

*Down by the*  
*Bay:*  
*a profile of shoreline*  
**FISHING**

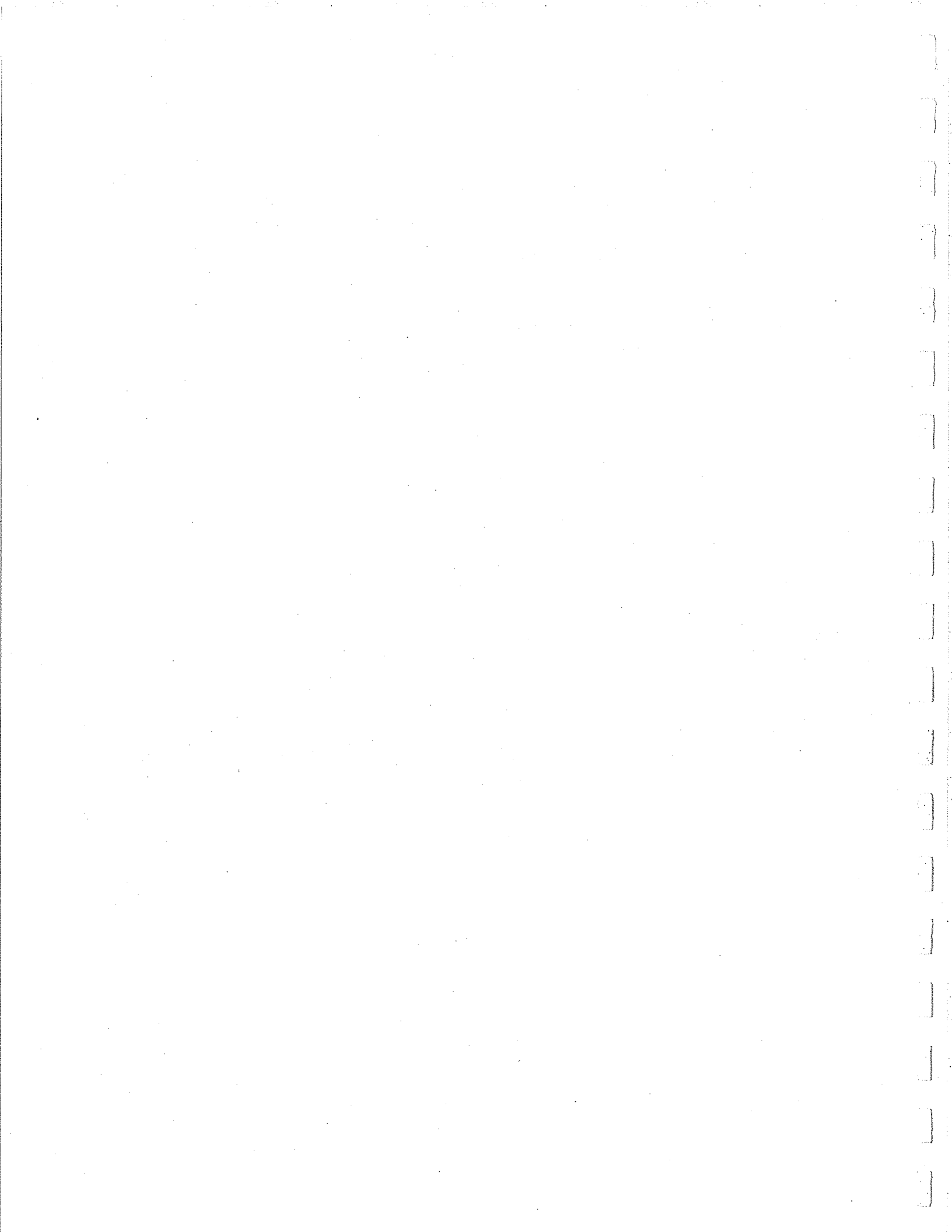
*And FISH CONSUMPTION in the HAMILTON HARBOUR AREA.*



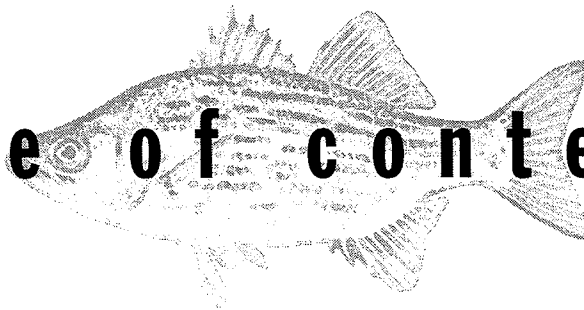
**FRAN SCOTT**

**Fish and Wildlife Nutrition Project**

The project was funded by Health Canada's  
Great Lakes Health Effects Program  
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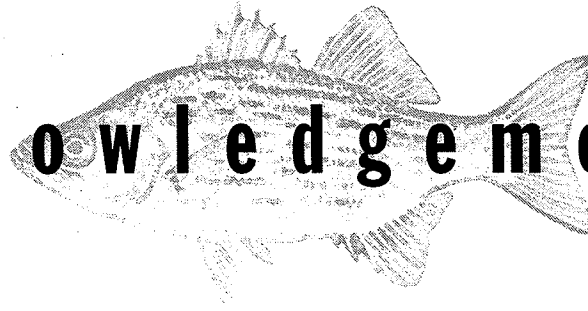


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# a c k n o w l e d g e m e n t s



This profile of the Hamilton Harbour is part of a larger project that involved the active support of many people. Thanks to Brian Gibson, whose initial observations of fishermen on the Niagara River and subsequent pilot research with Kelly R. Cavan and Mai Bui laid the basis for this project. In addition to funding the research, staff at Health Canada provided invaluable leadership and support. Dieter Riedel and Jill Kearney helped to design and promote the project in its early stages. As the Technical Authority for the project Sandra Owens consistently championed the project, provided practical advice, maintained communications with members of the RAP community in Hamilton and the other survey locations, and participated throughout as an active member of the project team. More recently, Dora Boersma joined the project and provided the support and direction we needed to see this project through to completion. Other members of the research team, Donald Cole, Judy Sheeshka, Jennifer Dawson, and David Kraft participated in every stage of research design and implementation, as well as providing editorial comments on early versions of this and other project reports. In the early stages of this multi-year project Michelle Hooper assisted with the development of the survey instrument, Leo Keating managed data analysis and Heather Young-Leslie oversaw development of the interview guide and training of research assistants. In the later stages of the project Humaira Khan managed data analysis. Rachel Derry provided accurate and prompt transcription of long interviews throughout.

This project could not have been carried out without our intrepid team of research assistants, who diligently trudged the shoreline, patiently interviewing shoreline fishers from morning to night in every kind weather. Their insights and observations, captured in thousands of pages of field notes, made a major contribution to the success of the project. Research assistants who surveyed in the Hamilton Harbour area were Jennifer Dai, Tze Ho Lee, John Furgal, Charles Fok, Marta Lejkowski, Tony Csaba and Lisa Tulen.

The Ontario Ministry of Environment provided more than 3000 copies of the *Guide to Eating Ontario Sport Fish* which our research assistants distributed to survey participants on the shoreline. Chuck Cox of the Sport Fish Contaminant Monitoring program provided helpful comments when we were drafting the one-page explanation of how to use the *Guide*. The Ministry of Natural Resources offered advice on the development of the list of fish species that was used in the survey questionnaire.

In Hamilton we received help, feedback and professional advice from Marilyn Baxter, Manager of the Bay Area Restoration Council (BARC); Mark Sproule-Jones and the Ecowise group at McMaster University; Louise Knox, Coordinator of the Hamilton Harbour RAP and; Victor Cairns, Department of Fisheries and Oceans. Mai Pham conducted all the interviews in Vietnamese and shared translation responsibilities with Kim Nguyen. Finally, thanks to all those shoreline fish-

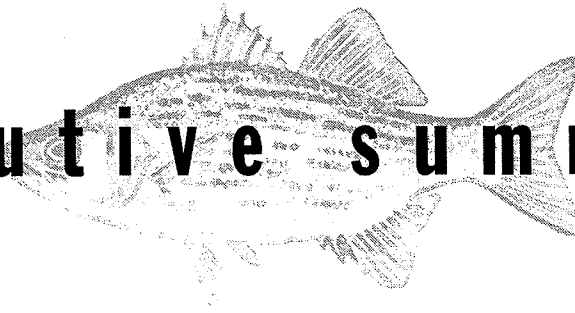


ers who patiently answered our questions, allowed  
us to tape extended conversations and record their

opinions, observations and insights into the local  
fishery.



# executive summary



THE HAMILTON HARBOUR AREA OFFERS OPPORTUNITIES FOR SHORE FISHING AND FISH CONSUMPTION. THROUGH A LARGE STUDY OF SHORELINE FISHERMEN CONDUCTED HERE AND ON FOUR OTHER GREAT LAKES SHORELINE LOCATIONS IN SOUTHWESTERN ONTARIO, WE LEARNED MUCH ABOUT WHO FISHES AND WHO EATS THEIR CATCH. INFORMATION FROM THE HAMILTON HARBOUR SURVEY LOCATION IS PROVIDED IN THIS PROFILE TO FILL INFORMATION GAPS AND ASSIST MANAGERS, DECISION-MAKERS AND SHORELINE USERS IN PROMOTING, IMPROVING AND PROTECTING THE FISHERY AND ENVIRONMENT.

We completed 565 interviews with fishermen at or near 8 different locations in the Hamilton Harbour. Although we attempted to interview all the shoreline fishermen we encountered, we were particularly interested in people who ate the fish they caught from the Harbour. Special attempts were made to reach those who spoke languages other than English, including Vietnamese-speaking fishermen. The fishermen we interviewed were overwhelmingly men of diverse age, education and work backgrounds. They all shared an enthusiasm for fishing and a willingness to share their views with us.

Hamilton Harbour fishermen were slightly younger than those we surveyed in four other locations. More of them worked and more spoke English at home. Fishermen interviewed in the Harbour areas were less likely to eat their catch than those from the other locations surveyed. However, among the Hamilton fishers who did report eating fish from the harbour, many ate heartily in terms of the number of meals eaten during the previous 12 month period and the variety of species consumed.

Fishermen who are eating their catch from Hamilton Harbour may be at risk if they are; eat-

ing fish species for which the *Guide to Eating Ontario Sport Fish (1997-1998)* recommends no consumption; eating more meals of individual species than the *Guide* recommends; eating fish for which consumption advisory information is not available; eating parts of the fish other than the boneless, skinless, fillet (which is the basis of all *Guide* contaminant measurements).

A high proportion of Hamilton Harbour fishermen, including a majority of those who eat their catch, have concerns about water pollution and contamination of the fish. However, many fishermen also commented on improvements in the Harbour, mentioning water quality and the increased number and variety of fish.

The fishermen we interviewed on the shoreline have the potential to play an important role as stewards of the Hamilton Harbour. In the right circumstances their local knowledge, direct and active involvement in the fishery, could make a valuable contribution to maintaining and improving both the fishery and the harbour environment which sustains it. It is our hope that the distribution of this report will encourage greater attention



to the local recreational fishery and promote more active involvement of shoreline fishers in the poli-

cies and programmes which affect the Hamilton Harbour.



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*\*Finding a suitable term by which to refer to our survey participants has been a challenge. We initially chose the label fisher, since it was gender neutral and avoided the emphasis on 'rod-and-reel' technique which is implied by the term angler. It came to our attention that most preferred to be called fishermen so this term is used in this profile.*





## 1.0 BACKGROUND TO THE FISH AND WILDLIFE CONSUMPTION STUDY

The Fish and Wildlife Nutrition Project (FWNP), under contract to the Great Lakes Health Effects Program of Health Canada, developed and implemented a study to provide detailed information about fishing in five areas of the Great Lakes. The study was devised to provide detailed information about fishing in each of these water bodies, including who eats the fish, how much and which species are eaten, and how the fish is cleaned and cooked. We also asked participants for their perspectives on the risks and benefits of fish and aquatic wildlife consumption, sources of information they use to make decisions about fish consumption, and their opinions about the state of the local fishery and environment. This information was collected to fill data gaps and help guide both policy-making and action-taking in the areas we studied.

In 1985, the International Joint Commission's Great Lakes Water Quality Board identified 42 'Areas of Concern' around the Great Lakes. These locations, commonly referred to as AOCs, were identified as areas where point source pollution and damage to fish and wildlife habitat was occurring within their boundaries.

The Great Lakes Water Quality Agreement requires that clean-up plans — officially referred to as Remedial Action Plans, be developed and implemented in each of the AOCs through the involvement of federal, state, provincial and local agencies, technical experts, interested groups, and local citizens. The five locations we surveyed — Metro Toronto, Hamilton Harbour, and the Niagara, St. Clair and Detroit Rivers — are all classified as AOCs and, to varying degrees, have Remedial

Action Plans (RAPs) in place. These are places where local sources of environmental contamination have resulted in restrictions being placed on the consumption of locally caught fish.

The main source of consumption for Great Lakes fish was the *Guide to Eating Ontario Sport Fish (1997-1998)*, referred to in this report as the *Guide*. The Ontario Ministry of Environment is the lead agency producing the *Guide*, along with the Ministry of Natural Resources which collects samples of fish used in the program and Health Canada which provides guidelines for consumption levels.

