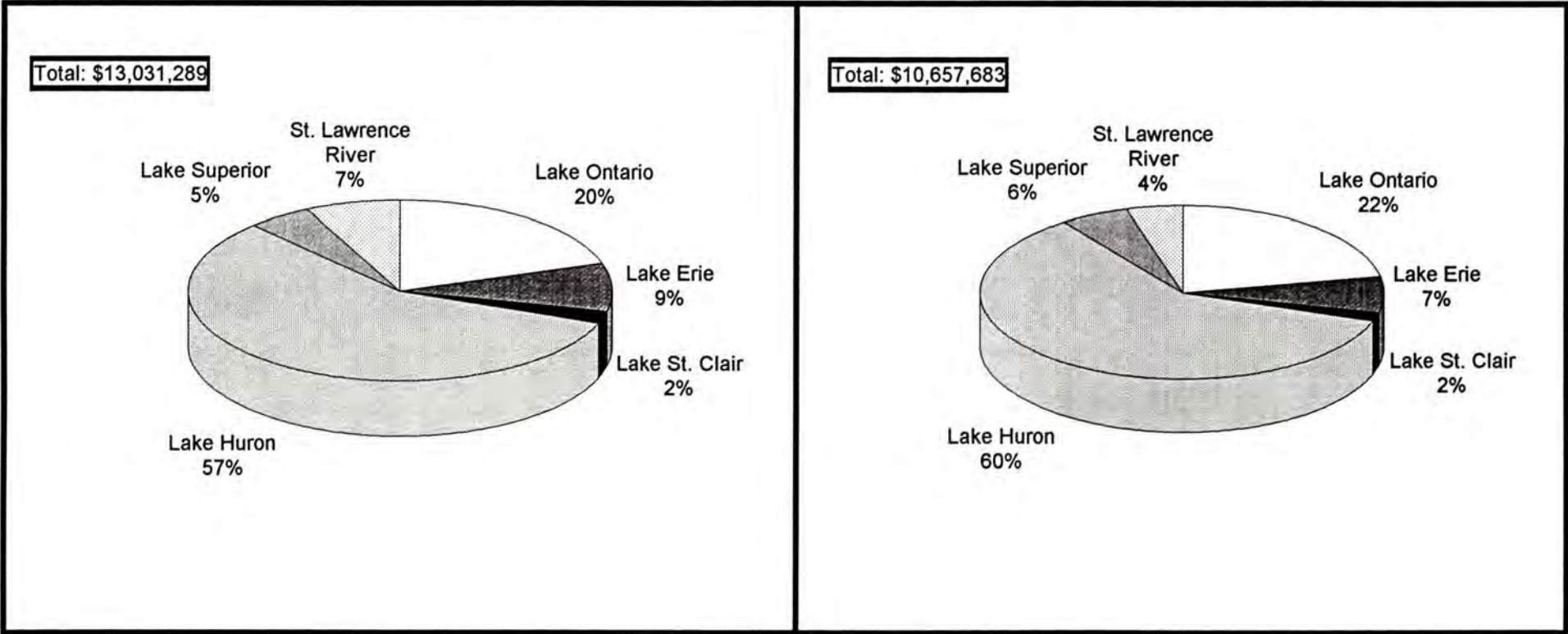


TABLE 10

INVESTMENT EXPENSES ALLOCATED TO GREAT LAKES FISHING ACTIVITIES
ALL ANGLERS

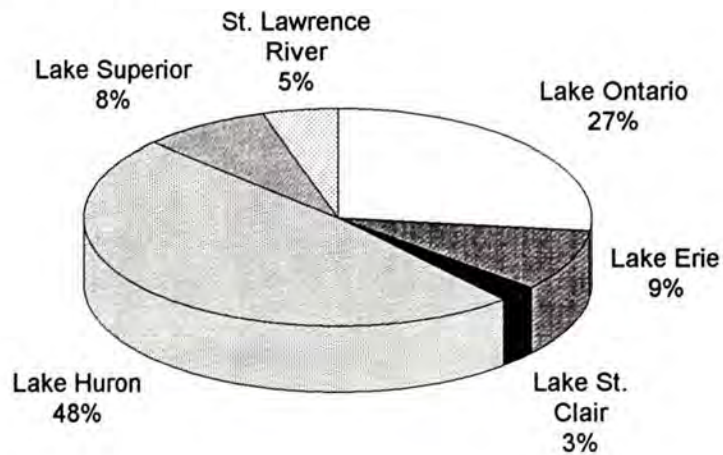
Investment Category	Lake Ontario	Lake Erie	Lake St. Clair	Lake Huron	Lake Superior	St. Lawrence River	Great Lakes System	Amount Spent in Ontario	Percent on Great Lakes
All investment expenses									
Fishing Equipment	20,139,445	6,981,523	1,742,135	16,674,840	2,147,837	853,159	48,538,939	71,540,610	67.8 %
Boating Equipment	48,044,995	23,582,138	9,643,435	85,099,387	23,031,937	14,426,010	203,827,902	293,889,492	69.4 %
Camping Equipment	7,931,166	4,296,608	430,135	30,960,563	3,294,064	678,253	47,590,789	87,340,175	54.5 %
Vehicles	69,316,995	4,940,124	7,205,104	77,148,009	23,606,815	17,111,587	199,328,634	340,851,436	58.5 %
Land and Buildings	42,389,922	23,076,783	113,509	130,171,773	3,974,719	37,507	199,764,213	239,131,133	83.5 %
Other investments	5,419,163	1,077,936	344,740	4,833,674	1,125,386	221,777	13,022,676	20,256,533	64.3 %
Total Expenditures	193,241,686	63,955,112	19,479,058	344,888,246	57,180,758	33,328,293	712,073,153	1,053,009,379	67.6 %
Average expenditure per angler	\$652.19	\$367.73	\$402.26	\$861.08	\$1,062.70	\$994.82	\$855.96	\$1,265.79	
Attributable to recreational fishing									
Fishing Equipment	20,139,445	6,981,523	1,742,135	16,674,840	2,147,837	853,159	48,538,939	71,540,610	67.8 %
Boating Equipment	42,940,690	17,716,193	8,631,245	67,090,376	15,533,969	12,312,820	164,225,293	242,769,984	67.6 %
Camping Equipment	5,039,089	1,431,248	125,408	9,396,172	2,192,042	624,931	18,808,890	40,701,117	46.2 %
Vehicles	28,660,111	2,378,961	720,510	26,515,929	6,404,375	5,830,597	70,510,483	119,179,373	59.2 %
Land and Buildings	40,174,278	6,253,795	11,351	74,423,402	1,562,804	35,826	122,461,456	151,502,111	80.8 %
Other investments	3,608,771	863,172	281,022	4,058,730	816,531	141,083	9,769,309	15,482,103	63.1 %
Total Expenditures	140,562,384	35,624,892	11,511,671	198,159,449	28,657,558	19,798,416	434,314,370	641,175,298	67.7 %
Average expenditure per angler	\$474.40	\$204.83	\$237.73	\$494.74	\$532.60	\$590.96	\$522.08	\$770.74	
Percent attributed to recreational fishing	72.7 %	55.7 %	59.1 %	57.5 %	50.1 %	59.4 %	61.0 %	60.9 %	

FIGURE 11

INVESTMENT EXPENSES ALLOCATED TO
GREAT LAKES AREAS FISHING ACTIVITIES
BY ALL ANGLERS IN 1990

TOTAL INVESTMENT

Total: \$712,073,153



INVESTMENT EXPENSES
ATTRIBUTABLE TO RECREATIONAL FISHING

Total: \$434,314,370

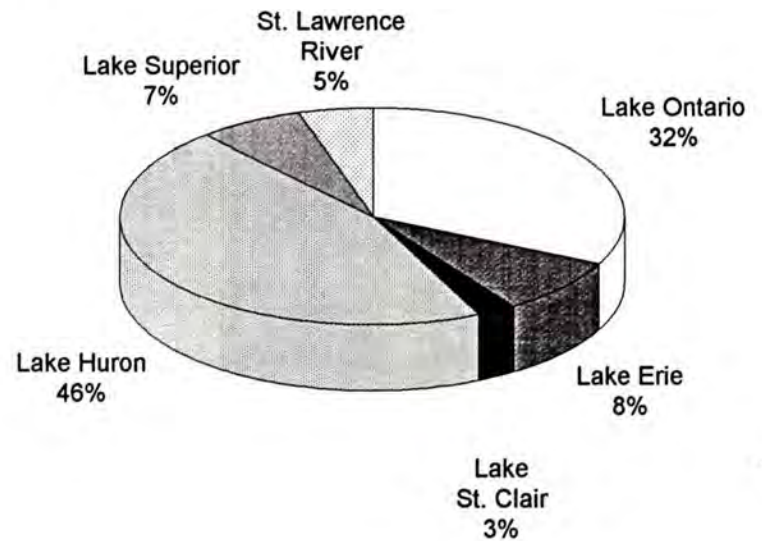


TABLE 11

DIRECT EXPENDITURES ALLOCATED FOR FISHING IN THE GREAT LAKES FISHERY
ONTARIO RESIDENT ANGLERS

Expenditure Category	Lake Ontario	Lake Erie	Lake St. Clair	Lake Huron	Lake Superior	St. Lawrence River	Great Lakes System	Amount Spent in Ontario	Percent on Great Lakes
Package Deals	7,296,344	2,295,587	339,141	11,452,063	517,240	243,741	22,144,116	35,021,467	63.2 %
Accommodation	6,005,237	2,037,191	1,034,288	12,310,696	386,173	235,934	22,009,519	34,216,487	64.3 %
Campsite Fees	3,009,899	1,912,130	229,311	9,926,466	352,790	129,368	15,559,964	22,223,463	70.0 %
Food	28,472,353	9,206,130	2,699,945	43,533,436	5,356,413	1,042,521	90,310,798	148,221,399	60.9 %
Travel Costs	23,725,065	7,817,068	3,023,815	36,996,456	4,471,885	831,890	76,866,179	123,044,675	62.5 %
Household Boat Costs	25,608,952	11,202,115	3,073,051	29,259,891	2,158,710	1,639,066	72,941,785	95,776,496	76.2 %
Boat Rentals	2,093,253	615,580	312,041	4,006,935	298,405	35,628	7,361,842	12,158,915	60.5 %
Fishing Supplies	10,463,292	4,235,050	1,178,379	11,924,155	1,205,950	768,357	29,775,183	46,560,802	63.9 %
Bait Fish	2,966,770	1,607,731	413,857	4,685,303	456,716	222,859	10,353,236	16,641,202	62.2 %
Guides	210,099	47,148	5,404	136,304	17,640	3,826	420,421	717,857	58.6 %
Licence Fees	1,397,777	948,189	244,195	2,619,131	307,250	161,034	5,677,576	8,349,133	68.0 %
Other Costs	564,625	407,712	51,683	884,953	90,290	23,285	2,022,548	3,327,616	60.8 %
Total Expenditures	111,813,666	42,331,631	12,605,110	167,735,789	15,619,462	5,337,509	355,443,167	546,259,512	65.1 %
Average expenditure per angler	\$423.90	\$287.03	\$370.44	\$457.85	\$392.20	\$216.58	\$501.89	\$771.32	

