

Healthy Fishing

Jennifer Dawson, David Kraft and Donald Cole

The Great Lakes should be cleaned up – for the sake of the fish and the fishers.

IT'S A WARM SEPTEMBER afternoon and in the name of science we've disturbed the peace of a solitary shoreline fisher to ask about fishing in Hamilton Harbour. We want to know about his catch: whether he eats it, how he prepares it and where he gets his information. He signs our consent form, becoming part of a Health Canada-funded project that ultimately surveyed 4356 shoreline fishers in Toronto and Hamilton and along the Canadian sides of the Niagara, St. Clair and Detroit Rivers from 1995 to 1997.

He's got his mind half on our tape-recorded conversation and half on his fishing line, which disappears into the inky black water, weighed down by lead sinker and a bit of bait. Today it's corn, because he's out just for fun, out to catch carp. But if he caught a catfish, he'd eat it. "I'm a bad boy I guess. I guess I'm just bad," the 30-something fisher admits wryly. The statement is half-confession, half-challenge. "Some people smoke even though they know it's not good for them. I just like the catfish."

Catfish taken from Hamilton Harbour are quite contaminated. The Ministry of the Environment's *Guide to Eating Ontario Sport Fish* advises against eating any catfish over 45 centimetres in length. Our interviewee, however, hadn't heard of the guide and was unaware of the consumption advice it contained.

Fish advisories, which recommend limits on eating fish as a result of chemical contamination, have been the health-protection response of governments in all jurisdictions of the Great Lakes basin since the 1970s.

Ontario's guide translates contaminant data on fish taken from 1700 Great Lakes and inland locations into consumption recommendations for specific species, sizes and sites using tolerable daily intake guidelines provided by Health Canada.

The Ministry of the Environment calls its program "the largest testing and advisory program of its kind in North America." One of our aims was to determine just how well this program was getting through to the individuals who eat fish from contaminant hot spots in the Great Lakes.

Assessing the risks

The anglers we interviewed came from very diverse educational, age, economic and cultural backgrounds – a veritable United Nations on the shore. More than 40 percent ate some of the fish they caught. But less than one-third of those who reported eating Great Lakes fish said they used the Ministry of the Environment publication.

Perhaps not surprisingly the guide was most appealing and accessible to middle-aged, well-educated fishers. In contrast, just 18 percent of those who spoke no English at home and 17 percent of those with less than Grade 9 education reported using it.

Most of those who were familiar with the guide just skimmed the almost 200-page document, reducing a feast of complex information to a more digestible form. Complicated calculations of tolerable daily intake were translated into terms such as "safe" and "unsafe."

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about who they are excluding, who is certifying their products and whether the product is legitimately "green."

There are a number of lessons in all this. On the positive side, it is clear that consumer campaigns can be effective; if nothing else, the mere possibility that these campaigns could affect the bottom line can be enough to force action on the part of the industry, as the Thai certification scheme shows. On the cautionary side, we need to be aware that consumer campaigns only work when consumers are given a positive as well as negative choice, otherwise people are left feeling like there is nothing they can responsibly consume.

Certification initiatives are one response to this desire for sustainable choices. However, they tend to

transform complex environmental and social justice issues into simplified food quality and safety choices that connect with the middle class global food elite who can afford it. We need to be aware of these tendencies and to actively counter them by making sure that environment and social justice problems are not eclipsed. Consumer campaigns cannot substitute for the work of groups in Thailand and Canada who work directly with people affected by unsustainable seafood production. ♣

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"Some people smoke even though they know it's not good for them. I just like the catfish."

— fisher in Hamilton, Ontario

Symbols depicting the number of meals per month of a specific size and species of fish were reduced to adages like "eat the small ones." While correct use of the guide entails a cumulative accounting of *all* meals of sport fish eaten in a month, our interviewees assumed they could eat the recommended amount of *each* fish they caught.

Almost one-quarter of all the fishers that we surveyed relied on informal contacts, especially other anglers, for information about eating their catch. These fishers — many of whom spent countless hours on the shoreline — actively processed available information, tested it against their real-world experiences and freely shared their conclusions. Where were local sewer and industrial outflows? What influence did fish migration have on contaminant levels? How did eating fish compare to the potential risks of drinking the water, breathing the air or eating factory-farmed food? Information derived from the guide was weighed, compared,

debated, adopted or disregarded according to what anglers deemed appropriate and relevant.

Fishing for life

There is an upside to catching your own dinner, and it goes beyond narrowly defined nutritional benefits. Fishing, as one of the last remaining forms of harvesting wild food, has family, community, cultural and historical value. "Everybody thinks it's just out of this world," said one Toronto fisher of her Great Lakes fish soup. "It's very inexpensive and all you need is a couple of soup bowls, a piece of bread and a nice crew of people."