The Fish and Wildlife Nutrition Project is a multi-disciplinary group of researchers and community developers from the University of Guelph, McMaster University and Strategic Communications. The team has produced a number of documents describing the results of the Fish and Wildlife Consumption Study in Areas of Concern. This profile, which focuses on Hamilton Harbour fishermen', is one of five reports covering each of the survey locations.

The primary purpose of this report is a practical one: to present results from our study and to offer interpretations to those interested in issues specific to the Hamilton Harbour area. For information on other reports related to this research project please contact:

### **Great Lakes Health Effects program**

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## 1.1 Sources of Information

Information about Hamilton Harbour fishermen was collected via a quantitative survey, tape-recorded interviews, Research Assistant (RA) field notes and investigator experiences. Copies of the Sport Fish and Wildlife Consumption Study in Areas of Concern questionnaire and tape-recorded interview guide are attached at the end of this report.

Survey questionnaire data is available on all respondents who were interviewed in one of the Hamilton Harbour locations over three survey years. Results are presented comparing Hamilton Harbour participants with the total group of participants from the five AOCs.

For this project 20 interview transcripts were reviewed. Twelve interviews were with men, seven were with women and one interview was conducted with a married couple. Fifteen interviews were conducted in English and five in Vietnamese. Interview length ranged from 10 minutes to 90 minutes with an average of 45 minutes. Two hundred and twenty

seven pages of handwritten field-notes, accompanying reports written by Research Assistant reports, and a 'mini-profile' (prepared by two members of the research team), were also reviewed. Short direct quotations from tape-recorded interviews are indicated with double quotes (""). Longer quotations are separated by a single line from the text and indented. Comments taken from interviewers notes are indicated with single quotes ('). Phrases taken directly from survey and interview questions are placed in italics.

Qualitative methods enable researchers to describe and understand participants in their own words and from their own perspective. Stories can meaningfully articulate the relationships and connections between people and their local environment <sup>(2)</sup>. This report contains both quantitative (survey) and qualitative information (tape-recorded interviews and Research Assistants' notes). Where possible the findings are integrated. The smaller number of Hamilton participants (particularly fish consumers) as well as the quantitative research background of the author made this process of integration a challenging one.



## 2.0 INTRODUCTION TO HAMILTON HARBOUR

Hamilton Harbour is located at the western end of Lake Ontario (Appendix A). Bordered along most of its south shore by heavy industry, notably iron and steel manufacturers, the harbour is the recipient of industrial as well as municipal wastewater. Recent changes, including the construction of a sewer overflow (to separate and store storm wastewater) and creation of parkland, have revitalized recreational use. The harbour also known as 'the Bay', has a long history of fishing and fish consumption. An example from the early part of the century is 'winter spearing', an activity which triggered controversy over the possible depletion of fish stocks in the Bay (3).

Designation of Hamilton Harbour as an Area of Concern, arose from a host of related problems, including the presence of conventional pollutants,

heavy metals, toxic organic compounds in fish, contaminated sediments, eutrophication, restrictions on fish consumption, and aesthetic concerns. While much progress has been made in the remediation of the harbour, fish and wildlife consumption continues to be listed as an 'impaired beneficial use'.

Hamilton Harbour has an active Remedial Action Plan coordinator and a Bay Area Implementation Team, which is the coordinating body for the 15 primary stakeholders responsible for implementing the Hamilton Harbour Remedial Action Plan. The Bay Area Restoration Council of Hamilton-Wentworth and Halton Regions (BARC) is an incorporated, non-profit, charitable organization, established in 1991 to promote, monitor and assess the implementation of the Hamilton Harbour Remedial Action Plan. Preliminary results from the Fish and Wildlife Consumption Study have been shared with both the RAP team and BARC.

LOCATION (COLUMN PERCENT)	RESPONDENTS	REFUSAL/INELIGIBLE	INTERVIEWED BEFORE*	TOTAL CONTACTS
VALLEY INN ROAD	175 (31%)	14 (23%)	46 (43%)	235 (32%)
DESJARDIN CANAL	96 (17%)	4 (7%)	8 (7%)	108 (15%)
HARBOURFRONT PARK	97 (17%)	12 (19%)	19 (18%)	128 (17%)
BURLINGTON CANAL	69 (12%)	18 (29%)	10 (9%)	97 (13%)
LASALLE MARINA	66 (12%)	5 (8%)	19 (18%)	90 (12%)
PRINCESS POINT	32 (6%)	4 (7%)	4 (4%)	40 (5%)
PIER 4 PARK	28 (5%)	5 (8%)	1 (1%)	34 (4%)
SPENCER CREEK TRAIL	2 (<1%)	0	1 (1%)	3 (<1%)
<b>TOTAL</b>	<b>565</b>	<b>62</b>	<b>108</b>	<b>735</b>

**TABLE 1: HAMILTON HARBOUR INTERVIEW LOCATIONS**

\* Interviewed before: research assistants recorded if a fisherman contacted had already participated in the survey during a previous visit to the shoreline.

## 2.1 Interview Locations

Locations within the Hamilton Harbour were chosen in discussion with the Remedial Action Plan team, McMaster University-based Ecowise project and others knowledgeable about Hamilton fishing sites and patterns. The overall objective was not to cover the harbour shoreline comprehensively, but to 'follow the fishers', making maximum contact with as large and as diverse a fishing population as time and resources permitted. Although they worked from a priority list of eight locations, Research Assistants (RAs) were also encouraged to seek out individuals who might be fishing at unusual times. Survey locations included the Hamilton Harbour or bay area and Cootes Paradise. One survey location, the Burlington Canal, which connects the harbour to the west end of Lake Ontario, is outside the Hamilton Harbour Area of Concern. Table I provides details of contacts and interviews completed at the eight fishing spots.

Valley Inn Road is located at the mouth of Grindstone Creek and the two names are used interchangeably. The point where the creek widens into two large, shallow ponds, before emptying into the harbour, is generally considered to be the only good fishing spot on the creek. This location was a traditionally popular fishing location that has enjoyed renewed interest more recently. Although this spot is not visible from the nearby highway, and fishermen would have to explore to find it or have someone tell them about it, it is a popular getaway, particularly in the fall during salmon fishing season. One respondent told us:

That was just a mud hole but the last, maybe 5 years or so, rainbow trout are going up there which they never used to go up there.

Rainbow trout never went into that Valley

Inn. It was all catfish, suckers, pike — odd pike here and there. And the rainbows, they won't go, they won't spawn unless it's a clean, clean gravel bed and that. At one time when I first came down here fishing there was no hope of even catching rainbow down there and now you can get all kinds of them down there.

Another fisherman told us that he, "would eat fish from here (Grindstone Creek) now but not five years ago."

The Desjardins Canal is one of the best fishing locations in the harbour and a popular site for a diverse group of fishermen which includes casual fishers, out-of-towners, young people and families. The Carp Barrier, built to keep Cootes Paradise free of carp, has created a 'fish in a barrel' situation, where large numbers of carp and other species are concentrated in a relatively narrow channel. For those fishermen who like to catch and keep carp, the Desjardin Canal is an ideal location. Salmon and rainbow trout are popular species in the fall and winter. But, while many fishermen enjoy the increased opportunity to catch fish, one fisherman expressed his doubts about the impact of the carp barrier:

What concerns me most right at the moment is what's being done at the Desjardins Canal with the Carp Barrier. I'm concerned that that thing is effecting more than just carp. As I said before, the thing was designed simply and only to block out large fish, so it's blocking out all large fish of all species, period. That includes catfish and the rainbow trout. And the rainbow trout have been blocked from spawning up in Spencer's Creek. They can't get in there. And that is not what it was intended to do.



PIER 4 PARK AND HARBOURFRONT are newer developments with some habitat restoration accompanying park development that has otherwise encouraged quite heavy non-fishing recreational use. These two spots are conveniently located side by side in the southwest corner of the harbour, easily accessed by transit, bicycle or on foot.

One fisherman commented positively about the whole development, "They did a nice job — I must give them credit." Others were less definitive, offering positive comments about the restoration of the parkland and fish habitat and negative comments about the lack of trees and the frequency of festivals which drive fishermen away. Fishermen commenting on individual species mentioned improved bass, rainbow trout, brown trout, salmon (which gets intense in the fall) and bluegill. For some, the increased variety of species is evidence of effective habitat restoration. One fisherman told us:

It's getting better. I heard stories about before they put Pier 4 in. Fishing was a lot better for salmon but when they put Pier 4 in the salmon run slowed right down. I find it's pretty good. Might have slowed down a bit from last year but the bass, pike fishing there is getting good.

BURLINGTON CANAL, which connects Lake Ontario and Hamilton Harbour, is popular with those fishermen who eat some or all of their catch. This is a popular spot for smelt fishing in the spring. Other species include salmon, rainbow and brown trout. One fisherman observed that "the numbers of chi-

nook have gone consistently down in the past four years and it's only getting worse."

LASALLE MARINA in Burlington is a more suburban, upscale spot where access tends to be limited to those who live quite close or have the use of a car. The species reported here include panfish and bass. One respondent, noting the evidence of improvement there and in the harbour generally, asked the interviewer:

Have you noticed what they've done around LaSalle Park? They've taken some of those old docks out and they put rip-rap or rock and built islands out there. They've planted aquatic plants in there and in the Dundas Marsh. All that can do nothing but improve the water quality.

PRINCESS POINT is a pretty park setting, with limited access except by car. This was one of the least popular fishing spots we surveyed. One elderly fisherman offered this explanation for the lack of popularity:

It was even getting good, like around Princess Point and that 'til they, it was good there for the last few years, the best I've seen it in years, and all of a sudden 'til they had that mistake last year with the sewage at the, that crick, uh...(Chedoke)... One day they let the pollution in there and after then, the fishing has not been the same. At the early spring it was good 'til they let that twice... 'cause you got your currents come through the canal here, through the High Level (bridge).

### 3.0 STUDY PARTICIPANTS

#### 3.1 Participation and Language of Interview

Over the course of three years of survey activity RAs contacted a total of 735 shoreline fishermen – 202 in 1995, 510 in 1996 and 23 in 1997 (Table 2). Of this group, 108 had been interviewed previously and 62 declined to be interviewed. This was the highest rate of participation in any of the five locations – 90% in Hamilton compared to 83% for the five survey areas together. The most successful month of survey activity was July 1996, when 178 shore fishermen were contacted. October was also a popular month for recruiting survey participants in 1995 and 1996. This pattern probably reflects both our surveying efforts and the relatively higher intensity of fishing activity during these periods.

The languages in which the initial, or contact, questionnaire was administered were English (619), Vietnamese (20), Polish (1). We deliberately hired individual interviewers with a facility in Vietnamese, Cantonese, Mandarin, Polish and Hungarian in order to extend our reach to fishermen who were more comfortable speaking a language other than English. Although this enhanced language capacity certainly improved response

rates, language remained a barrier in many other instances. Among those who refused to be interviewed 18, or close to one third, cited language as the reason. The languages spoken by these individuals were: Ukrainian (6), Russian (2), Romanian (2), Yugoslavian (2), Portuguese (2), Polish (1), Korean (1), Italian (1) and Croatian (1). Other reasons reported for not participating were 'first time here' or 'tourist' (19), 'busy' (9) and 'not interested' (9).

#### 3.2 Respondents who provided residence information

In 1996 and 1997 survey participants were asked to provide their address if they wished to receive a summary of the study results. In 1995, this question was not asked, but some participants volunteered their addresses when they were asked to do so. In all, 198 or 35% of the Hamilton survey participants provided an address and were subsequently mailed a copy of the Report to Survey Participants (Appendix B).

We analyzed the group of survey participants who provided residence information by identifying the corresponding census division code and comparing place of residence with location of fishing interview. Ninety-two percent (182) of the fishermen


	1995 AUGUST-NOVEMBER	1996 MAY-NOVEMBER	1997 MAY	TOTAL
 INTERVIEWED BEFORE (% OF TOTAL CONTACTS)	5 (3%)	101 (20%)	2 (9%)	108 (15%)
REFUSED, UNABLE	7	54	1	62
SURVEY PARTICIPANTS	190 (96%)	355 (87%)	20 (95%)	565 (90%)
TOTAL CONTACTS	202	510	23	735

TABLE 2: HAMILTON HARBOUR: CONTACTS AND INTERVIEWS BY SURVEY YEAR

\* Interviewed before: research assistants recorded if a fisherman contacted had already participated in the survey during a previous visit to the shoreline.

interviewed in Hamilton Harbour who provided an address, lived in either Hamilton-Wentworth or Halton Regions. Of those who did not live in the Hamilton Harbour area, ten lived in Metro Toronto, two each in Peel and Waterloo, and one each in Brant, Essex and Wellington Counties.

Comparison between survey participants who provided address information and those who did not, indicates that these two groups were similar in other respects. It would therefore appear to be likely that an equally high proportion (over 90%) of those fishermen who did not provide address information, were also residents of the Hamilton-Wentworth or Halton Regions. However, fishermen also mentioned to the interviewers that many

of them travelled to other sites within and outside of Hamilton Harbour to fish.

### **3.3 Comparison of respondents with census information**

Our comparison of survey respondents interviewed in Hamilton Harbour with census information about residents of the Hamilton-Wentworth and Halton regions demonstrated that the fishermen were more likely to be middle-aged, more likely to be male, less likely to speak only English at home, much more likely to speak English and another language, more likely to be a recent immigrant and much more likely to have lower household incomes than the census population.