FIGURE 12

PROPORTION OF EXPENDITURES ATTRIBUTABLE TO
RECREATIONAL FISHING IN THE GREAT LAKES AREAS
BY RESIDENT ANGLERS IN 1990

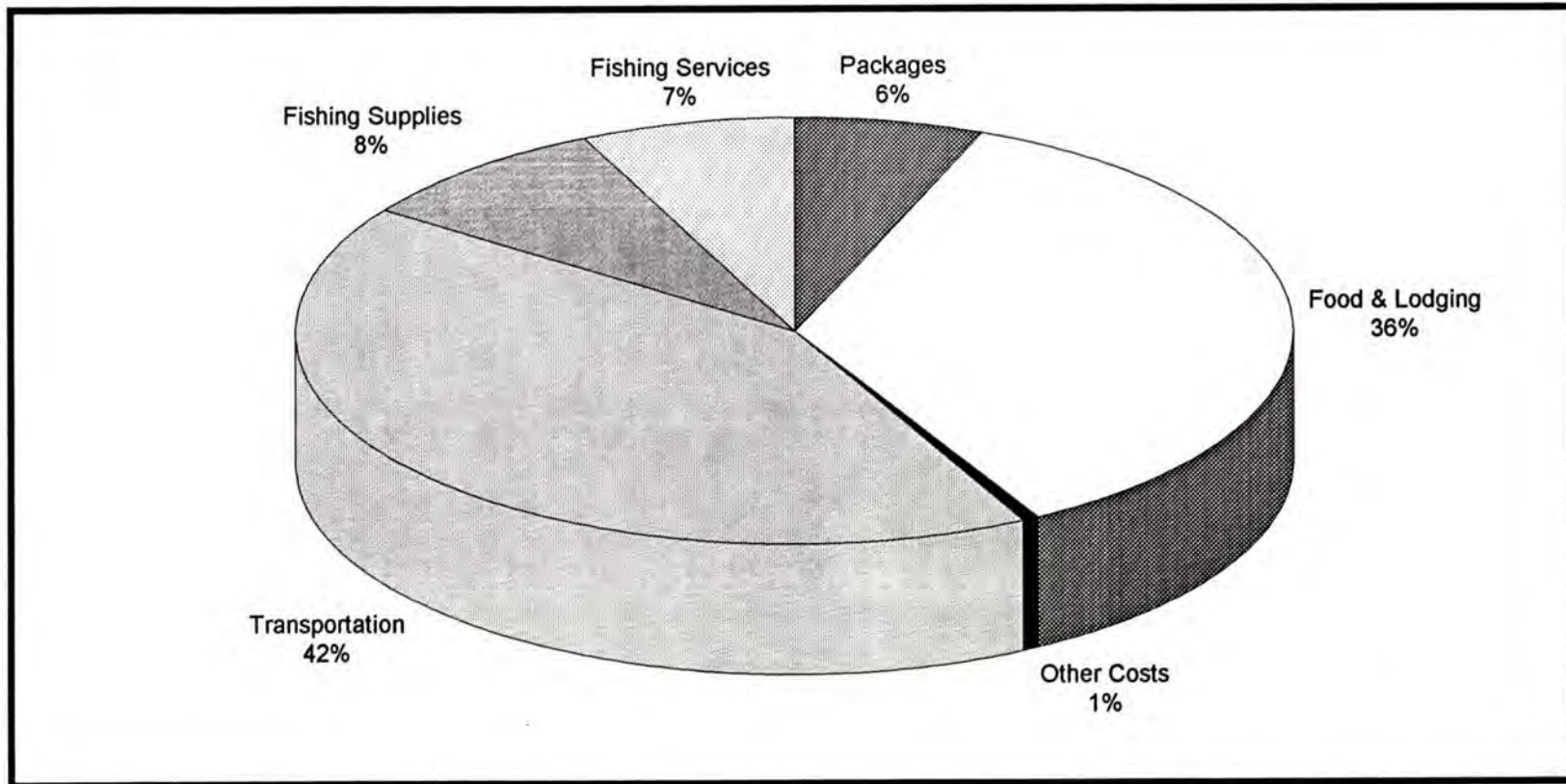


FIGURE 13

AVERAGE AMOUNT SPENT BY RESIDENT ANGLERS
IN THE GREAT LAKES AREAS IN 1990

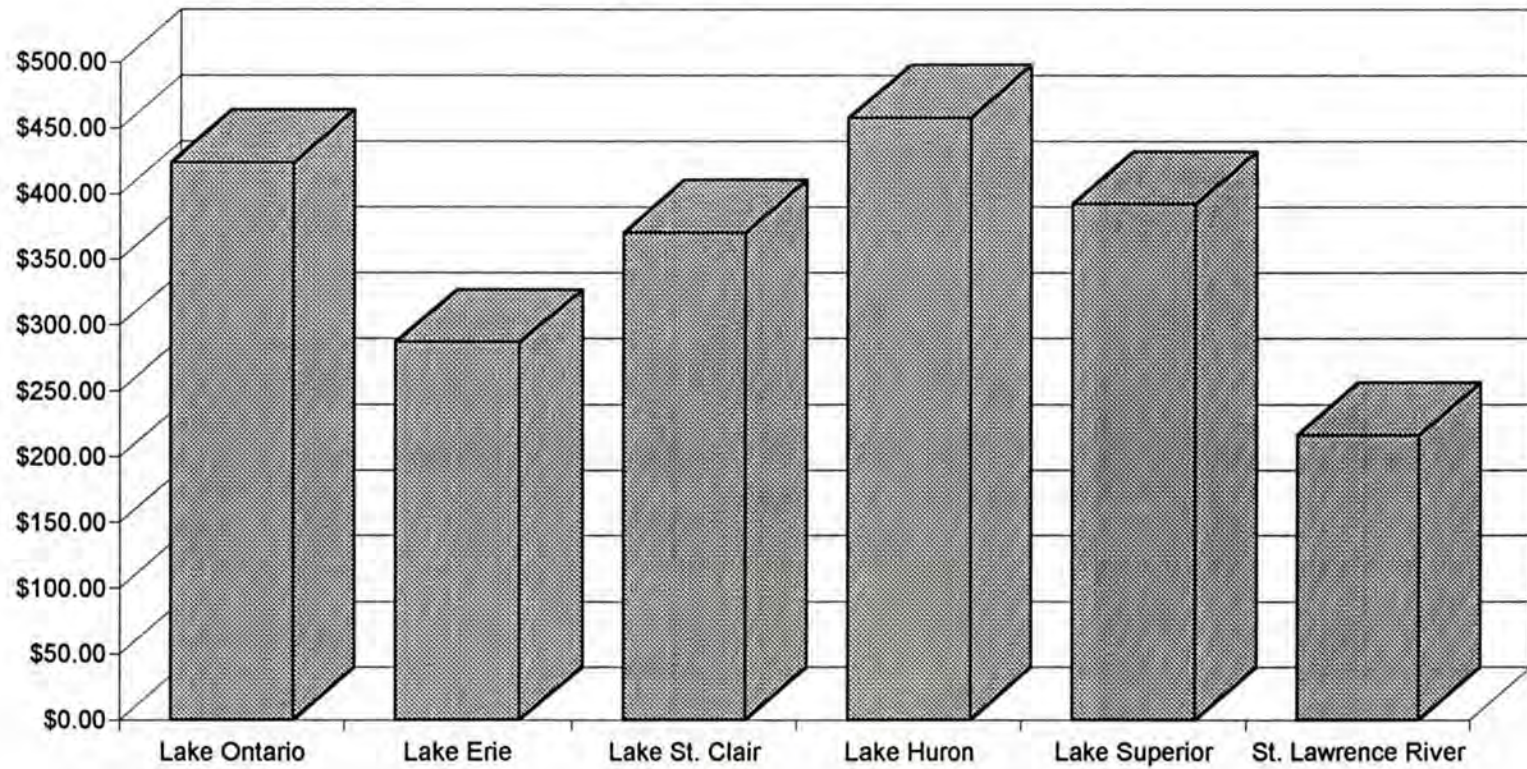


TABLE 12

DIRECT EXPENDITURES ALLOCATED FOR FISHING IN THE GREAT LAKES FISHERY
ONTARIO NONRESIDENT ANGLERS

Expenditure Category	Lake Ontario	Lake Erie	Lake St. Clair	Lake Huron	Lake Superior	St. Lawrence River	Great Lakes System	Amount Spent in Ontario	Percent on Great Lakes
Package Deals	2,890,138	1,341,099	369,925	3,246,405	2,717,035	834,523	11,399,125	13,208,975	86.3 %
Accommodation	2,936,427	736,147	397,075	3,007,387	714,492	921,502	8,713,030	9,648,618	90.3 %
Campsite Fees	645,026	239,776	138,328	743,463	162,463	103,671	2,032,727	2,336,574	87.0 %
Food	3,703,520	1,384,600	639,028	4,892,342	1,202,349	656,917	12,478,756	13,676,274	91.2 %
Travel Costs	2,598,277	739,639	447,002	2,303,190	999,565	305,711	7,393,384	8,266,149	89.4 %
Household Boat Costs	1,697,134	1,142,836	813,163	1,646,495	203,850	301,850	5,805,328	6,260,214	92.7 %
Boat Rentals	600,773	292,579	557,272	372,885	122,683	245,770	2,191,962	2,308,957	94.9 %
Fishing Supplies	634,501	366,817	173,410	565,375	222,713	86,669	2,049,485	2,288,087	89.6 %
Bait Fish	394,309	280,721	171,273	352,961	117,891	79,293	1,396,448	1,555,669	89.8 %
Guides	487,019	51,783	44,550	179,533	41,440	55,812	860,137	887,949	96.9 %
Licence Fees	643,637	524,536	359,737	833,319	309,082	216,724	2,887,035	3,168,999	91.1 %
Other Costs	89,688	36,854	45,854	498,322	66,807	20,224	757,749	811,430	93.4 %
Total Expenditures	17,320,449	7,137,387	4,156,617	18,641,677	6,880,370	3,828,666	57,965,166	64,417,895	90.0 %
Average expenditure per angler	\$532.61	\$269.95	\$288.71	\$545.40	\$492.09	\$432.23	\$468.65	\$520.82	