In contrast to the always enthusiastic and often gourmet approach of our interviewees, the *Guide to Eating Ontario Sport Fish* ignores the community benefits of catching and preparing fish. And its emphasis on risk — including warnings in large fonts for children and

Dioxins Undermined Lake Ontario Fishery

LAKE TROUT BECAME EXTINCT in Lake Ontario by the 1960s. Their decline has been attributed largely to excessive commercial fishing and predation by the sea lamprey. But there were hints that these might not be the real explanation. For example, other fish declined, including some species not subjected to fishing pressure. Then determined efforts to decrease lamprey numbers had little impact on lake trout numbers. And re-stocking efforts using year-old fish that started in 1971 succeeded in creating a small population of adults, but no successful breeding until 1986.

New research published by fishery biologist Philip Cook of the US Environmental Protection Agency and his colleagues at the University of Wisconsin makes a persuasive case that lake trout were eliminated not by the factors that received so much attention over these past several decades, but instead because of dioxin and dioxin-like pollution in Lake Ontario and its high toxicity to embryos and very young trout just after hatching. The breeding recovery that has been occurring since 1985 has taken place as dioxin levels gradually decreased to beneath the concentrations that caused complete mortality in young fish.

The key toxicological findings that pointed to dioxin's impact (and other dioxin-like contaminants) were a series of studies demonstrating that lake trout sac fry are extremely sensitive to dioxin's most powerful form, TCDD.

Other contaminants that act via the same molecular mechanisms as TCDD, the aryl hydrocarbon receptor, interact additively with TCDD. Hence the impact has not been due to just one chemical, but to a mixture, all of which together affect survival of young fish. To date, lake trout are the most sensitive fish species to TCDD impacts during the early life of fry.

One of the central messages of this work is that different parts of the life cycle of an organism are not equally vulnerable to contamination, but that the bottleneck created by a single life-cycle stage's vulnerability can affect population size profoundly.

Few commercial fish species have been studied as thoroughly, from a toxicological perspective, as Lake Ontario lake trout. Indeed most fish species have received very little attention. This study raises unanswered questions about the contribution of contamination to declines in other fishing stocks, particularly those whose larval nurseries are in contaminated estuaries, or fish whose migrations may take them into contaminated watersheds. ♣

*John Peterson Myers is one of the authors of **Our Stolen Future** (Penguin, 1996), a landmark book about endocrine disruption. This is an excerpt reprinted with permission from www.OurStolenFuture.org, which posts regular updates on scientific developments in the field.*



Courtesy Bob Lowe

This Chinook salmon caught in Lake Ontario is headed for the dinner plate; fishers weigh the health risks of eating contaminated Great Lakes fish against the pleasures of eating and sharing their own catch.

for women of child-bearing age – rankled many of those we interviewed at more length. Interviewees regularly felt obliged to defend a practice that others, including curious strangers on the shoreline, intimated was stupid, irresponsible and dirty.

Fishers could instead be seen as valuable participants in the efforts to restore the Great Lakes to ecological health.

In 1987, the International Joint Commission – an advisory body responsible for assisting Canada and the United States to implement the Great Lakes Water Quality Agreement – identified 42 high-priority “Areas of Concern” in the Great Lakes, 12 of which were in

Canada and five in waterways shared by the two countries. In these locations, point-source pollution and destruction of fish and wildlife habitat had caused significant degradation of local ecosystems. After 16 years, stacks of reports and billions of dollars of remediation, only two of the original 42 Areas of Concern have been taken off the list. All of our survey locations were and remain Areas of Concern.

“Fishability” has long been a goal of binational Great Lakes clean-up strategies. The International Joint Commission measures progress on lake remediation according to the state of what it calls “beneficial uses”: can we safely drink, swim in and eat fish from the water? If governments advise limiting the consumption of fish, this use is considered to be impaired.

Fish consumption advisories would do well to follow the International Joint Commission’s example and recognize, first, the social and ecological benefits of fish consumption and, second, the rights of those who choose to catch and eat Great Lakes fish.

Shoreline fishers are an untapped source of environmental and health protection activism. We recommend an education program that engages volunteer anglers – local experts who already see themselves as stewards of the resource – to convey information to their fishing peers on the shoreline.

Let’s recruit our catfish-craving Hamilton Harbour angler, train him in fishery management and contaminant issues and give him access to NGO and government support and advice. Next time he’s throwing a line in the harbour and starts chatting with his neighbour, he can informally share this up-to-date knowledge.

We won’t tell him not to eat catfish. We won’t make him feel powerless or “bad.” We won’t merely hand him a book to read. Instead we would empower him to communicate meaningful information from an insider’s perspective, both to fellow fishers and to those who manage the advisory program.

The scientific assessment of the risks posed by eating contaminated fish can this way become a part of a lively – even multilingual – risk-and-benefit dialogue among fishers. Fishing conversations about the best bait for catfish can naturally lead to discussing the results of contaminant testing or the status of a local sediment remediation project ... and back to a critically acclaimed recipe for fish soup. ♣

Jennifer Dawson, David Kraft and Donald Cole worked together on the Fish and Wildlife Nutrition Project, a Health Canada-funded study examining the connection between human health in its broadest sense and Great Lakes fish consumption. While none of the threesome is particularly handy with a rod and reel, they’ve enjoyed many fine meals of Great Lakes fish.