## **4.0 HAMILTON HARBOUR SHORE FISHERMEN: DEMOGRAPHIC AND FISHING DESCRIPTIONS**

### **4.1 What the Fishermen Told Us About Themselves**

Many of the demographic characteristics of the Hamilton Harbour fishermen were similar to the combined group of the five areas surveyed. The overwhelming majority were male (92%). The average age was 37 years with a range from 14 to 86 years. The fishermen were distributed across the age spectrum with the highest proportion in the decade 30–39 years (32%). Education attainment reported by the fishermen showed all levels were represented, from grades I–8 (6%), grades 9–11 (22%), high school graduates (39%), some college or university (6%), college or trade degree (17%), to university degree (10%). Also, reported household income reflected a full range from less than \$15,000 (12%), \$15,000–<\$30,000 (25%), \$30,000–<\$45,000 (27%), \$45,000–<\$60,000 (20%) to more than \$60,000 (16%). Sixty percent of respondents were married or living with a partner and 41% reported children under age 18 in their household. Half of the fishermen surveyed were Canadian born. Compared to the fishermen interviewed in the nearby Niagara River and Toronto locations, the Hamilton fishermen who were not born in Canada were more likely to have immigrated before 1975.

Hamilton fishermen differed demographically from fishermen in the other areas surveyed in a few ways. They were more likely to be working (69%) than the total study group (62%) and less likely to be retired (9% compared with the total 14%) or going to school (10% compared with the total 13%). The average household size was 3 persons with a range from 1 to 9 persons, similar to the

total study average of 3 and a slightly smaller range than the total study (1 to 15 persons).

In measures of ethnicity there were similarities and differences between Hamilton fishermen and other survey locations. Seventy-three percent of Hamilton fishermen spoke only English at home compared with 67% of participants of the total study group. Only 10% of Hamilton fishermen spoke a language other than English at home compared with 15% of the total study group. Linguistic diversity among fishermen surveyed in Hamilton was less than Toronto, quite similar to the Niagara and Detroit River survey groups, and greater than the group surveyed on the St. Clair River.

### **4.2 What the Fishermen Told Us About Their Fishing**

Hamilton Harbour fishermen enjoy fishing. One interviewee stated simply, "To have a fish on the line makes me happy." In fact, 82% mentioned fun, sport or pleasure when asked *why do you fish*, and only 1% mentioned food. This compares with the total group surveyed (all 5 AOCs) of whom 76% mentioned fun and 6% mentioned food. Only 2% of Hamilton Harbour fishermen reported enjoying nature as a reason to fish.

One Vietnamese speaking respondent said (translated from Vietnamese):

Fishing is a type of sport, but on the contrary, it's also a type of entertainment and it trains us with the quality of patience. Besides the training for the patient quality, it's also an opportunity for us to have contact with the environment, with nature, because the air is fresh. While there, people have other enjoyments as well, such as contemplating the sky. They also have the time of silence. Besides





that point, I think the matter of going fishing, another part to the pleasure of fishing is that it gives people the feeling of comfort, of being at ease.

Although we didn't ask specifically *why do you fish in this location*, some respondents also commented that catching fish in the Harbour was easier, as there were more fish than "up north." One commented on the "wider variety but fewer fish" compared to Lake Erie. Another pointed to the easier access.

Hamilton Harbour fishermen have fished for a long time, with an average of 20 years and a range from 1 to 76 years. Twelve percent of Hamilton

fishermen were in the 40 year plus category which was slightly lower than the overall study (17%). However, Hamilton fishermen fish an average of 61 days per year (with the full range from 1-365 days) which is similar to the overall survey average of 59 days. One interviewee told us, "I love going fishing through the week. You get away from everyone. You can come here and there's no one here. It's a bonus." The RAs found Hamilton fishermen to interview in all kinds of weather. One RA wrote, "There must have been 15 guys there (many of whom I had spoken to before) and they didn't care what the weather was. Some had even called in sick to work because they had a bad case of "Salmon Fever" as they put it.'

## 5.0 COMPARISONS OF FISHERMEN WHO EAT HAMILTON HARBOUR FISH AND THOSE WHO DON'T

Twenty percent of Hamilton respondents (III) ate some or all of their catch, compared to the overall result from the 5 survey areas (38%). Few fishermen gave some to others (5%) or sold some (1%), while almost three quarters (72%) released all of their catch. We had reports from the RAs that there may have been some under-reporting of the number of meals and some lack of disclosure of fish consumption, possibly due to the stigma associated with eating fish caught in the Hamilton Harbour.

### 5.1 Demographic Comparisons

Comparisons of Hamilton Harbour fish eaters with

non-eaters showed similarities in the distribution of their ages, sex, educational attainment, marital status, children in the household, household income and size. Differences between fish eaters and non-eaters were found in their main activity, and ethnic characteristics. Those who reported eating their catch were less likely to be working (60%) and more likely to be retired (11%) than non-eaters (72% and 8% respectively). Fish eaters were much more likely to speak a language other than English at home (32%) and to be relatively recent immigrants (61% since 1985) compared with non-eaters (4% and 33% respectively).

### 5.2 Fishing Comparisons

Fish eaters and non-eaters gain similar pleasure from fishing. From the questionnaire information


 COLUMN PERCENT	HAMILTON HARBOUR (N= 451)	TOTAL SURVEY: ALL 5 AOCS (N=2769)
WATER POLLUTED OR DIRTY	295 (65%)	1304 (47%)
FISH DIRTY OR CONTAMINATED	146 (32%)	829 (30%)
FISH TASTE OR SMELL BAD**	2	28
DON'T LIKE FISH	52 (12%)	413 (15%)
FISH TOO SMALL	47 (10%)	175 (6%)
NOTHING CAUGHT	7 (2%)	263 (10%)
SPORT ONLY/ NO KILLING	20 (4%)	106 (4%)
FISH STOCKS DWINDLING	29 (6%)	124 (5%)
CLEANING/ COOKING	10 (2%)	90 (3%)
TUMOURS/DEFORMITIES	6 (1%)	62 (2%)
FISH TOO BIG/OLD	1 (<1%)	20 (1%)

TABLE 3: WHY SOME HAMILTON HARBOUR FISHERMEN DON'T EAT THEIR CATCH\*

\* More than one response was recorded.

\*\* This response was available for 1996/97 data only: these responses, as well as similar responses in 1995 are included in the preceding line with 'fish dirty or contaminated.'



there appeared to be only slight differences between these groups in terms of their reasons for fishing. As expected, non-eaters did not mention food as a reason for fishing, but only 5% of eaters mentioned it. Although there were no differences in the number of years fished, the eaters fished more days per year than the non-eaters.

### **5.3 Why some Hamilton fishermen don't eat their catch**

In response to the question *why don't you eat your catch?*, 70% of non-eaters reported polluted water as a concern, compared to 52% from the total survey (Table 3). Thirty-two percent mentioned dirty or contaminated fish. One respondent declared "The fish we catch are non-edible" and another said "I keep what I catch up north (Flamborough), there the fishing is good and clean, here it's garbage fish." Hamilton fishermen also reported more concerns about small fish (10% compared with 7% survey total) and dwindling stocks (6% compared with 5% survey total). One interviewee stated, "The fish stock here is too small." Lower proportions of non-eaters cited concern about killing fish (4%), not liking to clean, cook (2%) or eat fish (12%), as reasons for not eating their catch. Only 1% mentioned concerns about tumours or deformities. In the field notes, it was recorded that one fisher 'heard that the fish are contaminated from other people. They told him about growths they've found. He's never caught a fish with these qualities'.

RAs reported a 'stigma' attached to eating fish from

Hamilton Harbour. One non-eater stated he was, "disgusted at the idea of eating Hamilton Harbour fish." It was reported that one fisher 'wants to eat the fish (from Desjardins Canal) but people keep telling him that he has to be careful because of the pollution in Hamilton Harbour'. One non-eater told an RA that he 'doesn't eat the fish because pollution in Lake Ontario is the worst of all the Great Lakes because it's the bottom lake and all the pollution from all the upper lakes flow into Lake Ontario'. Another non-eater said, "I don't need to (eat). I buy what I eat."

The following exchange took place between an RA and a fisherman who does not eat any of his catch:

A: There's a lot of fish around here that people eat that I don't think they should eat.

Q: Yeah? What kinds?

A: Carp. channel cat.

Q: Do you have people asking you for it when you catch it?

A: Oh yeah...

One respondent expressed these concerns about dwindling stocks:

I would have to say one of the things that concerns me is overfishing. Because I've seen guys, especially down at Pier 4 Park come there with these 5 gallon pails and they catch the little rock bass and the little sheephead, like the pan fish and they fill their pail up with them and walk away... You take out all these little fish, you're not going to have any big fish. Years down the road you won't have any fish, period.



## 6.0 MORE ABOUT HAMILTON FISH EATERS

### 6.1 Comparisons of Fish Eaters Who Are Occasional or Frequent Consumers

We divided the Hamilton eaters into two groups; occasional consumers (1–25 meals in the past 12 months) and frequent consumers (26 or more meals). Of the Hamilton fish eaters, 56% were occasional consumers and 44% were frequent consumers. This was a different pattern than the larger survey group, where 74% of all eaters were occasional consumers and 26% were frequent consumers.

Age, sex, household income, household size and children were factors that were similar across both levels of consumption.

Although Hamilton eaters as a group were less likely to be working than non-eaters, the frequent fish consumers were more likely to be working (65%) and less likely to be retired (6%) or receiving disability (2%) than occasional consumers (57%, 15% and 5% respectively). This pattern is different than the one seen in the survey of all five AOCs, where the frequent consumers were less likely to be working. Hamilton frequent consumers were less likely to speak only English at home (21%) and more likely to speak a language other than English at


 SPECIES*	MAX. NUMBER OF MEALS REPORTED EATEN BY ONE INDIVIDUAL IN THE PAST 12 MONTHS	TOTAL NUMBER OF MEALS REPORTED BY EVERYONE EATING THIS SPECIES IN THE PAST 12 MONTHS	NUMBER OF EATERS	MAIN HAMILTON HARBOUR LOCATION SITE(S)**
CHANNEL CATFISH (HH)	104	627	44	Desjardins Canal
RAINBOW TROUT (WLO)	70	358	43	Valley Inn
YELLOW PERCH (HH)	20	202	35	Valley Inn, Desjardins Canal
WHITE BASS (WLO)	91	394	30	Desjardins Canal
SMALLMOUTH BASS (WLO)	104	562	30	Desjardins Canal, Valley Inn
CHINOOK SALMON (WLO)	52	211	30	Valley Inn, Burlington Canal
LARGEMOUTH BASS***	169	476	25	Valley Inn, Desjardins Canal
FRESHWATER DRUM (HH)	39	188	22	Desjardins Canal
ROCK BASS***	104	327	22	Desjardins Canal
COMMON CARP (HH)	70	287	22	Desjardins Canal
BROWN TROUT (HH)	37	139	22	Valley Inn, Burlington Canal
COHO SALMON (WLO)	10	58	18	Harbourfront, Desjardins Canal
PUMPKINSEED***	104	376	15	Desjardins Canal
BROWN BULLHEAD (HH)	78	201	14	Desjardins Canal
BLUEGILL***	38	153	13	Desjardins Canal
RAINBOW SMELT (HH)	100	350	13	Valley Inn, Desjardins Canal
WALLEYE (PICKEREL) (WLO)	43	121	11	Desjardins Canal
NORTHERN PIKE (WLO)	7	29	9	Valley Inn, Desjardins Canal
BLACK CRAPPIE (HH)	7	26	8	Harbourfront, Desjardins Canal
LAKE WHITEFISH***	39	105	7	Desjardins Canal
AMERICAN EEL***	35	48	7	7 different locations reported
LAKE TROUT (WLO)	17	36	6	Burlington Canal
WHITE PERCH (HH)	12	32	6	Princess Point
<b>ALL SPECIES</b>		<b>5405</b>	<b>111</b>	

TABLE 4: FISH SPECIES CONSUMPTION INFORMATION

\* Legend: HH refers to Hamilton Harbour listing in the Guide to Eating Ontario Sport Fish 1997–98 (p. 130);

WLO refers to the Western Lake Ontario listing in the Guide for 1997–98 (p. 130–1)

\*\* This column lists fishing spots where the species listed were most frequently mentioned by survey participants. This does not necessarily mean the species listed was consumed exclusively or even primarily from the fishing spots listed

\*\*\* Italics indicates that these species are not listed in the Guide to Eating Ontario Sport Fish 1997–1998 under either the Hamilton Harbour location listing or the Western Lake Ontario listing.

home (54%) when compared to occasional consumers (60% and 15% respectively). Frequent consumers were more likely to have been born outside of Canada (77%) and more likely to be recent immigrants (73% since 1985) than less frequent consumers (46% and 44% respectively).

Most of the frequent consumers mentioned that they enjoyed fishing for fun, sport and pleasure. Frequent consumers might be expected to give food as a reason for fishing but still only 7% mentioned this. The frequent consumers were more likely to give fish away (12%) than occasional consumers (2%). There were no differences to note between levels of consumption with respect to days of fishing, but years of fishing showed an interesting and different pattern. The largest proportion of frequent consumers (62%) had fished for less than 10 years. This may be related to the relatively recent arrival in Canada of many of the frequent eaters.

## 6.2 Species Eaten

The top five species eaten from Hamilton Harbour were: channel catfish, rainbow trout, yellow perch, white bass and smallmouth bass (Table 4).