FIGURE 14

PROPORTION OF EXPENDITURES ATTRIBUTABLE TO
RECREATIONAL FISHING IN THE GREAT LAKES AREAS
BY NONRESIDENT ANGLERS IN 1990

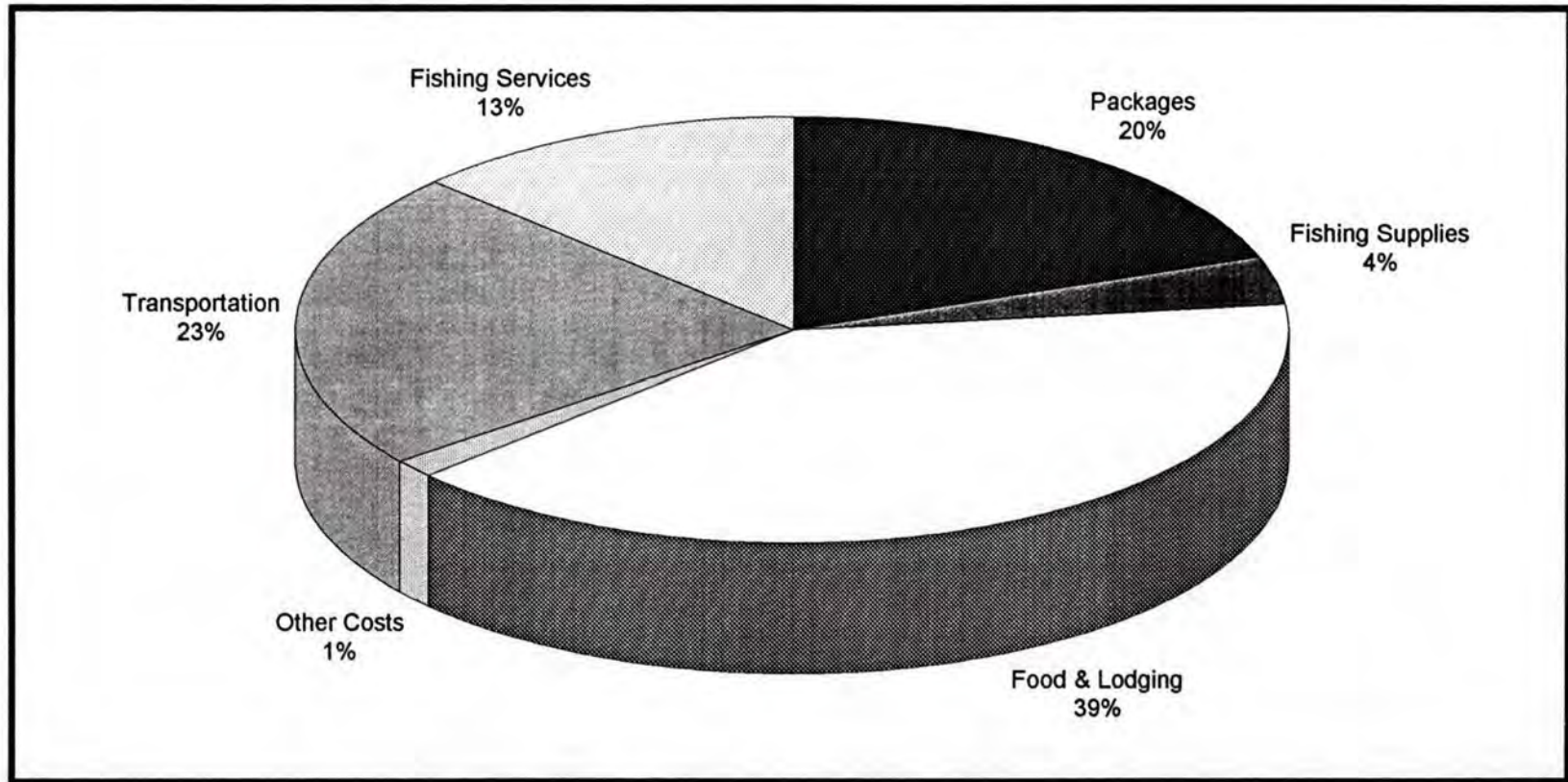


FIGURE 15

AVERAGE AMOUNT SPENT BY NONRESIDENT ANGLERS
IN THE GREAT LAKES AREAS IN 1990

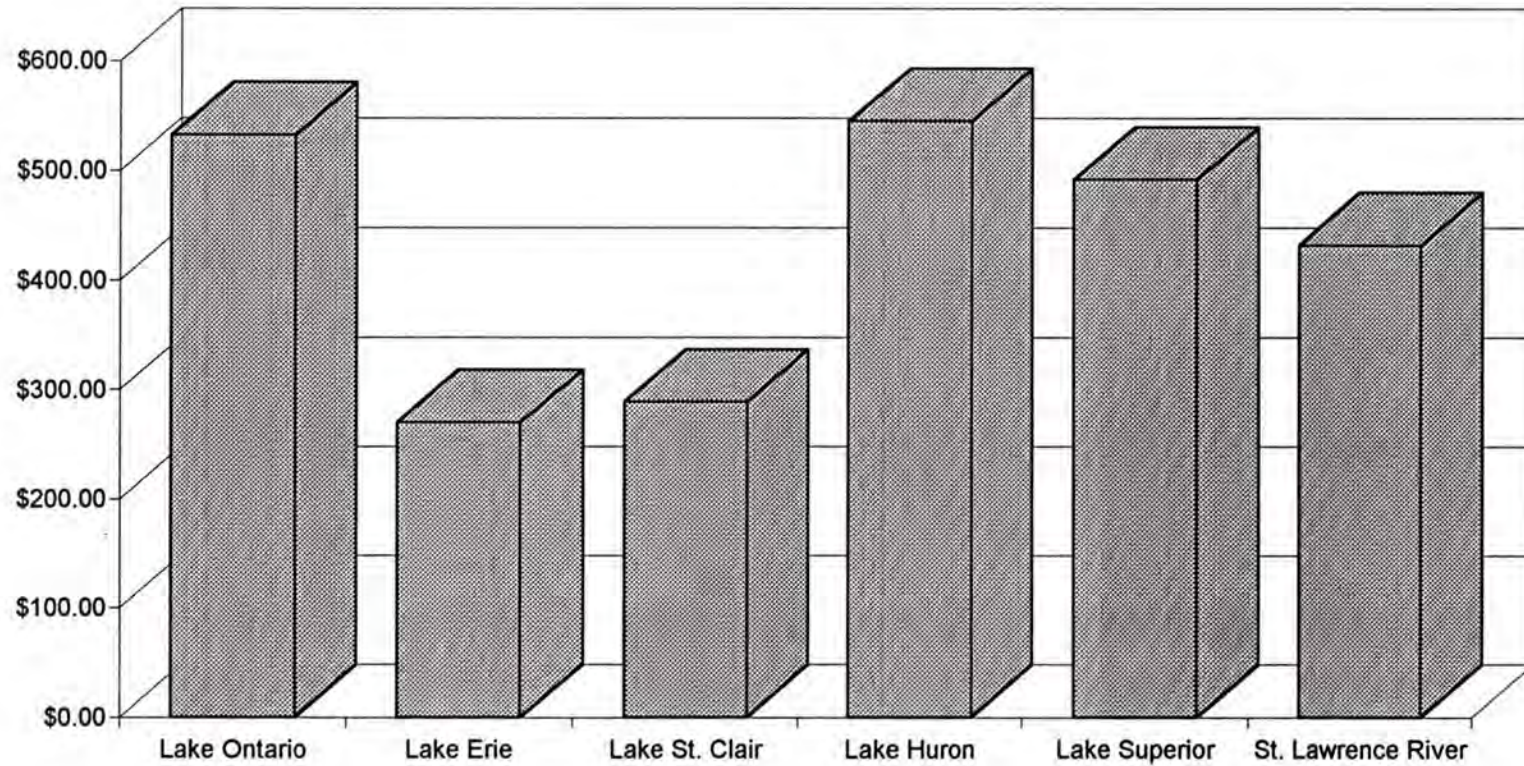


TABLE 13

DIRECT EXPENDITURES ALLOCATED FOR FISHING IN THE GREAT LAKES FISHERY
ALL ANGLERS

Expenditure Category	Lake Ontario	Lake Erie	Lake St. Clair	Lake Huron	Lake Superior	St. Lawrence River	Great Lakes System	Amount Spent in Ontario	Percent on Great Lakes
Package Deals	10,186,482	3,636,686	709,066	14,698,468	3,234,275	1,078,264	33,543,241	48,230,442	69.5 %
Accommodation	8,941,664	2,773,338	1,431,363	15,318,083	1,100,665	1,157,436	30,722,549	43,865,105	70.0 %
Campsite Fees	3,654,925	2,151,906	367,639	10,669,930	515,253	233,039	17,592,692	24,560,037	71.6 %
Food	32,175,872	10,590,730	3,338,973	48,425,778	6,558,763	1,699,438	102,789,554	161,897,673	63.5 %
Travel Costs	26,323,342	8,556,707	3,470,816	39,299,646	5,471,449	1,137,602	84,259,562	131,310,824	64.2 %
Household Boat Costs	27,306,086	12,344,951	3,886,214	30,906,386	2,362,559	1,940,916	78,747,112	102,036,709	77.2 %
Boat Rentals	2,694,027	908,159	869,314	4,379,820	421,088	281,398	9,553,806	14,467,872	66.0 %
Fishing Supplies	11,097,793	4,601,866	1,351,790	12,489,530	1,428,663	855,025	31,824,667	48,848,889	65.1 %
Bait Fish	3,361,078	1,888,452	585,130	5,038,264	574,606	302,158	11,749,688	18,196,871	64.6 %
Guides	697,118	98,931	49,954	315,837	59,080	59,638	1,280,558	1,605,805	79.7 %
Licence Fees	2,041,414	1,472,725	603,931	3,452,449	616,331	377,757	8,564,607	11,518,132	74.4 %
Other Costs	654,313	444,566	97,537	1,383,275	157,097	43,509	2,780,297	4,139,045	67.2 %
Total Expenditures	129,134,114	49,469,017	16,761,727	186,377,466	22,499,829	9,166,180	413,408,333	610,677,404	67.7 %
Average expenditure per angler	\$435.83	\$284.44	\$346.15	\$465.33	\$418.16	\$273.60	\$496.95	\$734.08	

FIGURE 16

PROPORTION OF EXPENDITURES ATTRIBUTABLE TO
RECREATIONAL FISHING IN THE GREAT LAKES AREAS
BY ALL ANGLERS IN 1990

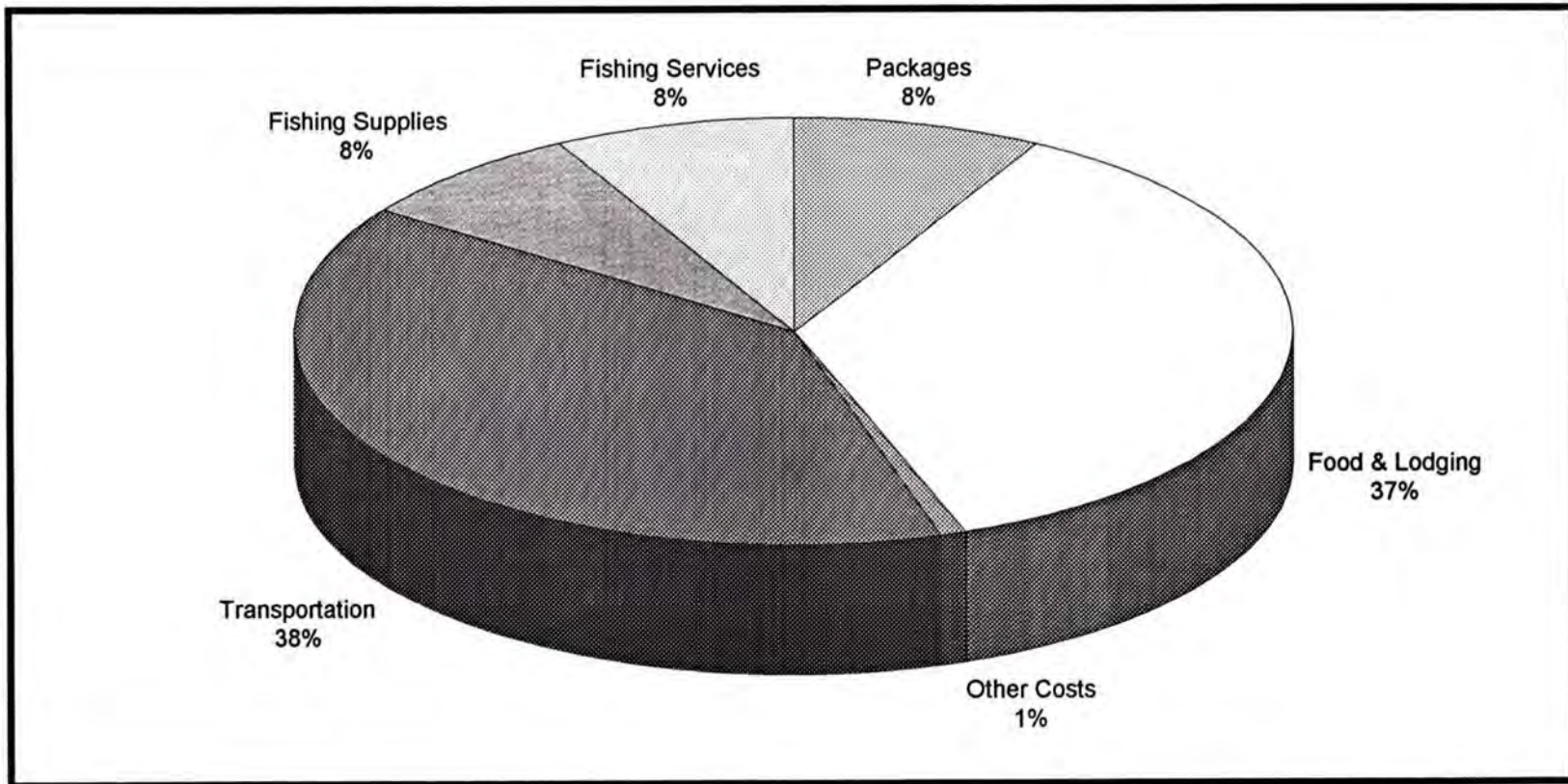


FIGURE 17

AVERAGE AMOUNT SPENT BY ALL ANGLERS
IN THE GREAT LAKES AREAS IN 1990

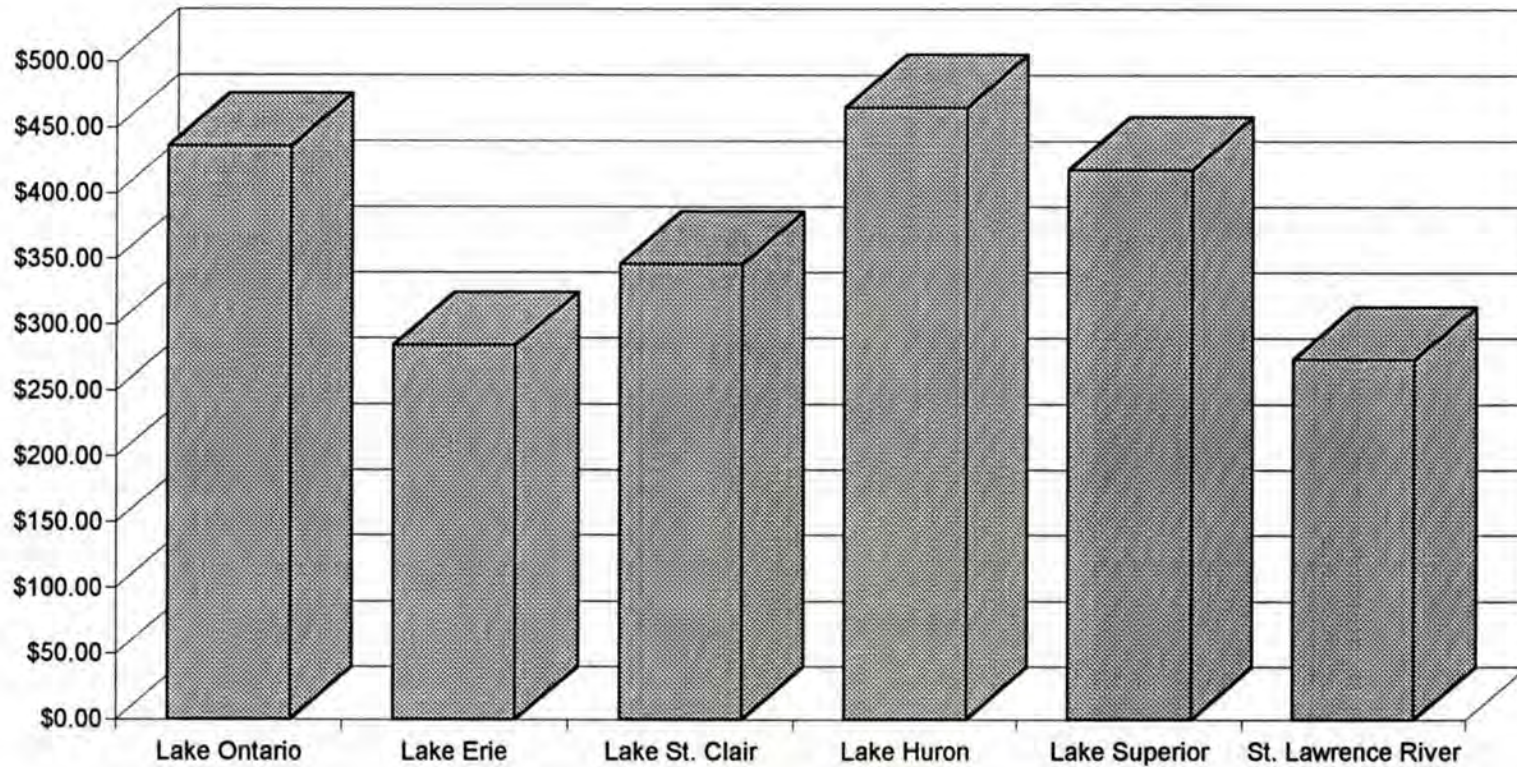


TABLE 14

TOTAL ADDITIONAL AMOUNT OF MONEY ANGLERS WERE WILLING TO PAY*
TO FISH THE SAME NUMBER OF DAYS ON THE GREAT LAKES
ALL ANGLERS

Angler Category	Lake Ontario	Lake Erie	Lake St. Clair	Lake Huron	Lake Superior	St. Lawrence River	Great Lakes System
Resident							
Total amount	54,243,060	17,984,599	3,642,513	58,874,931	6,010,655	4,392,441	145,148,199
Average per year	\$205.64	\$121.95	\$107.05	\$160.71	\$150.93	\$178.24	\$204.95
Average per day fished	\$15.97	\$12.01	\$8.70	\$12.86	\$17.07	\$17.55	\$13.83
Median amount per year	\$30.00	\$20.00	\$22.00	\$40.00	\$30.00	\$40.00	\$40.00
Nonresident							
Total amount	3,897,452	3,844,065	2,594,029	3,603,823	1,224,444	1,015,286	16,179,099
Average per year	\$119.85	\$145.39	\$180.18	\$105.44	\$87.57	\$114.62	\$130.62
Average per day fished	\$15.05	\$13.26	\$15.35	\$11.69	\$13.34	\$15.34	\$13.66
Median amount per year	\$50.00	\$30.00	\$40.00	\$30.00	\$10.00	\$40.00	\$40.00
All Anglers							
Total amount	58,140,512	21,828,663	6,236,542	62,478,753	7,235,099	5,407,727	161,327,296
Average per year	\$196.22	\$125.51	\$128.79	\$155.99	\$134.46	\$161.42	\$193.93
Average per day fished	\$15.90	\$12.22	\$10.61	\$12.78	\$16.30	\$17.09	\$13.81
Median amount per year	\$40.00	\$20.00	\$25.00	\$40.00	\$30.00	\$40.00	\$40.00

* based on enjoyment of the same experience, but with increased costs for services