Compared to the total group surveyed, this list differs only in that channel catfish is much higher for Hamilton Harbour and walleye (pickerel) is lower for Hamilton than the aggregated list for all 5 AOCs. There are reports from the RAs that some fishermen refer to channel catfish and bullhead under the umbrella term of 'catfish' and that this perhaps led to the over-representation of channel catfish in Table 4. On the other hand we also have reports that some eaters won't eat bullhead and prefer to eat channel catfish, suggesting that they are well aware of the differences between the species. The main locations of interviews where each species was mentioned are indicated in Table 4. Respondents were not asked to identify fish

species taken from that *particular fishing spot*. Rather they were asked which species they consumed *from this area* and the Research Assistant specified the Hamilton Harbour and Cootes Paradise areas.

The species mentioned in the long interviews and interviewer notes are similar. Yellow perch was described as "sweet meat that doesn't taste like fish — more like chicken." Sheephead was reported to be "a clean fish really, it eats only insects." Pike was thought to be difficult to clean and eat because of the bones.

The Fish and Wildlife Habitat Restoration Project sorted fish at the Cootes Paradise Fishway in the spring of 1997 (Appendix E). This group found the following top 3 species trapped on the Cootes side: carp, brown bullhead and white sucker and trapped on the Harbour side: white sucker, brown bullhead and rainbow trout.

## 6.3 Information on Fish Species in the 1997-98 Guide to Eating Ontario Sport Fish

The Hamilton Harbour area that we surveyed, is covered by *Guide* listings for Hamilton Harbour (p. 130) and Western Lake Ontario (p. 130-131) <sup>(1)</sup> (Table 4). The top species reported consumed was channel catfish, which the 1997 - 1998 edition of the *Guide* recommends should not be consumed at all from Hamilton Harbour. Forty-four individuals reported consuming a total of 627 meals of this fish during the 12 months prior to being surveyed. Even allowing for some confusion in species identification between channel catfish and brown bullhead, which is much more common in the Harbour (personal communication with Victor Cairns), this number of reported meals and eaters of channel catfish is of note. The *Guide* also recom-


 AREA SURVEYED	1-11 MEALS	12-25 MEALS	26-95 MEALS	96+ MEALS	ALL EATERS	TOTAL N
HAMILTON	4% (45)	13% (17)	19% (34)	29% (15)	13%	111
ALL 5 AOCs	<b>11% (911)</b>	<b>14% (386)</b>	<b>18% (368)</b>	<b>21% (97)</b>	<b>14%</b>	<b>1762</b>

TABLE 5: MEAN PERCENTAGE OF MEALS EATEN OF SPECIES NOT LISTED IN THE GUIDE TO EATING ONTARIO SPORT FISH 1997-1998 (N= NUMBER OF EATERS)

mends no more than two meals per month or 24 meals per year for two other species: white bass and rainbow smelt. The highest number of meals reported eaten in the previous 12 months by a single individual was 91 for white bass and 100 for rainbow smelt, substantially above the consumption advisory guideline.

Thirteen percent of Hamilton Harbour meals consumed were fish species for which no consumption advisory information was available in the current edition of the *Guide*. This is similar to the mean for all of the areas surveyed (Table 5). The proportion of meals comprised of species for which there was no advisory information increased with the number of meals which Hamilton eaters reported eating during the 12 months prior to the interview. For example, 15 very frequent eaters from Hamilton had a mean of 29% of meals consumed for which there was no consumption advisory information available. In short, the more fish meals which individuals consumed, the more likely they were to be

eating fish for which there was no available consumption advice.

#### 6.4 Eating Fish from Other Ontario Locations

Hamilton fish eaters were asked if they ate fish from other Ontario locations and 68% answered "yes", which is high compared with 52% for the total study group. Some non-eaters were also asked about other locations from which they ate the fish. The most popular of the locations were other Southern Ontario inland sites and Lake Ontario (Table 6). No Hamilton respondent mentioned eating fish from the St. Lawrence River or Lake Superior.

Sixty-two percent of all the Ontario sport fish meals that our survey respondents reported eating, were from Hamilton Harbour. This was slightly lower than the corresponding percentage obtained in the overall study (69%).


 ROW PERCENTS	SOUTHERN ONTARIO	LAKE ONTARIO	LAKE ERIE	LAKE HURON	NORTHERN INLAND
NON-EATERS N=454	2%	1%	2%	0.5%	0.5%
EATERS N=111	19%	29%	7%	5%	4%

TABLE 6: PERCENTAGE OF HAMILTON FISHERMEN WHO ATE FISH FROM OTHER ONTARIO LOCATIONS

\* Respondents could give more than one location



## 6.5 Fish sharing, cleaning, preparation and cooking

We asked the 111 fishermen who reported eating some or all of their catch the question *Who eats the fish you catch?* Forty-eight percent mentioned spouse or partner, 41% friends or neighbours, 39% parents or siblings, 36% children, and 17% other relatives. Just 6% reported giving some of their fish to others.

Hamilton fish eaters were the most likely to eat parts of the fish other than the fillet; 49% compared to only 25% of survey participants overall reported eating other parts.

## 6.6 Use of the Guide and other sources of fish consumption information

Sixty-five Hamilton Harbour respondents answered the 1996/97 question *Do you use the Guide?* Only 26% responded *yes*. This was the lowest reported use in all five survey areas (survey average 32%). In 1995, 45 Hamilton respondents answered the question *Are you aware of the Guide?*, and 15 (33%) responded *yes*.

Respondents who consume Hamilton Harbour fish were asked, *What sources of information help you make decisions about eating fish that is caught?* Fifty-four percent (35/65) mentioned interpersonal sources such as friends, relatives or other fishermen.

## 6.7 Why Hamilton fish eaters like to eat their catch

When they were asked what they liked about the fish they caught in the Harbour, 77% of Hamilton eaters stated that the fish tastes good. Other responses were that the fish were cheap or free (8%), okay to eat or not contaminated (3%) and fresh (2%) (Table 7). Both the occasional and frequent eaters who responded to this question were very positive about the fish they ate. The more meals they reported eating the more likely they were to say the fish tastes good (occasional consumers (68%), frequent consumers (88%)).

Although eating fish because it is healthy did not show up in the questionnaire results, one eater commented:


But for the people I've contacted, the people who live by the seashore, they have very good health. They are less susceptible to sickness. Due to their fish eating, I've noticed, their bodies seem to rarely become sick or ill.... However, I assume eating fish is better than eating meat.

## 6.8 Concerns Hamilton Fish Eaters have about their Catch

More than half (51%) of Hamilton fish eaters had concerns about their catch. Of this group, 58% of respondents were concerned about water pollution

	HAMILTON HARBOUR (107)	TOTAL SURVEY (1716)
TASTES GOOD	82 (77%)	1084 (63%)
NOTHING IN PARTICULAR	12 (11%)	284 (17%)
OKAY TO EAT/UNCONTAMINATED	3 (3%)	113 (7%)
FRESH	2 (2%)	120 (7%)
CHEAP/FREE	9 (8%)	89 (5%)

TABLE 7: WHAT HAMILTON EATERS LIKE ABOUT THEIR CATCH

 COLUMN PERCENT	HAMILTON HARBOUR (55)	TOTAL SURVEY EATERS WITH CONCERN (913)
WATER POLLUTED OR DIRTY	32 (58%)	433 (47%)
FISH DIRTY OR CONTAMINATED	26 (47%)	402 (44%)
FISH TASTE OR SMELL BAD #	0	23
FISH STOCKS DWINDLING	5 (9%)	130 (14%)
TUMOURS, DEFORMITIES	9 (16%)	151 (17%)
FISH TOO SMALL	2 (4%)	30 (3%)

**TABLE 8: FISH EATERS CONCERNS ABOUT THEIR CATCH**

# 1996/97 data only: included in the percentage in preceding row

and 47% about dirty or contaminated fish. Fewer Hamilton fish eaters (9%) were concerned about dwindling fish stocks than the combined group of 5 AOCs (14%). The occasional consumers were more likely to report concerns (61%) about the fish caught than the frequent consumers (38%). The concerns of the lower consumption group were that the water was polluted (66%) and that the fish were dirty or contaminated (47%). The higher consumption group shared those concerns (41% and 47%) but were also concerned about tumours / deformities (24%).

In the field notes, one interviewer commented, 'this man knows the fish can potentially be polluted... not be good for him but he eats it anyway since there are just too many things bad for you to worry about it.'

Another eater said:

Somebody said to me 'gee, you eat fish out of here you actually will be able to use me as a fluorescent light bulb'. I said, 'What do you

mean?' He said, 'It's all polluted.' I said, 'Well, I was told if you eat in small quantities and as long as you keep the weight down in the fish you're okay. Cut all the fat out as much as possible and carefully clean it, you're all right.' I says, 'Well, I've eaten some trout and I'm not glowing yet'.

The example of apparently healthy elders or peers to justify their fish consumption was mentioned in a number of interviews. For example: "if the 86 year old man has eaten fish from Grindstone Creek all his life and he's OK then maybe it is okay to eat the fish" and, "if the Asians can eat the fish and nothing happens to them then it must be okay to eat." One woman told us:

my husband also said that even if there were contaminants in fish, when we fried that fish all the bacteria would be killed. The more than 100 degrees Celsius would kill everything. He eats without worrying at all. He likes fish anyway so he does not believe whatever people say.



## 7.0 COMPLIMENTS AND CONCERNS ABOUT THE HAMILTON HARBOUR ENVIRONMENT: PAST, PRESENT AND FUTURE

Through both the tape-recorded interviews and field notes, survey respondents provided us with a wealth of information about the harbour. Some of the information was very specific to whether individuals consumed their catch or not, but in other respects many of the comments offered by the fish eaters and non-eaters were similar. Some fishermen were very well informed about issues relating to the harbour fishery such as the carp barrier, zebra mussels, sewer overflow and the building of Harbourfront and Pier 4 parks. Others were somewhat confused about the potential sources of contamination in the Harbour. Some gave suggestions for action. One respondent who remembered the fishery of the past commented, "I remember in the 1950s when there were fisheries in Hamilton. Everyone ate fish from the lake then." One fisher spoke knowledgeably about the Harbour:

Well, for one thing, they've been dredging out all of the coal tar and all the crap that was dumped in there... A lot of that stuff is gone so the water quality is improved. And they're building sewage holding tanks now. The one by the Spectator and then there's another one going into Eastwood Park, there's another sewage holding tank. And there's going to be, I think there's going to be one more going in Dundas, but I'm not positive about that. And when that happens they won't be dumping any more raw sewage into the Harbour or Cootes Paradise anymore which is a big source of bacteria. And nutrients for algae. Right? 'Cause the Harbour has a lot of problems with algae and

unwanted plant growth like that because the nutrients that get in there from the sewage. When they stop dumping that sewage in there, you're going to see the water quality and the fishing improve dramatically. That's the biggest improvement that they can possibly make is to stop dumping sewage into the Harbour. Not only will it be good for the fish, but you can swim in it then. There won't be this problem with the fecal coliform bacteria that accumulate when the weather gets warm.

Another respondent talked about her history growing up in Hamilton:

It was the north end and the guys used to fish at night. And the men would go out fishing at night, especially in the spring. They'd catch a lot of shad and smelt. And they would bring them in. And if they caught a big fish, that was a treat. Again, everybody had big bags. So you would say, 'I can have this', refrigeration wasn't a great big thing, and my neighbour next door would share it at her house. She would be thrilled, 'Hey, I've got fresh fish'.

One fisher, who was now 50, stated that as a kid: The water was clear, you could dive in, open your eyes and see to the bottom, from the high level bridge area. As recently as 10 years ago we would regularly catch fish (all sorts and sizes) with large mutated growths. About five years ago the fish caught were more 'normal' looking.

Fishermen have their own measures to gauge improvements. One respondent said that, "the water is cleaner now than a couple years before. black bass in the water. They're a bit fussy, so you

know the water is getting cleaner." Another fisherman reported, "the lamprey has gotten much better." One man told an RA, "gar pike are back in the Harbour now, since they've just returned from spawning." Another man said, "the water is definitely cleaner now since pickerel are able to survive in it. Pickerel are known to be really finicky about water quality. If it's able to survive then the water is better." One non-eater said, "the water is cleaner now since largemouth bass and pike can survive in the water. They are picky fish that will only survive in clean water." Another commented:

I hear a lot of talk that the water's a lot better. I think the last couple of years that I've known Hamilton, or 4 years that I've known Hamilton, for some reason, it looks like there's a lot more wildlife around here. Like birds. A few weeks ago, I saw, oh, it might have been a month ago. I was here fishing where the carp barrier is, I got the shock of my life, a partridge flew by me.

Some of the fishermen were pleased with the improvement but concerned that the fish were too small. Some respondents commented that they perceived the harbour to be cleaner than water from their original home in Europe, the USA, Asia or even as clean as Port Elgin (Lake Huron) rivers. Some fishermen tended to identify themselves as different from 'others' in terms of fishing etiquette and consumption practices exhibited on the shore. Concerns were expressed about others taking fish for roe, the practice of keeping and eating small fish, and keeping everything that is caught.

There were participants whose comments indicated some confusion or lack of knowledge; specifically about dilution: "there is no contamination

in such a big lake and the fish has so much room to live", sources of contaminants: "all the factories were on the land so they had nothing to do with the water; and if they dumped something into the water; the water would be turned to black", and government action: "in this country if there are contaminants, the government will forbid fishing in that area. It does not make sense if they let people eat what they catch in an area that has contaminants."

While almost all of the Hamilton area fishermen we tape-recorded were encouraged by positive changes in the Harbour environment, some expressed pessimism about the Harbour clean-up: "I think the bay's too far gone." Another commented about local industry: "They're the biggest polluters in the world. That place there where there's all that ore, it'll take 100 years to clean that up."

One fisher expressed concerns about the Zebra Mussels, that they were "filtering out the pollution and at the same time they take out a lot of the natural minerals in the water that the small fry feed on."

We heard a number of suggestions for the Harbour. One interviewee stated:

If there's ever going to be a real decent fishery built up in here there should be stocking and there should be more policing of catch limits. You can't have people walking away with big buckets of little fish. That doesn't work. If the Harbour could be made to resemble something like the Bay of Quinte, you could create a bigger tourist industry.

One man suggested stocking or promoting chinook salmon, trout, bass and pickerel. Another

mentioned enhancing fish habitat:

What they really could do is get, there's rocks all over the place, just pour rocks. Just get a barge, load it up with boulders, dump the boulders off in certain key points of the bay and that'll bring up the area for the fish.

'Cause it'll be a hiding spot, it'll be a spawning spot, it could be almost anything. 'Cause over at Fifty Point, they just put, a couple of years ago they were just building a spot for sailboats and stuff like that, like a docking area, and they put boulders in and the fish are just thriving all around the boulders.

A few mentioned environmental clean-up in their discussion. One respondent suggested, "They got to scrape off the bottom, the sludge." One RA summed up a lengthy conversation with a local fisherman in this way; 'It was quite obvious that this guy is a very concerned citizen and his civic

pride in his city (Hamilton) is very important to him. He also feels that he cares but has a hard time having his input listened to.'

It is interesting to consider our results in light of the Ecowise report (5), which analyzed 2765 mailed in surveys (71% response rate) from households randomly selected within the Hamilton Harbour watershed. They report that 99% of their respondents agreed that environmental pollution was a problem for the Hamilton area and that 90% indicated Harbour pollution as a concern. Almost three-quarters of their respondents stated that the Harbour has improved, with some noting that it is scenic (about 25%) accessible (about 25%) and has good recreation (about 35%). Although less than 20% of those surveyed said that they fished, they appeared 'willing-to-pay' almost an extra \$19 per year for better fishing.



## 8.0 CONCLUSION

The Hamilton Harbour areas offers opportunities for enjoyable shore fishing and fish consumption. Hamilton Harbour fishermen are more likely than others surveyed to be slightly younger, working, and speak English at home. Of the five locations surveyed, Hamilton Harbour had the smallest proportion of fishermen who ate their local catch. However, among the groups who do eat fish from Hamilton Harbour, there is a higher proportion of frequent eaters ( more than 26 meals in the past 12 months). Those fishermen who did not report eating their catch were similar to their consuming peers in demographic characteristics such as age, sex, education, marital status, household size, income, number of children and years fished. Where they did differ was in main activity (fish eaters were more likely retired or not working than non-eaters), language (fish eaters more likely to speak a language other than English at home) and immigration (fish-eaters were more likely to be recent immigrants). However, within the group of Hamilton fish eaters, those who ate fish more frequently were more likely to be working.

Hamilton Harbour fishermen who are eating their catch from Hamilton Harbour may be at risk if

they are; eating fish species for which the *Guide to Eating Ontario Sport Fish (1997-1998)* recommends no consumption; eating more meals of individual species than the *Guide* recommends; eating fish for which consumption advisory information is not available; eating parts of the fish other than the boneless, skinless, fillet (which is the basis of all *Guide* contaminant measurements).

Hamilton Harbour fishermen (including fish eaters) have concerns about the water and the fish in the harbour, but many commented on improvements in the harbour, including the water quality and the numbers and species of fish available.

The fishermen we interviewed on the shoreline have the potential to play an important role as stewards of the Harbour. In the right circumstances their local knowledge, direct and active involvement in the fishery, could make a valuable contribution to maintaining and improving both the fishery and the harbour environment which sustains it. It is our hope that the distribution of this report will encourage greater attention to the local recreational fishery and promote more active involvement of shoreline fishers in the policies and programmes which affect the Hamilton Harbour.

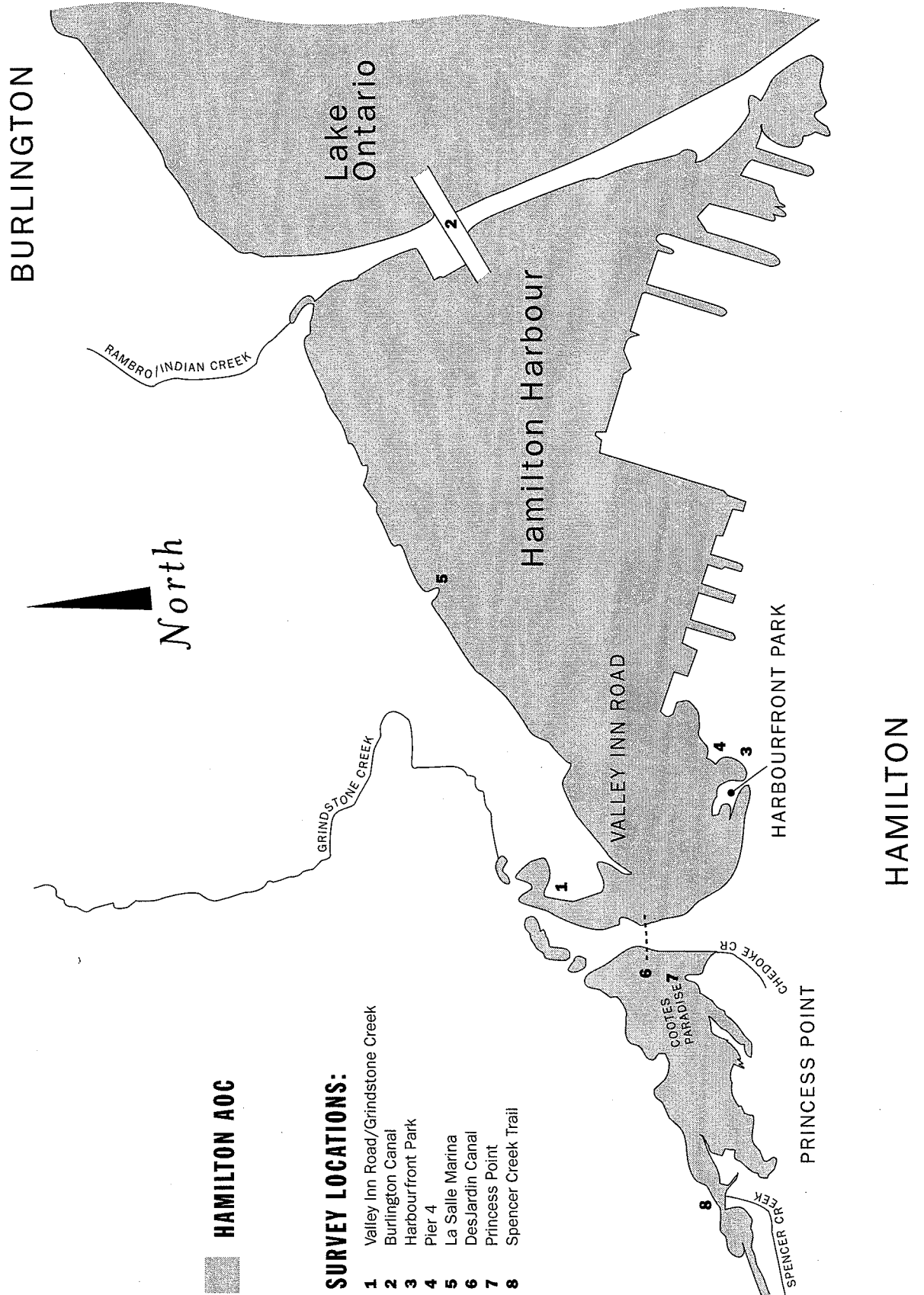


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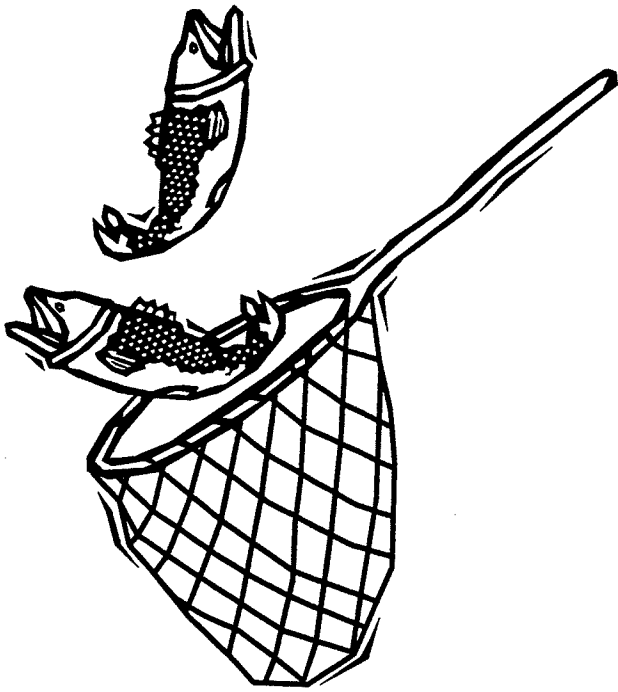


**APPENDIX A: Hamilton Harbour/The Bay - Location Map**



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# Sport Fish Consumption *in the* Great Lakes Basin

Report to  
Survey  
Participants

**Hamilton**

**October, 1998**

BETWEEN AUGUST 1995 AND JUNE 1997, we interviewed people who were fishing along shorelines as part of the Sport Fish and Wildlife Consumption Study in Areas of Concern. This project was funded by Health Canada. We asked questions about catching and eating fish and other aquatic wildlife in the Hamilton Harbour, Metro Toronto, Niagara, St. Clair and Detroit River areas. In some cases, we also tape-recorded a longer conversation with people as they fished.

The people we interviewed at different fishing spots did not necessarily live nearby. This report has been prepared for fishers we interviewed while they were fishing at shoreline locations in the Hamilton Harbour area. It includes information from all five survey areas, so that results from the different areas can be compared.

## **The Reasons for this Research**

In Canada and the United States, there is scientific and public interest in knowing more about the “risks” and “benefits” of eating fish and wildlife from the Great Lakes basin. Researchers are interested in finding out who eats the fish and wildlife, how much they eat, what species they eat, and how they prepare and cook their catch. With this information, we can look at the levels of chemicals from pollution that are in fish and wildlife, and see if the amounts people eat may be harmful to their health.

This “risk” of eating fish needs to be weighed against the value of fishing and hunting as a recreational activity, the importance of fishing and eating fish among people from various cultures, and the fact that fish is a nutritious food, recommended as part of a healthy diet. We need to look at these “benefits” of catching and eating fish, and understand how they may contribute to people’s enjoyment, “quality of life” and overall health.

We began our research by talking with people who fish in five areas of the Great Lakes. The areas we chose are called “Areas of Concern”, or AOCs, by the International Joint Commission, the group of Canadian and U.S. experts who must recommend how to clean up the Great Lakes. Local sources of water pollution in these AOCs have restricted the “beneficial uses” of the water, including being able to eat certain fish. This means that people who eat fish from AOCs are more likely to also consume chemical contaminants than people who eat from other Great Lakes locations. However, we don’t know if the amounts eaten have harmful effects on human health.

## **How Much Great Lakes Fish are People Eating?**

One of the first questions we asked each survey participant was, “What do you do with the fish you catch in this area?” In Hamilton we were referring to the Hamilton Harbour, the ‘Bay’ including the Burlington Canal and Cootes Paradise.

Table 1 summarizes the answers to this question in each of the five survey areas (listed across the top of the table). Under each survey area, there are two columns. The left-hand column, titled “N”, lists the number of people who gave each answer. The total number of participants for each area is given at the bottom—in the Hamilton Harbour Area of Concern 563 people were interviewed. The right-hand column, titled “%”, gives the percentage of people in each survey area that gave each answer. For example, 452 of the 563 people, or 80% of the people who we interviewed in the Hamilton area said they did not eat any of the fish they caught from the area during the past 12 months. We are calling these people “non-eaters”. Those who said they ate “some” or “all” of their catch are “eaters”, and are divided among 4 categories, depending upon how much fish from the survey area they ate in the previous 12 months.

**Table 1:** Distribution of non-eater, low, moderate, high and very high eaters among survey participants.  
Total number of meals per year of Great Lakes fish by survey location (AOC)\*.

Number of Meals	Niagara		Hamilton		Toronto		Detroit R.		St. Clair R.		Total	
<b>Non-eaters</b>	411	68%	452	80%	1,158	77%	481	48%	331	36%	2,833	62%
<b>1-11 meals (low)</b>	103	17%	45	8%	208	14%	276	28%	279	30%	911	20%
<b>12-25 (moderate)</b>	49	8%	17	3%	66	4%	112	11%	142	15%	386	8%
<b>26-95 (high)</b>	37	6%	34	6%	51	4%	102	10%	144	16%	368	8%
<b>96 or more (v. high)</b>	9	2%	15	3%	20	1%	27	3%	26	3%	97	2%
<b>Total</b>	<b>609</b>		<b>563</b>		<b>1,503</b>		<b>998</b>		<b>922</b>		<b>4,595</b>	

\* Note: Among the 4637 survey participants, 4595 provided specific information about fish caught and eaten "from this area ... during the past 12 months."