TABLE 15
SOCIO-ECONOMIC PROFILE OF ANGLERS IN THE GREAT LAKES FISHERY
ALL ANGLERS - PART 1

Characteristic	Resident		Nonresident		Great Lakes System	
	Number	Percentage	Number	Percentage	Number	Percentage
Age Groups						
<20	24,588	3.5 %	1,750	1.4 %	26,337	3.2 %
20-24	57,328	8.1 %	5,552	4.5 %	62,879	7.6 %
25-34	229,409	32.4 %	21,534	17.4 %	250,943	30.2 %
35-44	193,067	27.3 %	33,527	27.1 %	226,593	27.2 %
45-54	115,081	16.2 %	28,050	22.7 %	143,131	17.2 %
55-64	50,937	7.2 %	19,081	15.4 %	70,018	8.4 %
65 +	31,118	4.4 %	13,351	10.8 %	44,470	5.3 %
Unknown	6,685	0.9 %	841	0.7 %	7,526	0.9 %
Residence Area						
Urban	468,863	66.2 %	69,826	56.5 %	538,689	64.8 %
Rural	216,264	30.5 %	50,962	41.2 %	267,225	32.1 %
Unknown	23,085	3.3 %	2,898	2.3 %	25,983	3.1 %
Education						
No formal education	1,891	0.3 %	114	0.1 %	2,005	0.2 %
Elementary	48,488	6.8 %	3,239	2.6 %	51,727	6.2 %
Secondary	331,500	46.8 %	43,507	35.2 %	375,007	45.1 %
Trade-vocational	68,590	9.7 %	14,188	11.5 %	82,778	10.0 %
College	125,495	17.7 %	25,713	20.8 %	151,208	18.2 %
University	102,361	14.5 %	19,277	15.6 %	121,638	14.6 %
Post-graduate	26,200	3.7 %	15,241	12.3 %	41,441	5.0 %
Unknown	3,687	0.5 %	2,407	1.9 %	6,094	0.7 %
Total	708,212	100%	123,686	100%	831,898	100%

TABLE 16
 SOCIO-ECONOMIC PROFILE OF ANGLERS IN THE GREAT LAKES FISHERY
 ALL ANGLERS - PART 2

Characteristic	Resident		Nonresident		Great Lakes System	
	Number	Percentage	Number	Percentage	Number	Percentage
Employment Status						
Full-time employment	498,477	70.4 %	86,439	69.9 %	584,916	70.3 %
Par-time employment	75,130	10.6 %	6,529	5.3 %	81,659	9.8 %
Retired	43,187	6.1 %	20,418	16.5 %	63,604	7.6 %
Homemaker	37,346	5.3 %	3,728	3.0 %	41,074	4.9 %
Student	31,020	4.4 %	3,464	2.8 %	34,484	4.1 %
Unemployed	18,355	2.6 %	455	0.4 %	18,810	2.3 %
Unknown	4,697	0.7 %	2,655	2.1 %	7,351	0.9 %
Personal Income						
None	9,727	1.4 %	3,925	3.2 %	13,652	1.6 %
<5,000	36,594	5.2 %	3,837	3.1 %	40,431	4.9 %
5,000-9,999	46,605	6.6 %	3,879	3.1 %	50,484	6.1 %
10,000-19,999	86,775	12.3 %	13,899	11.2 %	100,674	12.1 %
20,000-29,999	132,627	18.7 %	19,065	15.4 %	151,691	18.2 %
30,000-39,999	150,417	21.2 %	26,190	21.2 %	176,607	21.2 %
40,000-49,999	98,761	13.9 %	15,723	12.7 %	114,485	13.8 %
50,000-59,999	62,396	8.8 %	11,591	9.4 %	73,987	8.9 %
60,000 or more	54,107	7.6 %	18,718	15.1 %	72,825	8.8 %
Unknown	30,203	4.3 %	6,859	5.5 %	37,062	4.5 %
Household Income						
None	7,051	1.0 %	1,067	0.9 %	8,119	1.0 %
<5,000	6,013	0.8 %	940	0.8 %	6,954	0.8 %
5,000-9,999	6,632	0.9 %	1,278	1.0 %	7,910	1.0 %
10,000-19,999	25,062	3.5 %	6,418	5.2 %	31,480	3.8 %
20,000-29,999	63,653	9.0 %	9,473	7.7 %	73,126	8.8 %
30,000-39,999	113,128	16.0 %	17,147	13.9 %	130,275	15.7 %
40,000-49,999	110,107	15.5 %	19,739	16.0 %	129,845	15.6 %
50,000-59,999	98,725	13.9 %	17,499	14.1 %	116,224	14.0 %
60,000-69,999	78,134	11.0 %	9,733	7.9 %	87,867	10.6 %
70,000-79,999	53,492	7.6 %	9,505	7.7 %	62,997	7.6 %
80,000-89,999	40,447	5.7 %	6,554	5.3 %	47,001	5.6 %
90,000 or more	58,959	8.3 %	14,657	11.9 %	73,616	8.8 %
Unknown	46,808	6.6 %	9,676	7.8 %	56,484	6.8 %
Total	708,212	100%	123,686	100%	831,898	100%

TABLE 17
 RATING OF ATTRIBUTES SOUGHT BY ANGLERS ON THE GREAT LAKES
 WHEN SELECTING THE PLACES WHERE THEY FISH
 ALL ANGLERS

Rated on a scale of 1(not important) to 5 (very important)

Attribute	Resident Mean Score	Nonresident Mean Score	All Anglers Mean Score
Lack of pollutants in fish	4.4	4.3	4.4
Water quality	4.2	4.4	4.2
Natural beauty of the area	3.6	3.9	3.7
Lack of angler crowding	3.6	3.6	3.6
Presence of favourite species	3.4	4.0	3.5
Presence of wildlife	3.1	3.1	3.1
Size of fish caught	3.0	3.7	3.1
Variety of species available	3.0	3.2	3.0
Places to fish from shore	3.1	1.7	2.9
Catch rate of all fish	2.8	3.5	2.9
Absence of other recreationists	2.8	2.8	2.8
Catch rate of fish you can keep	2.7	3.1	2.8
Distance to area or travel time	2.9	2.5	2.8
Information about the area	2.8	2.8	2.8
Boat launching facilities or marina	2.6	3.0	2.7
Parking availability	2.7	2.3	2.6
Chance to catch a trophy fish	2.2	3.2	2.4
Nearness to food and lodging	2.1	2.2	2.1
Nearness to bait and tackle shops	2.0	2.2	2.1
Quality of tourist facilities	1.8	2.1	1.9
Other recreational facilities available	1.6	1.5	1.6

TABLE 18
 RATING OF BENEFITS SOUGHT BY ANGLERS ON THE GREAT LAKES
 CONCERNING WHY THEY FISH WHERE THEY DO
 ALL ANGLERS

Rated on a scale of 1(not important) to 5 (very important)

Attribute	Resident Mean Score	Nonresident Mean Score	All Anglers Mean Score
For relaxation	4.4	4.5	4.4
To enjoy nature	4.3	4.2	4.3
To get away	4.0	4.1	4.0
For challenge and excitement	3.6	3.7	3.6
Family togetherness	3.4	3.3	3.4
For companionship	3.1	3.6	3.2
To catch a fish to eat	2.8	3.1	2.9
To improve fishing skills	2.4	2.4	2.4
For a sense of achievement	2.0	2.3	2.0
To catch a trophy fish	1.4	2.4	1.6

TABLE 19
 LEVEL OF AGREEMENT WITH SPECIFIC FISHERIES MANAGEMENT OPTIONS
 ALL ANGLERS

Rated on a scale of 1 (strongly disagree) to 5 (strongly agree)

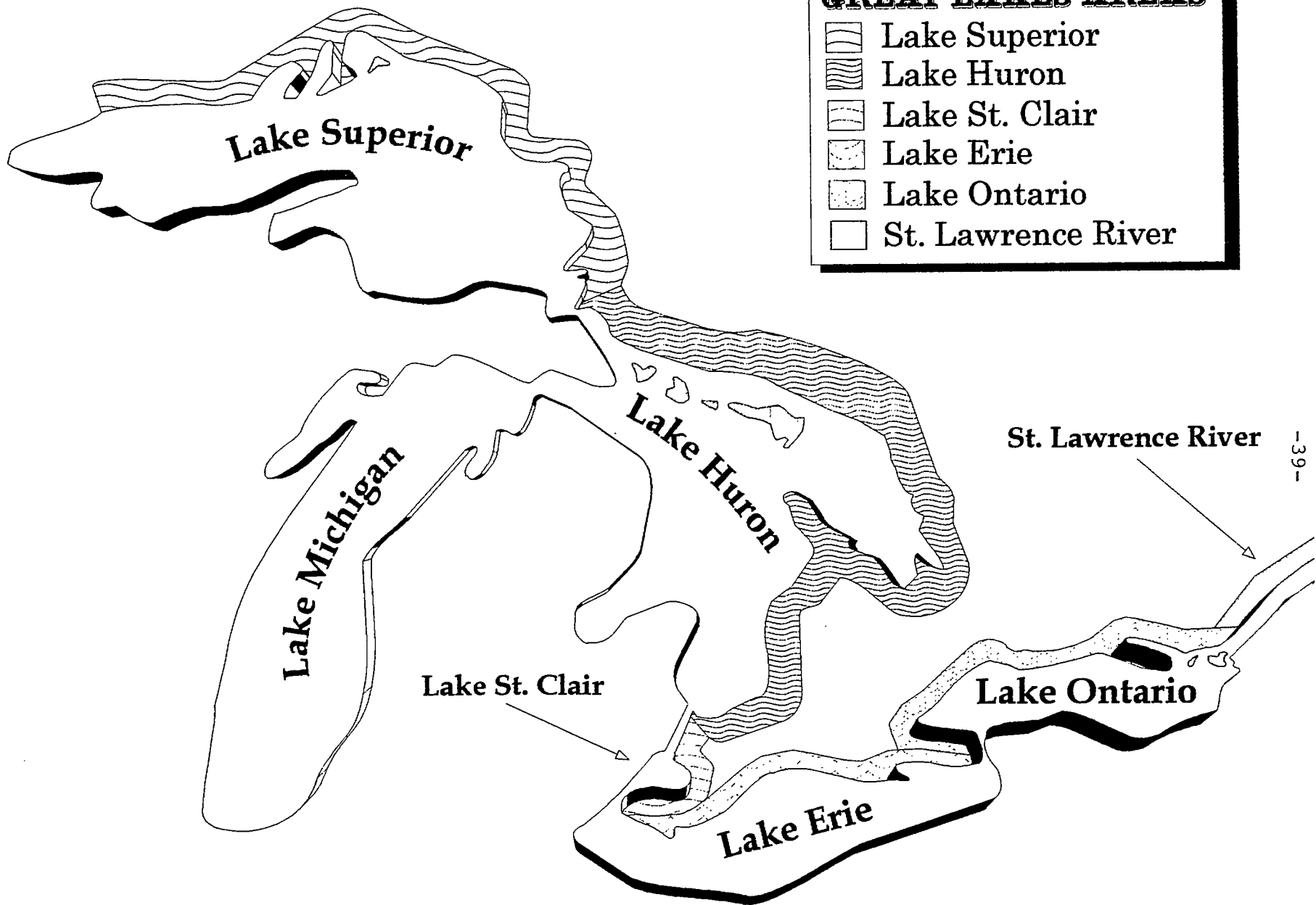
Management Option	Resident Mean Score	Nonresident Mean Score	All Anglers Mean Score
Stocking hatchery fish	4.3	4.1	4.3
Minimum size limits	3.7	4.1	3.8
Close areas (sanctuaries)	3.3	2.7	3.2
Lower bag limits	2.9	2.6	2.9
Trophy size limits	2.8	2.8	2.8
Slot size limits	2.7	2.9	2.7
Barbless hooks	2.7	1.9	2.6
Tags for specific species	2.6	2.4	2.6
Catch and release only	1.8	1.9	1.8
No baitfish fishing	1.8	1.7	1.8
Shorten seasons	1.8	1.7	1.8
Limit angler numbers	1.3	1.2	1.3

TABLE 20

ASSESSMENT OF PERSONAL ANGLING SKILLS
GIVEN BY ANGLERS WHO FISHED ON THE GREAT LAKES
ALL ANGLERS

Level of Angling Skill	Resident %	Nonresident %	All Anglers %
An expert	2.4 %	5.8 %	2.9 %
Experienced	24.7 %	46.7 %	28.0 %
Average	55.3 %	39.3 %	52.9 %
A beginner	17.5 %	8.4 %	16.2 %

Appendix 1
GREAT LAKES AREAS MAP



- GREAT LAKES AREAS**
- Lake Superior
 - Lake Huron
 - Lake St. Clair
 - Lake Erie
 - Lake Ontario
 - St. Lawrence River

St. Lawrence River

Appendix 2
RESIDENT QUESTIONNAIRE

1990 SURVEY OF RECREATIONAL FISHING IN CANADA

RESIDENTS OF ONTARIO

(Le présent questionnaire est également disponible en français)
(A copy of this questionnaire is also available in French)

INSTRUCTIONS TO RESPONDENTS

In order to complete this document as easily as possible, the following instructions will be of assistance:

- the questions are to be answered by the person to whom the survey was addressed.
- answer all questions as best you can. If you do not have any records, please provide your best estimate for questions on activity, catch, expenditures, etc.
- the questions are designed so that you choose an answer by placing an "X" in a circle next to the appropriate answer (e.g. Yes No) or by printing your answer in a space provided. Please do not write out the answer (e.g. write " 5 " instead of " five ").
- household members refer only to related individuals living in your principal residence.
- for expenditure questions, please include only those expenses incurred by you and other anglers who were household members.
- we would appreciate it if you would answer all questions on this questionnaire so that we have as complete a picture as possible of angling activities, opinions, expenditures, etc. in 1990.

THANK YOU IN ADVANCE FOR YOUR COOPERATION AND ASSISTANCE.

CONFIDENTIAL WHEN COMPLETED

IF YOU HAVE ANY QUESTIONS RELATING TO THIS QUESTIONNAIRE, PLEASE CALL THE SURVEYS UNIT, DEPARTMENT OF FISHERIES AND OCEANS, OTTAWA BETWEEN 9:00 A.M. AND 5:00 P.M. EASTERN STANDARD TIME AT:

1 - 800 - 465-7751 (TOLL FREE)

NOTE: IF YOU HAVE ANY QUESTIONS OR REQUIRE INFORMATION ABOUT FISHING IN ONTARIO, YOU MAY CALL THE ABOVE NUMBER AND YOUR REQUEST WILL BE FORWARDED TO THE PROPER MANAGEMENT AGENCY.

YOUR PERSONAL RECREATIONAL FISHING ACTIVITIES

1a) Did you personally fish for recreation in Ontario in 1990?

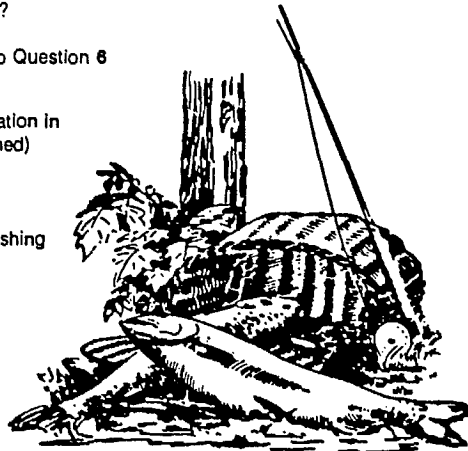
Yes ---> please continue No ---> go to Question 6

b) How many days in total did you spend fishing for recreation in Ontario in 1990? (A "day" is all or any part of a day fished)

_____ days fished

c) Of the days spent fishing, how many days were spent fishing through the ice in Ontario in 1990?

None OR _____ days fished



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2a) For each water body on which you fished in Ontario in 1990, please provide the location, the number of trips, the days fished and the number of fish you caught and kept. Please indicate for your trips, the number of trips for which fishing was a main reason, a secondary reason or decided upon after arrival. If you used a vehicle to travel to the places you fished, please provide the one-way distance from your residence and the approximate time it took to reach your destination. If you fished in a provincial park, please name the park instead of the nearest town/village. Even if you did not catch any fish, the information on where you fished and how often is important.

If the space provided is not sufficient, please provide any additional information on a separate sheet of paper.

Please include only your personal fishing activities.

Name of lake, river or stream _____	Number of days fished _____
Nearest town/village _____	Number of trips made _____
Number of trips fishing was: the main reason for the trip _____ ; a secondary reason for the trip _____ ; decided upon after arrival _____	

IF YOU TRAVELLED TO THE SITE BY VEHICLE:			
One-way distance from your residence: _____ mi. or _____ km		Approximate travel time: _____ hrs	
	Number of fish		Number of fish
	<u>Caught</u> <u>Kept</u>		<u>Caught</u> <u>Kept</u>
Walleye (pickereel)	_____	Smallmouth bass	_____
Northern pike	_____	Largemouth bass	_____
Perch	_____	Whitefish	_____
Brook trout	_____	Chinook salmon	_____
Lake trout	_____	Coho salmon	_____
Rainbow trout	_____	Smelt	_____
Brown trout	_____	Panfish	_____
Muskellunge	_____	Other fish	_____

Name of lake, river or stream _____	Number of days fished _____
Nearest town/village _____	Number of trips made _____
Number of trips fishing was: the main reason for the trip _____ ; a secondary reason for the trip _____ ; decided upon after arrival _____	

IF YOU TRAVELLED TO THE SITE BY VEHICLE:			
One-way distance from your residence: _____ mi. or _____ km		Approximate travel time: _____ hrs	
	Number of fish		Number of fish
	<u>Caught</u> <u>Kept</u>		<u>Caught</u> <u>Kept</u>
Walleye (pickereel)	_____	Smallmouth bass	_____
Northern pike	_____	Largemouth bass	_____
Perch	_____	Whitefish	_____
Brook trout	_____	Chinook salmon	_____
Lake trout	_____	Coho salmon	_____
Rainbow trout	_____	Smelt	_____
Brown trout	_____	Panfish	_____
Muskellunge	_____	Other fish	_____

Name of lake, river or stream _____	Number of days fished _____
Nearest town/village _____	Number of trips made _____
Number of trips fishing was: the main reason for the trip _____ ; a secondary reason for the trip _____ ; decided upon after arrival _____	

IF YOU TRAVELLED TO THE SITE BY VEHICLE:			
One-way distance from your residence: _____ mi. or _____ km		Approximate travel time: _____ hrs	
	Number of fish		Number of fish
	<u>Caught</u> <u>Kept</u>		<u>Caught</u> <u>Kept</u>
Walleye (pickereel)	_____	Smallmouth bass	_____
Northern pike	_____	Largemouth bass	_____
Perch	_____	Whitefish	_____
Brook trout	_____	Chinook salmon	_____
Lake trout	_____	Coho salmon	_____
Rainbow trout	_____	Smelt	_____
Brown trout	_____	Panfish	_____
Muskellunge	_____	Other fish	_____

2a) continued

Name of lake, river or stream _____ Number of days fished _____
 Nearest town/village _____ Number of trips made _____
 Number of trips fishing was: the main reason for the trip _____ ; a secondary reason for the trip _____ ;
 decided upon after arrival _____

IF YOU TRAVELLED TO THE SITE BY VEHICLE:
 One-way distance from your residence: _____ mi. or _____ km Approximate travel time: _____ hrs

	Number of fish			Number of fish	
	Caught	Kept		Caught	Kept
Walleye (pickerel)	_____	_____	Smallmouth bass	_____	_____
Northern pike	_____	_____	Largemouth bass	_____	_____
Perch	_____	_____	Whitefish	_____	_____
Brook trout	_____	_____	Chinook salmon	_____	_____
Lake trout	_____	_____	Coho salmon	_____	_____
Rainbow trout	_____	_____	Smelt	_____	_____
Brown trout	_____	_____	Panfish	_____	_____
Muskellunge	_____	_____	Other fish	_____	_____

Name of lake, river or stream _____ Number of days fished _____
 Nearest town/village _____ Number of trips made _____
 Number of trips fishing was: the main reason for the trip _____ ; a secondary reason for the trip _____ ;
 decided upon after arrival _____

IF YOU TRAVELLED TO THE SITE BY VEHICLE:
 One-way distance from your residence: _____ mi. or _____ km Approximate travel time: _____ hrs

	Number of fish			Number of fish	
	Caught	Kept		Caught	Kept
Walleye (pickerel)	_____	_____	Smallmouth bass	_____	_____
Northern pike	_____	_____	Largemouth bass	_____	_____
Perch	_____	_____	Whitefish	_____	_____
Brook trout	_____	_____	Chinook salmon	_____	_____
Lake trout	_____	_____	Coho salmon	_____	_____
Rainbow trout	_____	_____	Smelt	_____	_____
Brown trout	_____	_____	Panfish	_____	_____
Muskellunge	_____	_____	Other fish	_____	_____

Name of lake, river or stream _____ Number of days fished _____
 Nearest town/village _____ Number of trips made _____
 Number of trips fishing was: the main reason for the trip _____ ; a secondary reason for the trip _____ ;
 decided upon after arrival _____

IF YOU TRAVELLED TO THE SITE BY VEHICLE:
 One-way distance from your residence: _____ mi. or _____ km Approximate travel time: _____ hrs

	Number of fish			Number of fish	
	Caught	Kept		Caught	Kept
Walleye (pickerel)	_____	_____	Smallmouth bass	_____	_____
Northern pike	_____	_____	Largemouth bass	_____	_____
Perch	_____	_____	Whitefish	_____	_____
Brook trout	_____	_____	Chinook salmon	_____	_____
Lake trout	_____	_____	Coho salmon	_____	_____
Rainbow trout	_____	_____	Smelt	_____	_____
Brown trout	_____	_____	Panfish	_____	_____
Muskellunge	_____	_____	Other fish	_____	_____

2b) What do you estimate was the total weight of the fish you kept in Ontario in 1990 and what percentage of it was eaten by you or members of your household? Please include the weight of any fish you may have eaten as shore lunches.

_____ pounds OR _____ kilograms percentage eaten _____ %

c) What percentage of the fish you caught were stocked (hatchery) fish? _____ % OR Don't Know

3a) Did you practise catch and release fishing in Ontario in 1990?

Yes ₁ ----> please continue No ₂ ----> go to Question 4

b) If yes, was it because it was: mandatory ₁ voluntary ₂ both ₃

<p>4. How would you rate your recreational fishing experience in Ontario in 1990?</p> <p>Excellent <input type="radio"/> ₁ Very Good <input type="radio"/> ₂ Good <input type="radio"/> ₃ Fair <input type="radio"/> ₄ Poor <input type="radio"/> ₅</p> <p>5a) Did you fish for recreation in Ontario in 1989?</p> <p>Yes <input type="radio"/> ₁ ----> please continue No <input type="radio"/> ₂ ----> go to Question 6</p> <p>b) Compared to 1989, did the number of days you fished in 1990:</p> <p>Remain the same <input type="radio"/> ₁ ---> go to Question 6 Increase <input type="radio"/> ₂ ---> go to Question 6 Decrease <input type="radio"/> ₃ ---> please continue</p> <p>c) If your fishing activity decreased in 1990, was it because of:</p> <p>Poor fishing <input type="radio"/> ₁ The fish are unsafe to eat <input type="radio"/> ₂ Overcrowded fishing sites <input type="radio"/> ₃ The type of fish desired was not available <input type="radio"/> ₄ The length of the fishing season <input type="radio"/> ₅ Size regulations <input type="radio"/> ₆ Financial reasons <input type="radio"/> ₇ Family responsibilities <input type="radio"/> ₈ Health problems <input type="radio"/> ₉ Competing or conflicting interests <input type="radio"/> ₁₀ Other <input type="radio"/> ₁₁</p>	<p>6. How many years have you fished for recreation in Ontario? _____ years</p> <p>7. Do you intend to fish for recreation in Ontario in 1991? Yes <input type="radio"/> ₁ No <input type="radio"/> ₂</p> <p>8a) Did you fish for recreation <u>outside</u> Ontario in 1990? Yes <input type="radio"/> ₁ --> please continue No <input type="radio"/> ₂ --> go to Question 9</p> <p>b) What was your main reason for fishing outside Ontario?</p> <p>Fished for species not <input type="radio"/> ₁ available in Ontario</p> <p>Fished while on vacation or <input type="radio"/> ₂ at the cottage</p> <p>Other reasons (please specify)..... <input type="radio"/> ₃ _____ _____</p> <p>9. As an angler, do you consider yourself to be:</p> <p>an expert <input type="radio"/> ₁ experienced <input type="radio"/> ₂ average <input type="radio"/> ₃ a beginner..... <input type="radio"/> ₄</p>
---	---

10. A major cause of the reduction in the numbers of fish in Ontario is overharvesting. Please rate your level of agreement with the following management options from 0 (strongly disagree) to 5 (strongly agree).

Option	Rating	Option	Rating
Close areas (sanctuaries)	_____	Trophy size limits	_____
Shorten seasons	_____	Stocking hatchery fish	_____
Lower bag limits	_____	Limit angler numbers	_____
Catch and release only	_____	No baitfish fishing	_____
Minimum size limits	_____	Barbless hooks	_____
Slot size limits	_____	Tags for specific species	_____

11. If you performed volunteer work in support of Ontario's recreational fishery (e.g. habitat clean-up, constructing fishways) in 1990, how much personal time did you give to these activities?

_____ days

12. Did you hunt for large game, small game or game birds in Ontario in 1990? Yes ₁ No ₂

13. Were you a member of an organized angling group or association in 1990? Yes ₁ No ₂
 (examples: a local fish and game club, the Canadian Wildlife Federation, the Ontario Federation of Anglers and Hunters (OFAH), etc.)

14a) Do you agree with holding fishing derbies and tournaments in Ontario?

Yes ₁ ----> please continue No ₂ ----> go to Question 15

b) Did you participate in any fishing derbies or tournaments in Ontario in 1990? Yes ₁ No ₂

15a) There are a number of factors which play a role in determining the choice of fishing destinations. Some factors are more important than others depending on where an angler lives, the time available for fishing, the needs of the individual or family, etc. We would like you to rate each of the following twenty-two factors based on their importance to you in selecting where you fish in Ontario:

Please rate each factor on a scale of 0 (not important) to 5 (extremely important).

Factor	Rating	Factor	Rating
Water quality	_____	Parking availability	_____
Natural beauty of the area	_____	Availability of handicapped facilities	_____
Presence of wildlife in the area	_____	Lack of pollutants in fish	_____
Places to fish from shore	_____	Size of fish	_____
Lack of angler crowding	_____	Chance to catch a trophy fish	_____
Absence of other recreationists	_____	Catch rate of all fish	_____
Nearness to food and lodging	_____	Catch rate of fish you can keep	_____
Quality of tourist facilities	_____	Presence of favourite species	_____
Boat launching/marina facilities	_____	Variety of species available	_____
Access to other recreational facilities	_____	Distance/travel time	_____
Nearness to bait and tackle shops	_____	Information about the area	_____

b) Just as there are factors which play a role in determining where to fish, anglers are motivated to fish for a number of reasons. We have listed ten possible reasons below. Would you please rate each of these reasons as they relate to why you fish where you do in Ontario:

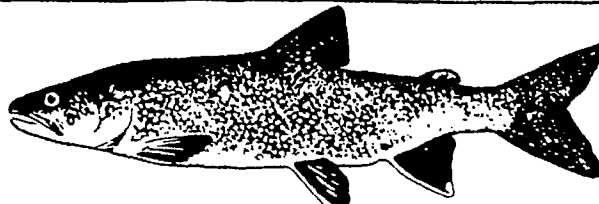
Please rate each reason on a scale of 0 (not important) to 5 (extremely important).

Reason	Rating	Reason	Rating
To catch fish to eat	_____	To improve your fishing skills	_____
For relaxation	_____	To get away	_____
For companionship	_____	Family togetherness	_____
To enjoy nature	_____	To catch trophy fish	_____
Challenge and excitement	_____	For a sense of achievement	_____

c) How often did you use the following sources of information when selecting the places you fished in Ontario in 1990?