If you compare the numbers in the column for Hamilton with the numbers in other columns for other survey areas, there are some interesting differences. In the Niagara River area, 68% or approximately 2 people out of every 3 interviewed, did not eat any of their catch. In Metro Toronto, this number rises to 77%. In Hamilton 80%, or 4 out of every 5 people interviewed, did not eat any of their catch. This was the highest proportion of "non-eaters" in any of the areas where we surveyed. In contrast to these 3 locations, 48% or slightly less than half of the people we surveyed on the Detroit River were "non-eaters", and only 36% of those in the St. Clair River area did not eat any of their catch. Thus, most of the people we interviewed in the Metro Toronto, Hamilton Harbour and Niagara River areas did not eat any of their catch. However, most of the people we spoke with along the St. Clair River, and about half of those interviewed along the Detroit River, ate some or all of the fish they caught. The column to the far right in Table 1 (titled "Total") shows that overall 2,833 of the 4,595 people we interviewed in this study, or 62% of our study participants, reported that they did not eat any of the fish they had caught in the survey areas over the past 12 months.

As shown in the column on the far right in Table 1, most of the "eaters" we interviewed were in the "low" consumption category, reporting between 1 and 11 meals of locally caught fish eaten during the previous year. Out of the 38% of the fishers who reported eating some or all of their catch 20%, a majority ate between 1 and 11 meals in the past 12 months.

In the Hamilton Harbour area where the fewest people reported eating any of their catch, a surprisingly large number of the “eaters” reported more than 26 meals in the past 12 months. Out of 111 fishermen who ate some or all of their catch in the last 12 months, 34 reported eating 26-95 meals, and another 15 reported eating more than 96 meals, in the last 12 months. In Hamilton then, 44% (49 out of 111) of the “eaters” reporting eating more than 26 meals of locally caught fish in the past 12 months.

### **Why Do People Release Their Catch?**

Peoples’ opinions about the cleanliness of the water and concerns about chemical contaminants in the fish play a big part in their decision to either keep or release their catch. Those who were fishing in Hamilton Harbour, Metro Toronto, the Niagara and Detroit River areas were much more likely to mention water pollution and contaminated fish as reasons for releasing their catch, than were people fishing on the St. Clair River. The time of year, the species, the look of a particular fish, a person’s luck that day, and past fishing habits also played a part in the decision to keep or release fish. Some people simply don’t like the taste of fish, others don’t like cleaning and cooking them. Some people release their catch in order to preserve the fish stocks. Often people fish at specific locations and times of the year hoping to catch a particular species which they think tastes good, and they will throw back other species that they don’t want.

### **Which Fish Species Do People Prefer to Eat?**

When survey participants said they ate “some or all” of their local catch, we asked detailed questions about the species eaten. Researchers were also equipped with colour pictures of approximately 30 different fish species to help identify species which fishers reported eating. Table 2 below lists the species that were most often reported for each of the 5 AOCs. The species name is listed on the left and the number of people (N) who reported eating at least one meal of that species during the past 12 months, is listed on the right.

**Table 2 : 1995-96-97 Shore Survey**  
Species Consumed in AOC's by Number of Eaters

Toronto		Hamilton		Niagara		Detroit R.		St. Clair R.	
Species (N)		Species (N)		Species (N)		Species (N)		Species (N)	
Rainbow Trout	(119)	Channel Catfish	(44)	Yellow Perch	(112)	Yellow Perch	(379)	Walleye	(406)
Largemouth Bass	(97)	Rainbow Trout	(43)	Smallmouth Bass	(79)	Walleye	(270)	Yellow Perch	(362)
Smallmouth Bass	(88)	Yellow Perch	(35)	Rainbow Trout	(58)	White Bass	(163)	Rainbow Trout	(254)
Common Carp	(66)	White Bass	(30)	Walleye (Pickerel)	(34)	Rock Bass	(142)	Coho Salmon	(147)
Brown Trout	(66)	Smallmouth Bass	(30)	Rainbow Smelt	(31)	Smallmouth Bass	(141)	Smallmouth Bass	(100)
Chinook Salmon	(64)	Chinook Salmon	(30)	Rock Bass	(30)	White Perch	(112)	Brown Trout	(97)
Channel Catfish	(63)	Largemouth Bass	(25)	Largemouth Bass	(28)	Channel Catfish	(102)	Chinook Salmon	(81)
Yellow Perch	(59)	Freshwater Drum	(22)	Northern Pike	(24)	Bluegill	(88)	Rock Bass	(79)
Northern Pike	(54)	Rock Bass	(22)	Channel Catfish	(22)	Largemouth Bass	(80)	Northern Pike	(76)
Walleye	(48)	Common Carp	(22)	Crappie	(19)	Crappie	(76)	Crappie	(54)
Rock Bass	(45)	Brown Trout	(22)	Brown Trout	(19)	Northern Pike	(63)	Largemouth Bass	(53)
Coho Salmon	(45)	Coho Salmon	(18)	White Bass	(18)	Brown Bullhead	(29)	Bluegill	(50)
Sunfish	(31)	Pumpkinseed	(15)	Lake Trout	(16)	Pumpkinseed	(29)	White Bass	(45)
Freshwater Drum	(30)	Brown Bullhead	(14)	Freshwater Drum	(13)	Freshwater drum	(22)	Rainbow Smelt	(41)
Lake Trout	(29)	Bluegill	(13)	Chinook Salmon	(13)	Muskellunge	(17)	Channel Catfish	(31)

In all the survey areas combined, more people reported eating Yellow Perch, Walleye (Pickerel) and Rainbow Trout than any other species. This was followed by various Bass species (Smallmouth, Rock, White, and Largemouth). Knowing how many people ate each species in the past year gives us some idea of how popular the species is, provided of course that it is available from the local fishery. For example, Walleye (Pickerel) is a favourite for eating in all 5 survey locations, but is much easier to catch on the St. Clair and Detroit Rivers than it is in the Hamilton Harbour, Niagara River or Metro Toronto area. Rainbow Trout, which is extremely popular in the Metro Toronto, Hamilton Harbour, Niagara and St. Clair Rivers, is rare in the Detroit River.

The different order of species reflects not only differences between the local fisheries, but also the taste preferences of local people. While there might be general agreement among the "eaters" we surveyed that Yellow Perch and Walleye are good-tasting fish, some individuals said that their favourites were Channel Catfish, Carp, Freshwater Drum (Sheephead) or Smelt. In Hamilton for example, Channel Catfish topped the list of species eaten. Although there may have been some confusion identifying the differences between Channel Catfish and Bullhead, Catfish was certainly popular among many "eaters" in Hamilton. In Hamilton, Freshwater Drum and Common Carp were tied at 8th among the most frequently eaten species. The relatively large number of people who reported eating Channel Catfish, Carp and Freshwater Drum in Hamilton (and also Metro Toronto), shows the availability of these species, but also reflects the taste preferences of people fishing in these areas.

## Fishing in the Hamilton Harbour Area of Concern

The 563 people we interviewed while they were fishing in the Hamilton Harbour area had a wide range of cultural backgrounds: 18% reported speaking English and another language at home, while 10% reported speaking a language other than English at home. Cultural and language diversity in Hamilton Harbour was similar to the Niagara and Detroit River survey areas, but not as great as Metro Toronto. Apart from English, the most common languages among people fishing in Hamilton were Vietnamese, French, Italian and Portuguese.

Only one fifth, 20%, of the individuals we spoke with in the Hamilton Harbour area said they ate any of their catch. This was the lowest proportion of eaters in any of the five survey areas and probably reflected the widespread feeling that Hamilton Harbour is one of the most polluted locations in the Great Lakes. Many of the non-eaters we interviewed were shocked by the idea of eating your catch from Hamilton Harbour. Many recalled the years of extreme water pollution in the 1960's and 1970's.

On the other hand, the people we interviewed were also very positive about recent improvements. Many reported good fishing and increased diversity of species. The sense that the harbour is gradually "coming back" and the improved access provided by developments like Harbourfront / Pier 4 parks, has increased the profile and perhaps also the popularity of fishing in Hamilton Harbour. Popular fishing locations include Grindstone Creek, Harbourfront Park, Desjardin Canal, LaSalle Marina and the Burlington Canal. These locations are all close to the city. Several are accessible by public transportation or bicycle.

The Guide to Eating Ontario Sport Fish (1997-98) provides information about contaminants in fish and offers advice about which species and how much can be safely eaten from different locations. We noted that 6 species of fish that are eaten from Hamilton Harbour – including Largemouth Bass, Rock Bass and Pumpkinseed - were not listed in the corresponding Guide locations. In other cases fish species eaten from Hamilton Harbour were only listed in the Guide for nearby Lake Ontario locations.

## Uses for Our Research Results

Thanks to the thousands of survey participants who generously volunteered their time and experience, we have a better picture of fish and wildlife consumption in five Great Lakes Areas of Concern. Our findings show that even in some of the most heavily urbanized locations in Southern Ontario, fishing is an important and valued part of community life. Shore fishing is a relatively inexpensive recreational activity and local fish are a highly prized food source, often shared among family and friends. These positive aspects or "benefits" of fishing should be recognized and preserved.

Our results have also given a clearer picture of instances where more information is needed and existing information needs to be distributed more widely, in order to help fishers to decide where to fish and what to eat.



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Fish meals/year:		ID: N <sup>o</sup> S 0942
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**Sport Fish and Wildlife Consumption Study in Areas of Concern  
Hamilton Harbour Area**

**Section A – Contact Information**

Date: \_\_\_\_/\_\_\_\_/96  
          day  month

Time: \_\_\_\_ : \_\_\_\_ (24 hour clock)  
          hr      min

Location (AOC code): \_\_\_\_\_

Interviewed by: \_\_\_\_\_

Fisher: 1  shore  
          2  boat

Respondent's sex: 1  male  
                      2  female

This person was with a group of: \_\_\_\_\_ (number of people, including respondent)

Opener: **How's the fishing? / What are you fishing for? (do not record)**

**I'm gathering information as part of a McMaster University and University of Guelph research study on fishing around here (specify boundaries of AOC; e.g. between ... and ...).**

A1. **Have you been interviewed by us before?**

- 1  yes → END INTERVIEW
- 2  no

**We have very little information about who eats fish or wildlife caught around here, how much people eat, and what people like or dislike about the fish they catch. This survey will help.**

**If you don't mind I would like to ask you a few questions about what you do with the fish that you catch. Everything you tell me will be confidential. I am not interested in knowing whether or not you have a fishing license and will not be asking any questions related to legal issues. Would you like to participate?**

A2. Language of interview: \_\_\_\_\_

If participant refuses:

**Do you mind telling me why you do not want to participate?**

- 1  language → record language, if known: \_\_\_\_\_
- 2  first time fishing around here/tourist
- 3  busy fishing/don't want to be disturbed
- 4  not interested
- 5  beginner
- 6  not comfortable signing consent form
- 7  other \_\_\_\_\_

A3. **Why do you fish?** (do not read list; record up to 4 responses)

- 1  for fun or pleasure
- 2  it's challenging/sport
- 3  for something to do/keep busy
- 4  for peace and quiet/relaxation/chance to get away
- 5  to enjoy nature
- 6  to spend time with friends
- 7  to spend time with family
- 8  to improve fishing skills
- 9  for food
- 10  other \_\_\_\_\_

A4. **For how many years have you been fishing?** \_\_\_\_\_

A5. **How many days per year do you go fishing?** \_\_\_\_\_

A6. **What do you do with the fish that you catch in this area?** (state names of two landmarks that identify AOC; read list; check all that apply)

- 1  **eat some or all** → go to Section B
- 2  **give some to others**
- 3  **sell some**
- 4  **release all**
- 5  **release some**
- 6  **anything else?** \_\_\_\_\_

A7. **Why don't you eat what you catch?** (do not read list; record up to 3 responses)

- 1  water is polluted or dirty
- 2  fish are dirty or contaminated
- 3  fish taste or smell bad
- 4  tumors, deformities or don't look normal
- 5  fish too small
- 6  don't like fish
- 7  fish stocks are dwindling
- 8  other \_\_\_\_\_

A8. **Have you eaten any of the following wildlife during the last 12 months:  
wild ducks or geese or their eggs, frogs, turtles or their eggs, slugs, or snails?**

- 1  yes → go to Section C
- 2  no → go to Section D
- 3  don't know → go to Section D

Respondent's comments...

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## Section B – Fish Eaters

- B1. **We are interested in knowing all the different types of fish you have eaten in the last 12 months from this area, caught by yourself, family, or friends. By this area, I mean...** (state names of two landmarks that identify the AOC).

**I will show you pictures of fish, in case we call the same fish by different names, and will quickly ask about each one.** (show the respondent each picture, and ask "Did you eat this fish in the last 12 months?" – mark (✓) the appropriate circle in the "Consumed" column if respondent ate the fish)

**Do you eat the skin, head, tail, fins, organs, or bones or use them in cooking?** If they say "yes", mark (✓) the circle under "Eat other parts".

Beginning with the current season (e.g., spring, April to June 1996), for each species consumed, ...

**Please tell me how many meals of (species) you ate (identify season). Report this as the number of times per week (#/wk), per month (#/mo), or for the whole season (#/se), whichever is easiest for you.**

Repeat the process for each of the 3 preceding seasons, for example

... this past winter (January to March 1996)?

... last fall (October to December 1995)?

... last summer (July to September 1995)?