Please rate each information source on a scale of 1 (never), 2 (sometimes) 3 (often).

Information Source	Rating	Information Source	Rating
None <input type="radio"/> --> go to Question 16		Television or radio	_____
Travel agent/tour operator	_____	Friends/family/other anglers	_____
Magazines/newspapers	_____	Ministry of Natural Resources Office	_____
Bait and tackle shops	_____	Clubs/associations	_____
Outdoor/sports shows	_____	Other	_____
Video tapes	_____		



EXPENDITURES ON RECREATIONAL FISHING IN 1990

16a) Did you or any members of your household make any major purchases or investments in Ontario or outside Canada in 1990 related in whole or in part to recreational fishing? (e.g. boats, motors, 4X4's, cabins, camping gear, trailers, etc.)

Please Note: Purchases of fishing supplies (lures, line, tackle etc.) are covered in Question 20.

Yes ----> please continue No ----> go to Question 17

b) For each investment category, please indicate the amount of money spent in Ontario in 1990 by you and members of your household, the value of goods purchased outside Canada, and the value of goods purchased by mail-order from companies outside Canada. In addition, please estimate the percentage of the total amount you consider was directly attributable to recreational fishing.

Investment Category	Amount Spent On Purchases in the Province	Amount Spent On Goods Purchased outside Canada	Amount Spent On Goods Ordered by Mail From outside Canada	% of Total Attributable to Recreational Fishing
Fishing Equipment (rods, reels, fish finders, etc.)	\$ _____ .00	\$ _____ .00	\$ _____ .00	XXXXXXX
Boating Equipment (boats, motors, trailers, etc.)	\$ _____ .00	\$ _____ .00	\$ _____ .00	_____ %
Camping Equipment (tents, camper trailers, etc.)	\$ _____ .00	\$ _____ .00	\$ _____ .00	_____ %
Special Vehicles (4X4's, camper truck, ATV's, etc.)	\$ _____ .00	\$ _____ .00	XXXXXXXX	_____ %
Land-Buildings (cabins, cottages, land, etc.)	\$ _____ .00	XXXXXXXX	XXXXXXXX	_____ %
Other (special clothing, waders, ice-huts, etc.)	\$ _____ .00	\$ _____ .00	\$ _____ .00	_____ %

17. Including purchases made in 1990, please estimate the present total resale value of gear and equipment owned and used by you and members of your household for recreational fishing.

Equipment Owned	Present Resale Value	Equipment Owned	Present Resale Value
Fishing Equipment	\$ _____ .00	Camping Equipment	\$ _____ .00
Boating Equipment	\$ _____ .00	Other	\$ _____ .00

18. **PACKAGES PURCHASED IN 1990**

The following question refers only to packages purchased from a lodge or outfitter (or their agent) which include a complete range of services such as lodging, food, transportation, etc. Please include expenditures for self-organized trips using charter or rental aircraft, charterboats, or your own equipment, in Question 20.

a) Did you or any member of your household purchase any such packages to fish in Ontario in 1990?

Yes ----> please continue No ----> go to Question 19

b) For each type of package, please provide the information requested.

Package	Number of Trips	Total Number of Anglers from Your Household	Total Cost to You and Your Household
Lodge	_____	_____	\$ _____ .00
Outcamp	_____	_____	\$ _____ .00
Charter aircraft service	_____	_____	\$ _____ .00
Charterboat service	_____	_____	\$ _____ .00
Other (please specify)	_____	_____	\$ _____ .00

19a) Were you a non-paying guest at a fishing lodge, camp or outfitter in Ontario in 1990? (for example, were your costs covered by a company, a friend, etc.)

Yes ₁ ---> please continue No ₂ ---> go to Question 20

- b) How much do you estimate the cost would have been if you personally paid for the trip(s)? \$ _____ .00
20. EXCLUDING expenditures covered in Questions 16 and 18 please estimate the amount of money you and other members of your household spent on the following to fish for recreation in Ontario in 1990.

Expenditure Category	Amount
Accommodation (hotels, motels, etc.)	\$ _____ .00
Campsite fees (private, provincial, etc.)	\$ _____ .00
Food (groceries, restaurants meals, alcoholic beverages)	\$ _____ .00
Travel costs within Ontario for recreational fishing - vehicle expenses (including gas, repairs, rentals), train fares, air fares, etc.	\$ _____ .00
Household owned boat costs (gas, repairs, launch/ramp fees, moorage, insurance, etc.)	\$ _____ .00
Boat rentals, charterboat fares	\$ _____ .00
Fishing supplies (lures, line, tackle, etc.)	\$ _____ .00
Bait (worms, leaches, cray fish, baitfish, etc.)	\$ _____ .00
Guide services	\$ _____ .00
Fishing licence fees (permits, tags, etc.)	\$ _____ .00
Other (park fees, tolls, etc.)	\$ _____ .00

If you did not personally fish for recreation in 1990, please go to Question 22.

21a) Please consider the number of days you fished and what you paid to fish in Ontario during 1990, the amount of money you spent for similar recreational activities, and your income in 1990. Would you still have fished for recreation in Ontario had your out of pocket costs PER FISHING DAY been higher due to increased costs for gasoline, accommodations, supplies, etc?

Yes ₁ ----> please continue No ₂ ----> go to Question 22

- b) What is the maximum additional amount you would have paid PER FISHING DAY before deciding it was too expensive to fish the same number of days in Ontario in 1990?

Less than \$10.00 per day ₁ (please specify) \$ _____ .00

- | | | |
|--|--|--|
| \$10.00 per day <input type="radio"/> ₂ | \$50.00 per day <input type="radio"/> ₆ | \$90.00 per day <input type="radio"/> ₁₀ |
| \$20.00 per day <input type="radio"/> ₃ | \$60.00 per day <input type="radio"/> ₇ | \$100.00 per day <input type="radio"/> ₁₁ |
| \$30.00 per day <input type="radio"/> ₄ | \$70.00 per day <input type="radio"/> ₈ | More than \$100.00 per day <input type="radio"/> ₁₂ |
| \$40.00 per day <input type="radio"/> ₅ | \$80.00 per day <input type="radio"/> ₉ | (please specify) \$ _____ .00 |

BOAT OWNERSHIP AND RECREATIONAL ACTIVITIES

22a) How many boats are owned by your household that are used in WHOLE or in PART for recreational purposes?

_____ boats ---> please continue OR None ---> go to Question 23

- b) Starting with the LARGEST, please provide the following information for your boats:

Characteristic	BOAT 1	BOAT 2	BOAT 3	BOAT 4
Type of boat (canoe, rowboat, sailboat, inboard, outboard, inboard-outboard, etc.),	_____	_____	_____	_____
Length (In feet)	_____ ft	_____ ft	_____ ft	_____ ft
Horsepower (if applicable)	_____ hp	_____ hp	_____ hp	_____ hp
Days used for all recreational purposes in Ontario in 1990 (including fishing)	_____ days	_____ days	_____ days	_____ days
Days used for recreational fishing in Ontario in 1990	_____ days	_____ days	_____ days	_____ days

- c) How often do you carry a life jacket for each person on board your boat(s)?

Always ₁ Sometimes ₂ Never ₃

INFORMATION ABOUT YOU AND YOUR HOUSEHOLD

In order for us to analyze the data collected in this survey in a meaningful way, we require some information about you and the members of your household. We recognize that some of the questions are highly personal, but they will be used only in the analysis of the survey. This will allow us to accurately estimate the number of anglers in the province, their use of the resource and the economic benefits generated by recreational fishing in the province of Ontario.

YOUR ANSWERS WILL REMAIN STRICTLY CONFIDENTIAL

23. In what year were you born? 19 ____
24. Are you: Male Female
25. Would you please provide the following information about the other members of your household: (please start with the oldest household member other than yourself)

Sex of Household Member	Age of Household Member	Fished in 1990 In Ontario	Number of Days Fished
Male <input type="radio"/> Female <input type="radio"/>	_____ years	Yes <input type="radio"/> No <input type="radio"/>	_____
Male <input type="radio"/> Female <input type="radio"/>	_____ years	Yes <input type="radio"/> No <input type="radio"/>	_____
Male <input type="radio"/> Female <input type="radio"/>	_____ years	Yes <input type="radio"/> No <input type="radio"/>	_____
Male <input type="radio"/> Female <input type="radio"/>	_____ years	Yes <input type="radio"/> No <input type="radio"/>	_____
Male <input type="radio"/> Female <input type="radio"/>	_____ years	Yes <input type="radio"/> No <input type="radio"/>	_____
Male <input type="radio"/> Female <input type="radio"/>	_____ years	Yes <input type="radio"/> No <input type="radio"/>	_____

26. Do you live in an urban or rural area? Urban Rural
27. Do you own a cottage in Ontario? Yes No
28. What is the highest level of education you have completed? (Please check one only)
- | | |
|--|--|
| No formal schooling..... <input type="radio"/> | College..... <input type="radio"/> |
| Elementary (grade school)..... <input type="radio"/> | University..... <input type="radio"/> |
| Secondary (high school)..... <input type="radio"/> | Post graduate..... <input type="radio"/> |
| Trade-Vocational..... <input type="radio"/> | |
29. What category best describes your employment status in 1990? (Please check one only)
- | | |
|---|---------------------------------------|
| Full-time employee..... <input type="radio"/> | Homemaker..... <input type="radio"/> |
| Part-time employee..... <input type="radio"/> | Student..... <input type="radio"/> |
| Retired..... <input type="radio"/> | Unemployed..... <input type="radio"/> |
30. Please indicate which of the following categories best represents your total personal income before taxes in 1990? (Please check one only)
- | | | |
|---|---|---|
| None..... <input type="radio"/> | \$10,000 to \$19,999..... <input type="radio"/> | \$40,000 to \$49,999..... <input type="radio"/> |
| Less than \$5,000..... <input type="radio"/> | \$20,000 to \$29,999..... <input type="radio"/> | \$50,000 to \$59,999..... <input type="radio"/> |
| \$5,000 to \$9,999..... <input type="radio"/> | \$30,000 to \$39,999..... <input type="radio"/> | \$60,000 or more..... <input type="radio"/> |
31. Please indicate which of the following categories best represents your total household income before taxes in 1990? (Please check one only)
- | | | |
|---|---|---|
| None..... <input type="radio"/> | \$20,000 to \$29,999..... <input type="radio"/> | \$60,000 to \$69,999..... <input type="radio"/> |
| Less than \$5,000..... <input type="radio"/> | \$30,000 to \$39,999..... <input type="radio"/> | \$70,000 to \$79,999..... <input type="radio"/> |
| \$5,000 to \$9,999..... <input type="radio"/> | \$40,000 to \$49,999..... <input type="radio"/> | \$80,000 to \$89,999..... <input type="radio"/> |
| \$10,000 to \$19,999..... <input type="radio"/> | \$50,000 to \$59,999..... <input type="radio"/> | \$90,000 or more..... <input type="radio"/> |

Should we wish to clarify any of the information in the questionnaire, it would be appreciated if we could contact you directly. Would you agree to this?

YES --> |__|__|__| - |__|__|__| - |__|__|__|__|

Area Code Telephone Number

NO

Appendix 3

NONRESIDENT QUESTIONNAIRE



1990 SURVEY OF RECREATIONAL FISHING IN CANADA

NONRESIDENTS OF ONTARIO

(Le présent questionnaire est également disponible en français)
(A copy of this questionnaire is also available in French)

INSTRUCTIONS TO RESPONDENTS

In order to complete this document as easily as possible, the following instructions will be of assistance:

- the questions are to be answered by the person to whom the survey was addressed.
- answer all questions as best you can. If you do not have any records, please provide your best estimate for questions on activity, catch, expenditures, etc.
- the questions are designed so that you choose an answer by placing an "X" in a circle next to the appropriate answer (e.g. Yes No) or by printing your answer in a space provided. Please do not write out the answer (e.g. write "5" instead of "five".)
- household members refer only to related individuals living in your principal residence.
- for expenditure questions, please include only those expenses incurred by you and other anglers who were household members.
- we would appreciate it if you would answer all questions on this questionnaire so that we have as complete a picture as possible of angling activities, opinions, expenditures, etc. in 1990.

THANK YOU IN ADVANCE FOR YOUR COOPERATION AND ASSISTANCE.

CONFIDENTIAL WHEN COMPLETED

LICENCE INFORMATION:

1. Which of the following Ontario recreational fishing licences did you personally hold in 1990? For 4-day and 21-day licences, please indicate how many were purchased.

- seasonal licence ₁
 spousal licence ₂
 4-day licence ₃ → number purchased _____
 21-day licence ₄ → number purchased _____

YOUR PERSONAL RECREATIONAL FISHING ACTIVITIES

- 2a) Did you personally fish for recreation in Ontario in 1990?

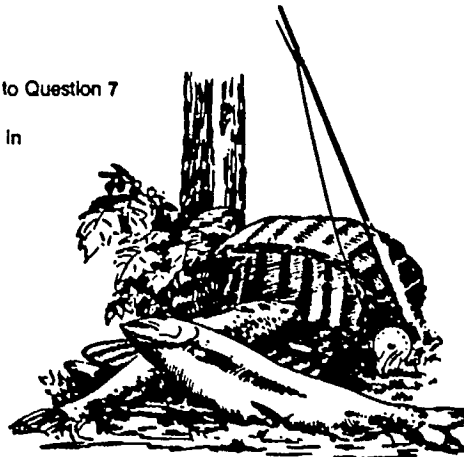
Yes → please continue No → go to Question 7

- b) How many days in total did you spend fishing for recreation in Ontario in 1990? (A "day" is all or any part of a day fished)

_____ days fished

- c) Of the days fished, how many days were spent fishing through the ice in Ontario in 1990?

None OR _____ days fished



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3a) For each water body on which you fished in Ontario in 1990, please provide the location, the number of trips, the days fished and the number of fish you caught and kept. Please indicate for your trips, the number of trips for which fishing was a main reason, a secondary reason or decided upon after your arrival. If you used a vehicle to travel to the places you fished, please provide the one-way distance from your residence and the approximate time it took to reach your destination. If you fished in a provincial park, please name the park instead of the nearest town/village. Even if you did not catch any fish, the information on where you fished and how often is important.

If the space provided is not sufficient, please provide any additional information on a separate sheet of paper.

Please include only your personal fishing activities.

Name of lake, river or stream _____		Number of days fished _____		
Nearest town/village _____		Number of trips made _____		
Number of trips fishing was: the main reason for the trip _____ ; a secondary reason for the trip _____ ; decided upon after arrival _____				
IF YOU TRAVELLED TO THE SITE BY VEHICLE:				
One-way distance from your residence: _____ mi. or _____ km		Approximate travel time: _____ hrs		
	Number of fish		Number of fish	
	<u>Caught</u>	<u>Kept</u>	<u>Caught</u>	<u>Kept</u>
Walleye (pickeral)	_____	_____	_____	_____
Northern pike	_____	_____	_____	_____
Perch	_____	_____	_____	_____
Brook trout	_____	_____	_____	_____
Lake trout	_____	_____	_____	_____
Rainbow trout	_____	_____	_____	_____
Brown trout	_____	_____	_____	_____
Muskellunge	_____	_____	_____	_____
			Smallmouth bass	_____
			Largemouth bass	_____
			Whitefish	_____
			Chinook salmon	_____
			Coho salmon	_____
			Smelt	_____
			Panfish	_____
			Other fish	_____

Name of lake, river or stream _____		Number of days fished _____		
Nearest town/village _____		Number of trips made _____		
Number of trips fishing was: the main reason for the trip _____ ; a secondary reason for the trip _____ ; decided upon after arrival _____				
IF YOU TRAVELLED TO THE SITE BY VEHICLE:				
One-way distance from your residence: _____ mi. or _____ km		Approximate travel time: _____ hrs		
	Number of fish		Number of fish	
	<u>Caught</u>	<u>Kept</u>	<u>Caught</u>	<u>Kept</u>
Walleye (pickeral)	_____	_____	_____	_____
Northern pike	_____	_____	_____	_____
Perch	_____	_____	_____	_____
Brook trout	_____	_____	_____	_____
Lake trout	_____	_____	_____	_____
Rainbow trout	_____	_____	_____	_____
Brown trout	_____	_____	_____	_____
Muskellunge	_____	_____	_____	_____
			Smallmouth bass	_____
			Largemouth bass	_____
			Whitefish	_____
			Chinook salmon	_____
			Coho salmon	_____
			Smelt	_____
			Panfish	_____
			Other fish	_____

Name of lake, river or stream _____		Number of days fished _____		
Nearest town/village _____		Number of trips made _____		
Number of trips fishing was: the main reason for the trip _____ ; a secondary reason for the trip _____ ; decided upon after arrival _____				
IF YOU TRAVELLED TO THE SITE BY VEHICLE:				
One-way distance from your residence: _____ mi. or _____ km		Approximate travel time: _____ hrs		
	Number of fish		Number of fish	
	<u>Caught</u>	<u>Kept</u>	<u>Caught</u>	<u>Kept</u>
Walleye (pickeral)	_____	_____	_____	_____
Northern pike	_____	_____	_____	_____
Perch	_____	_____	_____	_____
Brook trout	_____	_____	_____	_____
Lake trout	_____	_____	_____	_____
Rainbow trout	_____	_____	_____	_____
Brown trout	_____	_____	_____	_____
Muskellunge	_____	_____	_____	_____
			Smallmouth bass	_____
			Largemouth bass	_____
			Whitefish	_____
			Chinook salmon	_____
			Coho salmon	_____
			Smelt	_____
			Panfish	_____
			Other fish	_____

3a) continued

Name of lake, river or stream _____ Number of days fished _____
 Nearest town/village _____ Number of trips made _____
 Number of trips fishing was: the main reason for the trip _____ ; a secondary reason for the trip _____ ;
 decided upon after arrival _____

IF YOU TRAVELLED TO THE SITE BY VEHICLE:
 One-way distance from your residence: _____ mi. or _____ km Approximate travel time: _____ hrs

	Number of fish			Number of fish	
	Caught	Kept		Caught	Kept
Walleye (pickerel)	_____	_____	Smallmouth bass	_____	_____
Northern pike	_____	_____	Largemouth bass	_____	_____
Perch	_____	_____	Whitefish	_____	_____
Brook trout	_____	_____	Chinook salmon	_____	_____
Lake trout	_____	_____	Coho salmon	_____	_____
Rainbow trout	_____	_____	Smelt	_____	_____
Brown trout	_____	_____	Panfish	_____	_____
Muskellunge	_____	_____	Other fish	_____	_____

Name of lake, river or stream _____ Number of days fished _____
 Nearest town/village _____ Number of trips made _____
 Number of trips fishing was: the main reason for the trip _____ ; a secondary reason for the trip _____ ;
 decided upon after arrival _____

IF YOU TRAVELLED TO THE SITE BY VEHICLE:
 One-way distance from your residence: _____ mi. or _____ km Approximate travel time: _____ hrs

	Number of fish			Number of fish	
	Caught	Kept		Caught	Kept
Walleye (pickerel)	_____	_____	Smallmouth bass	_____	_____
Northern pike	_____	_____	Largemouth bass	_____	_____
Perch	_____	_____	Whitefish	_____	_____
Brook trout	_____	_____	Chinook salmon	_____	_____
Lake trout	_____	_____	Coho salmon	_____	_____
Rainbow trout	_____	_____	Smelt	_____	_____
Brown trout	_____	_____	Panfish	_____	_____
Muskellunge	_____	_____	Other fish	_____	_____

Name of lake, river or stream _____ Number of days fished _____
 Nearest town/village _____ Number of trips made _____
 Number of trips fishing was: the main reason for the trip _____ ; a secondary reason for the trip _____ ;
 decided upon after arrival _____

IF YOU TRAVELLED TO THE SITE BY VEHICLE:
 One-way distance from your residence: _____ mi. or _____ km Approximate travel time: _____ hrs

	Number of fish			Number of fish	
	Caught	Kept		Caught	Kept
Walleye (pickerel)	_____	_____	Smallmouth bass	_____	_____
Northern pike	_____	_____	Largemouth bass	_____	_____
Perch	_____	_____	Whitefish	_____	_____
Brook trout	_____	_____	Chinook salmon	_____	_____
Lake trout	_____	_____	Coho salmon	_____	_____
Rainbow trout	_____	_____	Smelt	_____	_____
Brown trout	_____	_____	Panfish	_____	_____
Muskellunge	_____	_____	Other fish	_____	_____

3b) What do you estimate was the total weight of the fish you kept in Ontario in 1990 and what percentage of it was eaten by you or members of your household? Please include the weight of any fish you may have eaten as shore lunches.

_____ pounds OR _____ kilograms. percentage eaten _____%

c) What percentage of the fish you caught were stocked (hatchery) fish? _____% OR Don't Know

4a) Did you practise catch and release fishing in Ontario in 1990?

Yes ₁ → please continue

No ₂ → go to Question 5

b) If yes, was it because it was: mandatory ₁ voluntary ₂ both ₃

<p>5. How would you rate your recreational fishing experience in Ontario in 1990?</p> <p>Excellent <input type="radio"/> ₁ Very Good <input type="radio"/> ₂ Good <input type="radio"/> ₃ Fair <input type="radio"/> ₄ Poor <input type="radio"/> ₅</p> <p>6a) Did you fish for recreation in Ontario in 1989?</p> <p>Yes <input type="radio"/> ₁ → please continue No <input type="radio"/> ₂ → go to Question 7</p> <p>b) Compared to 1989, did the number of days you fished in 1990:</p> <p>Remain the same <input type="radio"/> ₁ → go to Question 7 Increase <input type="radio"/> ₂ → go to Question 7 Decrease <input type="radio"/> ₃ → Please continue</p> <p>c) If your fishing activity decreased in 1990, was it because of:</p> <p>Poor fishing <input type="radio"/> ₁ The fish are unsafe to eat <input type="radio"/> ₂ Overcrowded fishing sites <input type="radio"/> ₃ The type of fish desired was not available <input type="radio"/> ₄ The length of the fishing season <input type="radio"/> ₅ Size regulations <input type="radio"/> ₆ Financial reasons <input type="radio"/> ₇ Family responsibilities <input type="radio"/> ₈ Health problems <input type="radio"/> ₉ Competing or conflicting interests <input type="radio"/> ₁₀ Other <input type="radio"/> ₁₁</p>	<p>7. How many years have you fished for recreation in Ontario? _____ years</p> <p>8. Do you intend to fish for recreation in Ontario in 1991? Yes <input type="radio"/> ₁ No <input type="radio"/> ₂</p> <p>9. Did you fish for recreation <u>outside</u> Ontario in 1990? Yes <input type="radio"/> ₁ No <input type="radio"/> ₂</p> <p>10. As an angler, do you consider yourself to be:</p> <p>an expert <input type="radio"/> ₁ experienced <input type="radio"/> ₂ average <input type="radio"/> ₃ a beginner <input type="radio"/> ₄</p> <p>11. Did you hunt for large game, small game or game birds in Ontario in 1990? Yes <input type="radio"/> ₁ No <input type="radio"/> ₂</p> <p>12. Were you a member of an organized angling group or association in 1990? Yes <input type="radio"/> ₁ No <input type="radio"/> ₂</p>
---	---

13. A major cause of the reduction in the numbers of fish in Ontario is overharvesting. Please rate your level of agreement with the following management options from 0 (strongly disagree) to 5 (strongly agree).

Option	Rating	Option	Rating
Close areas (sanctuaries)	_____	Trophy size limits	_____
Shorten seasons	_____	Stocking hatchery fish	_____
Lower bag limits	_____	Limit angler numbers	_____
Catch and release only	_____	No baitfish fishing	_____
Minimum size limits	_____	Barbless hooks	_____
Slot size limits	_____	Tags for specific species	_____

14a) Do you agree with holding fishing derbies and tournaments in Ontario?

Yes ₁ → please continue

No ₂ → go to Question 15

b) Did you participate in any fishing derbies or tournaments in Ontario in 1990? Yes ₁ No ₂



15a) There are a number of factors which play a role in determining the choice of fishing destinations. Some factors are more important than others, depending on where an angler lives, the time available for fishing, the needs of the individual or family, etc. We would like you to rate each of the following twenty-two factors based on their importance to you in selecting where you fish in Ontario:

Please rate each factor on a scale of 0 (not important) to 5 (extremely important).

Factor	Rating	Factor	Rating
Water quality	_____	Parking availability	_____
Natural beauty of the area	_____	Availability of handicapped facilities	_____
Presence of wildlife in the area	_____	Lack of pollutants in fish	_____
Places to fish from shore	_____	Size of fish	_____
Lack of angler crowding	_____	Chance to catch a trophy fish	_____
Absence of other recreationists	_____	Catch rate of all fish	_____
Nearness to food and lodging	_____	Catch rate of fish you can keep	_____
Quality of tourist facilities	_____	Presence of favourite species	_____
Boat launching/marina facilities	_____	Variety of species available	_____
Access to other recreational facilities	_____	Distance/travel time	_____
Nearness to bait and tackle shops	_____	Information about the area	_____

b) Just as there are factors which play a role in determining where to fish, anglers are motivated to fish for a number of reasons. We have listed ten possible reasons below. Would you please rate the importance of each of these reasons as they relate to why you fish where you do in Ontario:

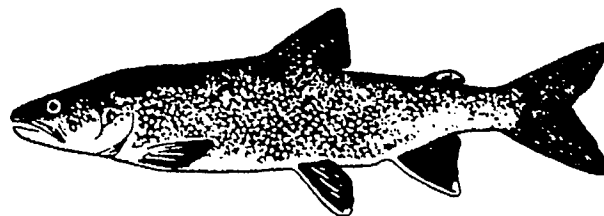
Please rate each reason on a scale of 0 (not important) to 5 (extremely important).

Reason	Rating	Reason	Rating
To catch fish to eat	_____	To improve your fishing skills	_____
For relaxation	_____	To get away	_____
For companionship	_____	Family togetherness	_____
To enjoy nature	_____	To catch trophy fish	_____
Challenge and excitement	_____	For a sense of achievement	_____

c) How often did you use each of the following sources of information when planning your fishing activities to Ontario in 1990?

Please rate each information source on a scale of 1 (never), 2 (sometimes), 3 (always).

Information Source	Rating	Information Source	Rating
None <input type="radio"/> → go to Question 16		Tourism ads on television or radio	_____
Travel agent/tour operator	_____	Brochures or pamphlets	_____
Magazines/newspapers	_____	Friends/family/other anglers	_____
Bait and tackle shops	_____	Ministry of Natural Resources Office	_____
Outdoor/sports shows	_____	Clubs/associations	_____
Video tapes	_____	Other	_____



TRIP INFORMATION

16a) How many trips did you make to Ontario in 1990? (a trip should be counted each time you crossed the border into the province)

_____ trips

b) How many days in total did you spend in Ontario in 1990 for all reasons?

_____ days

17a) On how many of your trips to Ontario in 1990 did you fish?

_____ trips

b) For how many of these trips was fishing:
Number of Trips

The main reason for visiting Ontario _____

A secondary reason _____

Decided upon after arrival _____

18. For trips on which you fished in Ontario in 1990, how many of each of the following trip types did you take?

Trip Types **Number of Trips**

Touring (trips through areas of scenic beauty or trips of cultural or general interest) _____

Outdoor (trips in areas where you could hunt, fish, hike, camp, or raft) _____

Resort (trips to resort areas where a wide variety of activities were available) _____

Other _____

19. How many of your fishing trips to Ontario in 1990 were single day trips requiring no accommodation?

_____ day trips

20. For the remaining fishing trips, how many nights were spent in Ontario at each of the following:

Type of Accommodation **Number of Nights**

Friends and relatives _____

Cottage owned by household _____

Wilderness camping _____

Provincial parks _____

Crown land camping _____

Commercial campground or trailer park _____

Fishing lodge or camp _____

Other commercial lodging (hotel, motel, rental cottage) _____

Other (please specify) _____

21. Please indicate below, places which you considered as possible fishing trip destination(s) in 1990 before coming to Ontario? (Please provide name of country or state/province).