B2. **Who eats the fish that you catch from around here?** (repeat the names of the 2 landmarks that identify the AOC; do not read list; probe with "Is there anyone else?"; check all that apply.)

- 01  respondent only
- 02  respondent's spouse or partner
- 03  respondent's child(ren)
- 04  respondent's parent(s)
- 05  respondent's sibling(s)
- 06  other relative(s)
- 07  neighbor(s)
- 08  friend(s)
- 09  business associate(s) or co-worker(s)
- 10  religious leader(s)
- 11  other \_\_\_\_\_

B3. **What do you like about the fish you eat from around here?** (do not read list; record up to 3 responses)

- 1  it tastes good
- 2  it is good for your health
- 3  it is easily cooked
- 4  it is cheap or free
- 5  it is okay to eat/not contaminated
- 6  nothing in particular or don't know
- 7  other \_\_\_\_\_

B4. **Do you have any concerns about the fish you catch around here?**

- 1  yes
- 2  no → go to B5

**What are your concerns?** (do not read list; record up to 3 responses)

- 1  water is polluted or dirty
- 2  fish are dirty or contaminated
- 3  fish taste or smell bad
- 4  tumors, deformities or don't look normal
- 5  fish too small
- 6  fish stocks are dwindling
- 7  other \_\_\_\_\_

B5. **In the last 12 months, have you eaten fish from other locations in Ontario?**

- 1  yes
- 2  no → go to B6
- 3  don't know → go to B6

For each of the 7 regions below, point to the area on the map and ask...

**Did you fish in this region last year?** If they say "yes", mark (✓) the circle under "Fished here".  
**How many meals did you have from fish you caught here last year?**

Clarify the distinction between the AOC you are in and the rest of the lake.

Region	Fished here	Number of meals
1 Southern Ontario – inland lakes	<input type="radio"/>	_____
2 St. Lawrence River	<input type="radio"/>	_____
3 Lake Ontario	<input type="radio"/>	_____
4 Lake Erie (inc. Lakes St. Clair)	<input type="radio"/>	_____
5 Lake Huron	<input type="radio"/>	_____
6 Lake Superior	<input type="radio"/>	_____
7 Northern Ontario – inland lakes	<input type="radio"/>	_____

**B6. What sources of information help you make decisions about eating fish that is caught?**  
 (do not read list; probe with "Is there anyone else/any other place?"; check all that apply)

- 1  the fishing license office
- 2  the beer store
- 3  the Guide to Eating Sport Fish in Ontario
- 4  the Fishing Regulations Guide
- 5  friend(s)
- 6  relative(s)
- 7  another fisher
- 8  TV/radio
- 9  newspapers/magazines
- 10  other \_\_\_\_\_

**B7. Do you use the Guide to Eating Sport Fish in Ontario?**

- 1  yes
- 2  no → go to Section C

**Are there any particular kinds of information in the Guide that you find useful?** (do not read list; check all that apply)

- 1  size of fish safe to eat
- 2  number of fish safe to eat
- 3  number of meals safe to eat
- 4  fish species safe to eat
- 5  fish length safe to eat
- 6  where to fish
- 7  which species are available in an area
- 8  other \_\_\_\_\_
- 9  none

## Section C – Aquatic Wildlife Eaters

C1. Have you consumed any of the following wildlife during the last 12 months? (read list, mark (✓) the appropriate circle in the "Consumed" column if respondent ate the wildlife)

Approximately how many meals of (specific wildlife) have you eaten in the last 12 months? (remind respondent to think about all meals of this wildlife - e.g. roast, stew, soup, stir-fry, etc.)

What location did the (specific wildlife) come from? (code from map of Ontario)

Wildlife	Species	Consumed	Number of meals	Most common location
1 Wild Ducks	Mallard	<input type="radio"/>	_____	_____
	Gadwall	<input type="radio"/>	_____	_____
	Green-winged Teal	<input type="radio"/>	_____	_____
	Black Duck	<input type="radio"/>	_____	_____
	Ring-necked Duck	<input type="radio"/>	_____	_____
	Greater Scaup	<input type="radio"/>	_____	_____
	Lesser Scaup	<input type="radio"/>	_____	_____
	Common Goldeneye	<input type="radio"/>	_____	_____
	Bufflehead	<input type="radio"/>	_____	_____
	Wood Duck	<input type="radio"/>	_____	_____
	Redhead	<input type="radio"/>	_____	_____
	Canvasback	<input type="radio"/>	_____	_____
	Common Merganser	<input type="radio"/>	_____	_____
	Red-breasted Merganser	<input type="radio"/>	_____	_____
	Other _____	<input type="radio"/>	_____	_____
Other _____	<input type="radio"/>	_____	_____	
2 Wild Geese	Canada Goose	<input type="radio"/>	_____	_____
	Other _____	<input type="radio"/>	_____	_____
3 Wild Duck/Goose eggs	_____	<input type="radio"/>	_____	_____
4 Frogs	xxxxxxxxxxxxxxxxxxxx	<input type="radio"/>	_____	_____
5 Turtles	xxxxxxxxxxxxxxxxxxxx	<input type="radio"/>	_____	_____
6 Turtle eggs	xxxxxxxxxxxxxxxxxxxx	<input type="radio"/>	_____	_____
7 Slugs	xxxxxxxxxxxxxxxxxxxx	<input type="radio"/>	_____	_____
8 Snails	xxxxxxxxxxxxxxxxxxxx	<input type="radio"/>	_____	_____

## Section D - Background Information

These last few questions are about you and your family. I would like to remind you that this information is confidential. If you don't feel comfortable answering a question, please tell me.

D1. How old were you on your last birthday? \_\_\_\_\_ years

D2. In what country were you born? (do not read list)

- |   |                                    |                                      |   |
|---|------------------------------------|--------------------------------------|---|
| 01 <input type="radio"/> Canada → to D4 | 12 <input type="radio"/> Guyana    | 23 <input type="radio"/> Lebanon     | 34 <input type="radio"/> Tobago         |
| 02 <input type="radio"/> Austria        | 13 <input type="radio"/> Holland   | 24 <input type="radio"/> Macedonia   | 35 <input type="radio"/> Trinidad       |
| 03 <input type="radio"/> Belgium        | 14 <input type="radio"/> Hong Kong | 25 <input type="radio"/> Malta       | 36 <input type="radio"/> Ukraine        |
| 04 <input type="radio"/> Cambodia       | 15 <input type="radio"/> Hungary   | 26 <input type="radio"/> Philippines | 37 <input type="radio"/> United Kingdom |
| 05 <input type="radio"/> China          | 16 <input type="radio"/> India     | 27 <input type="radio"/> Poland      | 38 <input type="radio"/> United States  |
| 06 <input type="radio"/> Croatia        | 17 <input type="radio"/> Iran      | 28 <input type="radio"/> Portugal    | 39 <input type="radio"/> Vietnam        |
| 07 <input type="radio"/> Denmark        | 18 <input type="radio"/> Italy     | 29 <input type="radio"/> Serbia      | 40 <input type="radio"/> Other          |
| 08 <input type="radio"/> Egypt          | 19 <input type="radio"/> Jamaica   | 30 <input type="radio"/> Slovakia    | _____                                   |
| 09 <input type="radio"/> El Salvador    | 20 <input type="radio"/> Japan     | 31 <input type="radio"/> Slovenia    |   |
| 10 <input type="radio"/> Germany        | 21 <input type="radio"/> Korea     | 32 <input type="radio"/> Somalia     |   |
| 11 <input type="radio"/> Greece         | 22 <input type="radio"/> Laos      | 33 <input type="radio"/> Sri Lanka   |   |

D3. In what year did you move to Canada? 19 \_\_\_\_\_

D4. What languages do you speak at home? (do not read list; check all that apply)

- |                                    |                                     |   |                                     |
|------------------------------------|-------------------------------------|---|-------------------------------------|
| 01 <input type="radio"/> English   | 13 <input type="radio"/> French     | 25 <input type="radio"/> Macedonian         | 37 <input type="radio"/> Sinhalese  |
| 02 <input type="radio"/> Arabic    | 14 <input type="radio"/> German     | 26 <input type="radio"/> Maltese            | 38 <input type="radio"/> Slovak     |
| 03 <input type="radio"/> Armenian  | 15 <input type="radio"/> Greek      | 27 <input type="radio"/> Mandarin           | 39 <input type="radio"/> Slovene    |
| 04 <input type="radio"/> Cambodian | 16 <input type="radio"/> Hungarian  | 28 <input type="radio"/> Mohawk             | 40 <input type="radio"/> Somalian   |
| 05 <input type="radio"/> Cantonese | 17 <input type="radio"/> Iranian    | 29 <input type="radio"/> Ojibway            | 41 <input type="radio"/> Spanish    |
| 06 <input type="radio"/> Cayuga    | 18 <input type="radio"/> Italian    | 30 <input type="radio"/> Pilipino (Tagalog) | 42 <input type="radio"/> Tamil      |
| 07 <input type="radio"/> Cree      | 19 <input type="radio"/> Japanese   | 31 <input type="radio"/> Polish             | 43 <input type="radio"/> Ukrainian  |
| 08 <input type="radio"/> Croatian  | 20 <input type="radio"/> Korean     | 32 <input type="radio"/> Portuguese         | 44 <input type="radio"/> Vietnamese |
| 09 <input type="radio"/> Czech     | 21 <input type="radio"/> Laotian    | 33 <input type="radio"/> Punjabi            | 45 <input type="radio"/> Other      |
| 10 <input type="radio"/> Danish    | 22 <input type="radio"/> Latvian    | 34 <input type="radio"/> Romanian           | _____                               |
| 11 <input type="radio"/> Dutch     | 23 <input type="radio"/> Lebanese   | 35 <input type="radio"/> Russian            |                                     |
| 12 <input type="radio"/> Estonian  | 24 <input type="radio"/> Lithuanian | 36 <input type="radio"/> Serbian            |                                     |

D5. Are you married or living with a partner?

- 1  yes  
2  no

D6. Are there any children under age 18 in your household?

- 1  yes  
2  no → go to D7

**How old are they?** (record each response in years and months; e.g. 3 years 8 months)

\_\_\_ years \_\_\_ months  
\_\_\_ years \_\_\_ months  
\_\_\_ years \_\_\_ months  
\_\_\_ years \_\_\_ months  
\_\_\_ years \_\_\_ months  
\_\_\_ years \_\_\_ months  
\_\_\_ years \_\_\_ months

**D7. What is the highest level of schooling that you have completed?** (do not read list)

- 1  any of grades 1 to 8 (or equivalent)
- 2  any of grades 9 to 11 (or equivalent)
- 3  high school graduate (or equivalent)
- 4  started college, trade school, or university but did not complete (or equivalent)
- 5  community college or trade school diploma or certificate (or equivalent)
- 6  university degree (or equivalent)
- 7  no formal education
- 8  no response

**D8. What was your main activity during the last 12 months?** (read list)

- 1  working full-time at a job or business
- 2  working part-time at a job or business
- 3  temporary or contract at a job or business
- 4  looking for work
- 5  going to school
- 6  homemaking
- 7  retired
- 8  something else? \_\_\_\_\_

**D9. What was your approximate household income in 1995, before income taxes?** (read list)

- |   |   |
|---|---|
| 1 <input type="radio"/> less than \$15,000  | 6 <input type="radio"/> \$75,000 - \$89,999 |
| 2 <input type="radio"/> \$15,000 - \$29,999 | 7 <input type="radio"/> \$90,000 or more    |
| 3 <input type="radio"/> \$30,000 - \$44,999 | 8 <input type="radio"/> no response         |
| 4 <input type="radio"/> \$45,000 - \$59,999 | 9 <input type="radio"/> don't know          |
| 5 <input type="radio"/> \$60,000 - \$74,999 |   |

**D10. How many people live in your household?** \_\_\_\_\_

**Thank you for your participation.**

Remember to ask the respondent to sign the attached consent form. If the respondent reports consuming a total of 26 or more meals per year in B1 plus B5 (regions 2-6), try to recruit them for the Eaters Survey (and complete the screening questionnaire) or, if they refuse, the Long Interview.



# Sport Fish and Wildlife Consumption Study in Areas of Concern

## Consent Form

Project Coordinators: David Kraft  
(416) 537-6856

Sandra Owens - Health Canada  
(613) 954-8490

Principal Investigators: Dr. Donald C. Cole  
Environmental Health Program  
McMaster University  
(905) 525-9140, ext. 22037

Dr. Judy D. Sheeshka  
Department of Family Studies  
University of Guelph  
(519) 824-4120, ext. 4479

### INTRODUCTION

The Environmental Health Program of McMaster University and the Division of Applied Human Nutrition of the University of Guelph are conducting a study of sport fish and wildlife consumption with the Great Lakes Health Effects Program. We are asking people fishing on the Great Lakes about their fishing and eating practices to better understand what fish and wildlife are part of people's diet. We would like you to participate in our study.

### PARTICIPATION

#### Questionnaire

We would like to ask you some further questions about the sport fish and wildlife you eat and some questions about you and your family. These will take about 15 minutes.

#### Long interview

We would like to discuss with you your thoughts on the environment, fishing, health and other topics plus some questions about you and your family. This interview may take from 1/2 hour to a full hour depending on your time and interest. Your answers will be taped on a portable recorder and written notes will be taken by the interviewer.

#### Both

You may find some of the questions difficult because it is hard to remember everything, but just do your best. If you do not feel comfortable answering some questions, you do not need to give me an answer and may withdraw from the study at any time. Some questions may occur to you as we go through the interview. If so, please feel free to ask them at the end of the interview. If necessary the interviewer will get back to you later with the best answer s/he is able to obtain.

All the information you provide will be kept confidential by the investigators. No one outside the research team will be able to identify your answers. Overall results will be written up as research reports for people working on cleaning up the Great Lakes. You will receive a summary of the overall findings. We may ask you to participate in a more detailed follow up study looking at the role sport fish and wildlife play in your overall diet. Your consent to participate would be asked again at that time. If you have any further questions not fully answered by the interviewer, please feel free to contact the project coordinators or the investigators themselves at the phone numbers above.

The above information has been discussed with me by: \_\_\_\_\_  
[interviewer's name]

**Participant's name:** \_\_\_\_\_ [please print]

**Participant's signature:** \_\_\_\_\_

I understand the nature of the study and I agree to participate in the:

**Questionnaire:** \_\_\_\_\_  
[participant's initials]

**Long interview:** \_\_\_\_\_  
[participant's initials]

Interviewer's signature: \_\_\_\_\_

Date: \_\_\_\_/\_\_\_\_/96  
day / month

**Participant's Contact Information**

I am interested in receiving a summary of the results of this study: \_\_\_\_\_

Address: \_\_\_\_\_

City: \_\_\_\_\_ Province: \_\_\_\_\_

Postal code: \_\_\_\_\_ Phone: ( \_\_\_\_ ) \_\_\_\_\_

The name and phone number of a friend or family member to contact if you move:  
\_\_\_\_\_  
( \_\_\_\_ ) \_\_\_\_\_

For more information about this and other projects please contact:

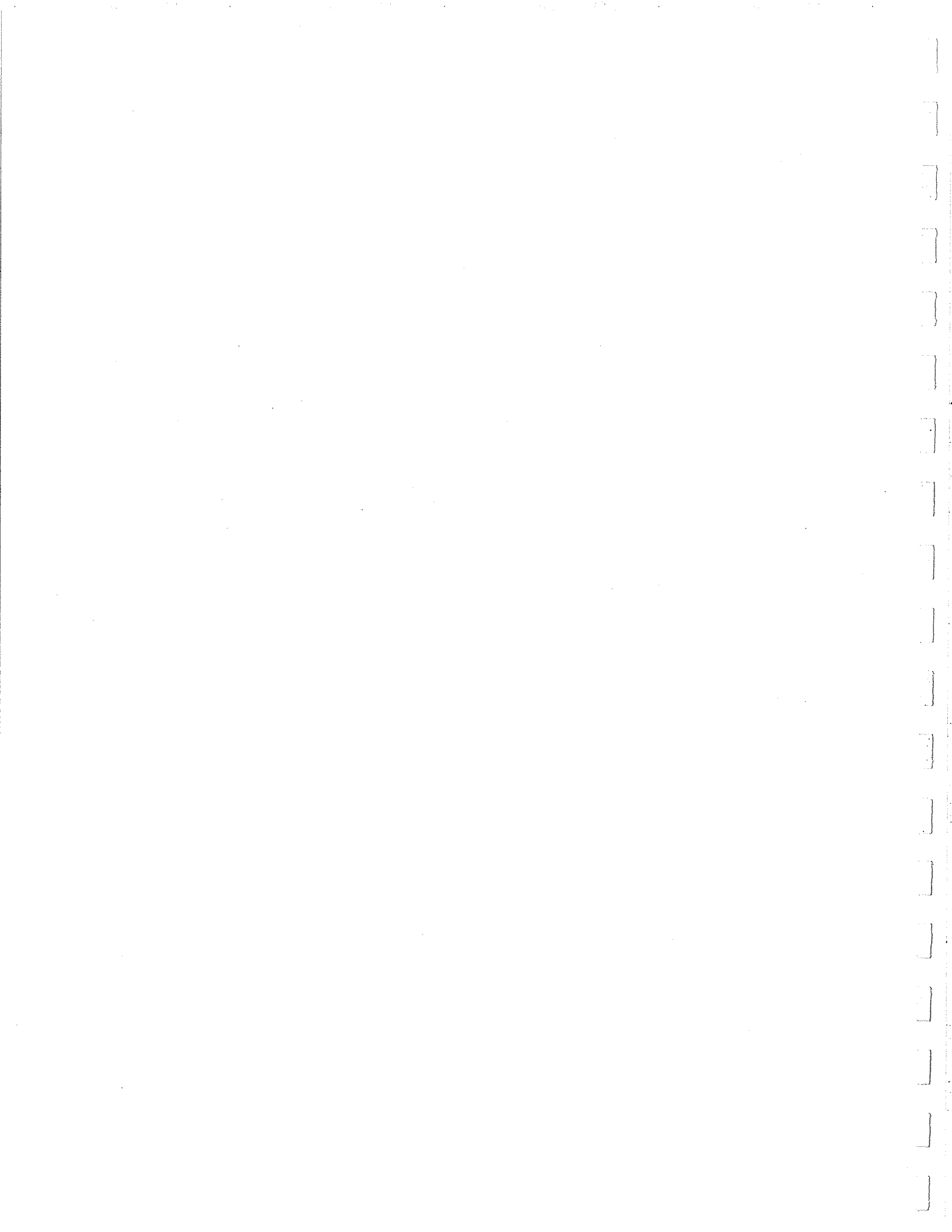
Gary Johnson  
St. Clair River Remedial Action Plan  
(519) 336-4030

## APPENDIX D: Sport Fish and Wildlife Consumption Study in Areas of Concern Taped Interview Guide


THEME	TOPICS TO EXPLORE	SAMPLE QUESTIONS	FOLLOW UP WITH
Benefits of fishing and eating fish	memories	What do you remember about the first time you went fishing/ came fishing here?	who was there? what happened? what was the occasion?
		Does a recent fishing experience stick out in your mind?	what made it memorable?
		What do you like about fishing?	what about eating fish?
	sharing fish with others	Who shares the fish you catch?	friends? family? people on shore?
		Have you ever given fish to strangers?	particular species? locations? do you say where it came from?
		Do you have any get-togethers around eating fish?	what happens? who comes? when?
	favourite ways to eat fish	What are some of the ways you cook fish?	fresh or frozen? what parts?
		Do you have any favourite recipes?	who cooks? who taught you/them?
		Is there a difference b/n market/store fish and what you catch?	what species?
		Are there some things you like about eating the fish you catch? Have you eaten fish recently?	what was that meal like?
health benefits	Do you think fish is good for you? In what ways?	how did you find out?	
	Are some species better for you than others?	different benefits for different ages? sexes?	
	Does it matter where you catch them?		
family traditions	How did you learn to fish?	who taught you? any specific lessons or info you remember?	
	Have you taught anyone to fish?		
	Does your spouse/boyfriend/girlfriend fish?		
cultural significance	Did you fish where you used to live? What was it like?	how does it compare to here? # of fish, kinds of fish, type of people fishing, the local environment	
	Is fishing different for you than for others you see fishing?		
	What's the difference b/n fishing "for sport" and "for food"?		
	What is a "sportsfisherman"? How can you tell?	what is "fishing for sport?"	
financial benefit	Does bringing fish home help with the grocery bill?	in what ways?	
	What do you think about the price of fish in stores?		
	If you didn't fish, would you eat as much fish as you do now?		
experiences at different locations	Is eating the fish important to your overall experience of fishing?	more important at certain locations? certain times?	
	Is your experience different when you eat vs. when you release?		

THEME	TOPICS TO EXPLORE	SAMPLE QUESTIONS	FOLLOW UP WITH
Perceived risks of eating fish	worries about safety of fish	Is there anything you would tell people about fishing in this area? What do you think about the attention fish safety has received?  How would you feel if someone told you it was dangerous to eat the fish you caught in this area?  Do you have any worries about the safety of the fish you eat?	is it too much? too little? where have you heard about it? would it change anything? would you still fish here? would you still eat the fish you caught? why is this a concern? is it a bigger concern for people of different ages/sexes? how did you hear about it?
	signs of an unhealthy fish	What does an unhealthy fish look like? smell like? taste like? act like? Do pollution/ chemicals have anything to do with that?  When would you say that a fish caught here was unsafe to eat? <i>NOTE: follow up on any discussion of "fresh" or "unfresh" fish</i>	different for different species? how do the fish here compare to that?
	health effects	<i>NOTE: This may be a difficult topic to discuss with someone who eats fish s/he catches, so approach it sensitively and supportively</i> Some people wonder if eating fish from here is bad for them. Have you ever wondered about this?  Could eating fish have a negative effect on a person?	what might some of the consequences be?  short term? long term?
	feelings about the area's environment	Do you have any concerns about the environment around here?  When you think of pollution, what comes to mind? If you had a concern, would you talk to anyone about it? Have you heard much about chemicals in the environment?  What ones are the problems? Why are they a concern?	where do these problems come from? where do you hear of them?  who? have you ever done this? what was the result? what effect do they have (on water/ fish/animals/people)?
	personal definitions of "risky", "dangerous", "unsafe"	what makes an activity or practice "risky"? How do you personally feel about taking risks? would you say that eating the fish you catch is "risky"?	when do you draw the line? why or why not?
	Personal protection	preparation practices	How do you clean the fish you catch? Have you made any changes in your method over time? What tips would you offer someone just learning to clean fish? What do you do with the fish from when it's caught to when it's eaten? Describe the steps you take. Do you take any special precautions for chemicals that might be in the fish?
signs of a healthy fish		What does a healthy fish look like? smell like? taste like? act like?  What can you eat from around here? Have you ever decided not to eat what you've caught?  How do you decide whether a fish is safe to eat?	diff. for diff. species? how do the fish you catch here compare to that? do you avoid some things? can you remember one of those times? did you ask anyone about it? did you tell anyone about it?

THEME	TOPICS TO EXPLORE	SAMPLE QUESTIONS	FOLLOW UP WITH
	comparisons between different locations	What specific things do you look for when you choose a place to fish?  Do you prefer some places over others? Why? Does catching fish for eating require some planning, or is it a spontaneous decision?	things about the shoreline? water? the local area? the fish? are there additional considerations when you want to eat the fish?
	where individual gets info and advice	How do you find out about good places to fish? Safe places?  Have you ever talked to your doctor about eating the fish you catch? Would you ever talk to him or her about it?	specific sources? content of the advice? usefulness? trusted? what info does s/he share with others? who and why? anything to do with safety issues?
	awareness of advisories	If there were problems with the fish you were eating, how do you think you'd find out about them? Who is responsible for ensuring that those who eat fish are safe? What do you think of the Guide to Eating Ontario Sportfish? If you wanted more information, where would you go to get it?	how would you like to find out? what would you do with this info? what should be done? useful? believable? improvements? have you ever tried? were you happy with what you got?
Management of the fishery	changes in the area	Have things changed since you've been coming fishing here?  What changes would you like to see? How important is it to be able to catch and eat the fish here? What changes would increase your confidence in the safety of the fish? What do you predict will happen to fishing here in the future?	size/type of fish, #/type of fishermen, look/smell of water, local area some changes more of a priority?
	components of an excellent fishing experience	What are the most important aspects of a fishing experience? What can be done to improve your experience at spots that lack these qualities?	why are these important? what locations have these qualities?
	responsibility for protection of fishery	What are some things you see on the shore when you're fishing?  Are we all responsible for the fishery, or are some people more responsible than others?	should anything be done about it? Who should be responsible for it? ie. anglers, community, volunteer organizations, government at diff. levels, no one etc. what are some of these responsibilities?
Feelings/practices regarding food in general	opinions about food	what makes food healthy? Unhealthy? do you prefer certain kinds of foods? Avoid others? what do you think about chemicals in food?  what are your feelings about food you catch yourself? How does it compare to food you buy?	how did you find this out?  can you relate that to your feelings about the fish you catch? What is different? The same? Does food from the wild have special meaning for you or your family?
	behaviour and choices	where do you do most of your shopping? how do you choose the produce you buy? Meat? have your eating habits changed over the years? have you made any changes to the ways you prepare food? <i>NOTE: you could ask how fish fits into any of these issues</i>	what do you like about it there?  why? in what ways? why? in what ways?



**Appendix E: Cootes Paradise Fishway sorting results  
from March 21 to May 30, 1997**

	CAUGHT IN COOTES	CAUGHT IN HARBOUR
BIGMOUTH BUFFALO (SUCKER)	1	0
BLACK CRAPPIE	7	3
BOWFIN	15	2
BROWN BULLHEAD	1,396	205
BROWN TROUT	0	3
CARP*	8,116	19
CARP-GOLDFISH HYBRID*	81	4
CHANNEL CATFISH	11	17
FRESHWATER DRUM	19	58
GIZZARD SHAD	14	4
GOLDEN REDHORSE	0	1
GOLDFISH	18	0
LARGEMOUTH BASS	0	2
MIRROR CARP*	45	0
NORTHERN PIKE	13	21
RAINBOW TROUT	77	120
SEA LAMPREY	1	0
SHORHEAD REDHORSE	2	1
SILVER REDHORSE	2	1
WHITE BASS	0	3
WHITE PERCH	14	20
WHITE SUCKER	664	1,485
YELLOW PERCH	5	2
<b>TOTALS</b>	<b>10,499</b>	<b>1,971</b>

\* All carp and goldfish caught in the baskets are returned to the harbour while other fish are allowed to pass.

Source: Fish & Wildlife Habitat Restoration Project