1st Choice _____

2nd Choice _____

3rd Choice _____

22. If there had been no fishing opportunities in Ontario in 1990, would you have:

Stayed a shorter time 1 0

Substituted other activities 2 0

Not come at all 3 0

EXPENDITURES ON RECREATIONAL FISHING IN 1990

Please indicate which currency you will be using to answer the following expenditure Questions:

Canadian Dollars 1 0

U.S. Dollars 2 0

23a) Did you or any members of your household make any major purchases or investments in Ontario in 1990 related in whole or in part to recreational fishing? (e.g. boats, motors, 4X4's, cabins, camping gear, trailers, etc.)

Please Note: Purchases of fishing supplies (lures, line, tackle etc.) are covered in Question 26.

Yes 1 0 ----> please continue

No 2 0 ----> go to Question 24

b) For each investment category, please indicate the amount of money spent in Ontario in 1990 by you and members of your household and estimate the percentage of the amount you consider was directly attributable to recreational fishing activities.

Investment Category	Total Amount of Purchases	Percentage Attributable to Recreational Fishing
Fishing Equipment (rods, reels, fish finders, etc.)	\$ _____ .00	XXXXXXXX
Boating Equipment (boats, motors, trailers, etc.)	\$ _____ .00	_____ %
Camping Equipment (tents, camper trailers, etc.)	\$ _____ .00	_____ %
Special Vehicles (4X4's, camper truck, ATV's, etc.)	\$ _____ .00	_____ %
Land-Buildings (cabins, cottages, land, etc.)	\$ _____ .00	_____ %
Other (special clothing, waders, ice-huts, etc.)	\$ _____ .00	_____ %

24. **PACKAGES PURCHASED IN 1990**

The following question refers only to packages purchased from a lodge or outfitter (or their agent) which include a complete range of services such as lodging, food, transportation, etc. Please include expenditures for self-organized trips using charter or rental aircraft, charterboats, or your own equipment in Question 26.

a) Did you or any member of your household purchase any such packages to fish in Ontario in 1990?

Yes ₁ → please continue No ₂ → go to Question 25

b) For each type of package, please provide the information requested.

Package	Number of Trips	Total Number of Anglers from Your Household	Total Cost to You and Your Household
Lodge	_____	_____	\$ _____ .00
Outcamp	_____	_____	\$ _____ .00
Charter aircraft service	_____	_____	\$ _____ .00
Charterboat service	_____	_____	\$ _____ .00
Other (please specify)	_____	_____	\$ _____ .00

25a) Were you a non-paying guest at a fishing lodge, camp or outfitter in Ontario in 1990? (for example, were your costs covered by a company, a friend, etc.)

Yes ₁ → please continue No ₂ → go to Question 26

b) How much do you estimate the cost would have been if you personally paid for the trip(s)? \$ _____ .00

26. **EXCLUDING** expenditures covered in Questions 23 and 24 please estimate the amount of money you and other members of your household spent on the following to fish for recreation in Ontario in 1990.

Expenditure Category	Amount
Accommodation (hotels, motels, etc.)	\$ _____ .00
Campsite fees (private, provincial, etc.)	\$ _____ .00
Food (groceries, restaurant meals, alcoholic beverages)	\$ _____ .00
Travel costs within Ontario for recreational fishing - vehicle expenses (including gas, repairs, rentals), train fares, air fares, etc.	\$ _____ .00
Household owned boat costs (gas, repairs, launch/ramp fees, moorage, insurance, etc.)	\$ _____ .00
Boat rentals, charterboat fares	\$ _____ .00
Fishing supplies (lures, line, tackle, etc.)	\$ _____ .00
Bait (worms, leaches, cray fish, baitfish, etc.)	\$ _____ .00
Guide services	\$ _____ .00
Fishing licence fees (permits, tags, etc.)	\$ _____ .00
Other (park fees, tolls, etc.)	\$ _____ .00

If you did not personally fish for recreation in 1990, please go to Question 28.

27a) Please consider the number of days you fished and what you paid to fish in Ontario during 1990, the amount of money you spent for similar recreational activities, and your income in 1990. Would you still have fished for recreation in Ontario had your out of pocket costs PER FISHING DAY been higher due to increased costs for gasoline, accommodations, supplies, etc?

Yes ₁ → please continue No ₂ → go to Question 28

b) What is the maximum additional amount you would have paid PER FISHING DAY, before deciding it was too expensive to fish the same number of days in Ontario in 1990?

Less than \$10.00 per day ₁ (please specify) \$ _____ .00

\$10.00 per day ₂

\$20.00 per day ₃

\$30.00 per day ₄

\$40.00 per day ₅

\$50.00 per day ₆

\$60.00 per day ₇

\$70.00 per day ₈

\$80.00 per day ₉

\$90.00 per day ₁₀

\$100.00 per day ₁₁

More than \$100.00 per day ₁₂

(please specify) \$ _____ .00

INFORMATION ABOUT YOU AND YOUR HOUSEHOLD

In order for us to analyze the data collected in this survey in a meaningful way, we require some information about you and the members of your household. We recognize that some of the questions are highly personal, but they will be used only in the analysis of the survey. This will allow us to accurately estimate the number of anglers in the province, their use of the resource and the economic benefits generated by recreational fishing in the province of Ontario.

YOUR ANSWERS WILL REMAIN STRICTLY CONFIDENTIAL

28. In what year were you born? 19 ____

29. Are you: Male Female

30. Excluding yourself, how many other members of your household 18 years of age and over held any of the following Ontario recreational fishing licences in 1990? For 4-day and 21-day licences, please provide the number purchased.

Seasonal licence _____ 4-day licence _____ --> number purchased _____
 Spousal licence _____ 21-day licence _____ --> number purchased _____

31. Would you please provide the following additional information about the other members of your household: (please start with the oldest household member other than yourself)

Sex of Household Member	Age of Household Member	Fished in 1990 In Ontario	Number of Days Fished
Male <input type="radio"/> Female <input type="radio"/>	_____ years	Yes <input type="radio"/> No <input type="radio"/>	_____
Male <input type="radio"/> Female <input type="radio"/>	_____ years	Yes <input type="radio"/> No <input type="radio"/>	_____
Male <input type="radio"/> Female <input type="radio"/>	_____ years	Yes <input type="radio"/> No <input type="radio"/>	_____
Male <input type="radio"/> Female <input type="radio"/>	_____ years	Yes <input type="radio"/> No <input type="radio"/>	_____
Male <input type="radio"/> Female <input type="radio"/>	_____ years	Yes <input type="radio"/> No <input type="radio"/>	_____

32. Do you live in an urban or rural area? Urban Rural

33. What is the highest level of education you have completed? (Please check one only)

- | | |
|--|--|
| No formal schooling..... <input type="radio"/> | College <input type="radio"/> |
| Elementary (grade school)..... <input type="radio"/> | University..... <input type="radio"/> |
| Secondary (high school)..... <input type="radio"/> | Post graduate..... <input type="radio"/> |
| Trade-Vocational..... <input type="radio"/> | |

34. What category best describes your employment status in 1990? (Please check one only)

- | | |
|---|---------------------------------------|
| Full-time employee..... <input type="radio"/> | Homemaker..... <input type="radio"/> |
| Part-time employee..... <input type="radio"/> | Student..... <input type="radio"/> |
| Retired..... <input type="radio"/> | Unemployed..... <input type="radio"/> |

35. Please indicate which of the following categories best represents your total personal income before taxes in 1990? (Please check one only)

- | | | |
|--|--|--|
| None <input type="radio"/> | \$10,000 to \$19,999 <input type="radio"/> | \$40,000 to \$49,999 <input type="radio"/> |
| Less than \$5,000 <input type="radio"/> | \$20,000 to \$29,999 <input type="radio"/> | \$50,000 to \$59,999 <input type="radio"/> |
| \$5,000 to \$9,999 <input type="radio"/> | \$30,000 to \$39,999 <input type="radio"/> | \$60,000 or more..... <input type="radio"/> |

36. Please indicate which of the following categories best represents your total household income before taxes in 1990? (Please check one only)

- | | | |
|--|--|--|
| None <input type="radio"/> | \$20,000 to \$29,999 <input type="radio"/> | \$60,000 to \$69,999 <input type="radio"/> |
| Less than \$5,000 <input type="radio"/> | \$30,000 to \$39,999 <input type="radio"/> | \$70,000 to \$79,999 <input type="radio"/> |
| \$5,000 to \$9,999 <input type="radio"/> | \$40,000 to \$49,999 <input type="radio"/> | \$80,000 to \$89,999..... <input type="radio"/> |
| \$10,000 to \$19,999 <input type="radio"/> | \$50,000 to \$59,999 <input type="radio"/> | \$90,000 or more..... <input type="radio"/> |

Should we wish to clarify any of the information in the questionnaire, it would be appreciated if we could contact you directly. Would you agree to this?

YES --> |__|_|_|_|_| - |__|_|_|_|_| - |__|_|_|_|_|
 Area Code Telephone Number

NO

Appendix 4
DEFINITIONS

Definitions

- Great Lakes Angler an angler who fished at least one day on any of the Ontario waters of the Great Lakes or to an inland distance of 20 kms on any rivers and streams terminating in the Great Lakes
- Origin a resident is an angler who resided in the province of Ontario and a nonresident is an angler who visited Ontario: a Canadian (from another province/territory) or a non-Canadian
- Day Fished a "day of fishing" is defined as all or part of any day on which recreational fishing activity occurred
- Total Investment Expenses these are investment expenditures for durable goods (boats, motors, campers, fishing equipment, special vehicle, etc.), which have been allocated to the Great Lakes based on the time the angler spent on the Great Lakes in 1990 as a percent of all days fished in the province
- Attributable Investments the amount of the investment expenditures for durable goods which the angler identified as being **wholly** attributable to recreational fishing activity (as a percentage of the total) and which have been allocated to the Great Lakes based on the time the angler spent on the Great Lakes in 1990 as a percent of all days fished in the province
- Direct Expenditures these are expenditures for goods and services (food, camping, accommodation, transportation, supplies, etc.) incurred when on fishing trips or excursions which have been allocated to the Great Lakes on the prorated basis described above
- Equipment/Supplies there is a distinction between these two categories insofar as fishing equipment is defined to be expenditures on such durable goods as fishing rods, reels, depth finders, etc. and fishing supplies are items purchased in the course of fishing activity such as bait, lures, line, etc.
- Willingness to Pay the maximum amount of money an angler was willing to pay per fishing day, for the same number of days fished, had costs increased due to higher costs for services such as gasoline, food, etc. (allocated for each day fished on the Great Lakes)

Appendix 5

**ESTIMATES OF STATISTICAL RELIABILITY
FOR KEY VARIABLES**

TABLE 1
ESTIMATES OF STATISTICAL RELIABILITY OF SELECTED VARIABLES
EXPRESSED AS COEFFICIENTS OF VARIATION*
ALL ANGLERS

Characteristic	Lake Ontario	Lake Erie	Lake St. Clair	Lake Huron	Lake Superior	St. Lawrence River	Great Lakes System
Sample Size	601	506	244	892	289	127	2339
Days of effort	6.9 %	6.8 %	7.2 %	5.1 %	7.6 %	9.1 %	3.0 %
Investments - Total	26.2 %	35.6 %	53.1 %	17.3 %	22.0 %	43.5 %	11.3 %
Investments - Attributed	31.7 %	25.8 %	37.0 %	19.2 %	25.7 %	43.9 %	12.8 %
Direct Expenditures	7.7 %	7.7 %	10.3 %	5.3 %	8.4 %	10.7 %	3.4 %
Accommodation	13.4 %	16.7 %	20.9 %	12.1 %	19.4 %	19.1 %	7.2 %
Campsite Fees	16.6 %	24.1 %	34.4 %	13.7 %	27.2 %	26.8 %	8.9 %
Food	9.2 %	10.8 %	12.3 %	6.4 %	12.7 %	15.1 %	4.5 %
Travel	12.5 %	9.9 %	13.1 %	6.5 %	11.6 %	13.4 %	5.0 %
Household Boat Costs	17.3 %	16.3 %	21.5 %	11.3 %	18.5 %	19.8 %	7.3 %
Boat Rentals	26.0 %	20.7 %	28.1 %	15.2 %	27.4 %	40.1 %	11.0 %
Fishing Supplies	11.7 %	10.8 %	14.3 %	6.6 %	10.0 %	15.6 %	4.6 %
Bait Costs	10.8 %	9.9 %	13.1 %	6.2 %	9.3 %	15.7 %	4.2 %
Guide Costs	27.2 %	63.3 %	73.4 %	31.5 %	0.0 %	67.7 %	18.4 %
Licence Fees	5.4 %	7.5 %	8.5 %	4.7 %	10.4 %	14.7 %	3.0 %
Other	17.0 %	18.4 %	25.7 %	33.4 %	37.7 %	23.8 %	16.4 %
Willingness to Pay	13.7 %	9.1 %	12.2 %	7.4 %	14.0 %	16.2 %	5.2 %

* because it is not possible to calculate exact variability in the data, the coefficient of variation of the mean is used as a crude measure of reliability. It is calculated as the standard error of the mean divided by the mean multiplied by 100. The table below can be used as a guide to the use of estimates based on the coefficient of variation

CV less than 16.5 %

CV greater than 16.5 % and less than 33.5 %

CV more than 33.5 %

estimates can be used without condition

estimates should be used with caution

estimates should be used with EXTREME caution.

