



Fishers weigh in: Benefits and risks of eating Great Lakes fish from the consumer's perspective

**Jennifer Dawson
Judy Sheeshka
Donald C. Cole
David Kraft
Amy Waugh**

Background

- Shoreline survey of people fishing in 5 AOC on Canadian side of GL
 - Toronto Harbor
 - Hamilton Harbor
 - Niagara River
 - Detroit River
 - St. Clair River

Background

- Results led to more in-depth study of dietary intakes and body burden of chemical contaminants
- 91 adults recruited from Hamilton and Metro Toronto areas
 - priority given to women of child-bearing age, Asian-Canadians and 'high consumers' (>26 meals/yr)

Methods

- Qualitative design
 - Explored benefits, risk, understanding, and meaning from the perspective of the fishers themselves, in their own words
 - 87 tape-recorded interviews with 90 of 91 study participants
 - Interviews conducted in Vietnamese (37), Cantonese (4), Mandarin (1) and English (48); translated & back-translated

Methods

- RD and interpreters given training in semi-structured interview techniques, a training manual, and early feedback
- Field trips to learn 'shoreline lingo' to build rapport
- Comprehensive interview guides with general themes, topics to explore, sample questions, etc.

Methods

- Audio-recorded, semi-structured interviews
 - 45-75 min.; own homes
 - 23 topics across 5 areas:
 - benefits
 - risks
 - personal protection
 - management of fishery
 - food practices

Interpretation & Coding

- **Triangulation** = use of multi-methods
 - **Investigator** triangulation – several investigators coded selected transcripts
 - **Data** triangulation = long interviews, field notes, fish consumption data, observations, etc.
 - **Interdisciplinary** triangulation = incorporating perspectives of different disciplines
- Thematic analysis; Asian-born Canadians + Euro-Canadians coded separately

Perceived Benefits

1. Superiority of Freshly-caught Fish

- Incomparably good taste
- “The quicker you get it from water to stomach, the better”
- Quality control
- Concern over quality of store-bought fish:

Perceived Benefits

- Superiority of freshly-caught fish, cont'd.
 - “In the market I don’t know how old it is, I don’t know how fresh it is, I don’t know where it was caught. They don’t even know where it was caught. I don’t know who handled it; I don’t know how it’s been cleaned. I’d rather catch it myself and so I know. From its swimming to being in my stomach, I know exactly what’s happened to that fish.”

Perceived Benefits

2. Sharing with Extended Family & Friends

- Pooling and redistributing catch
- Sharing prepared fish at home or on shoreline:

“Back when the Jumbos [Jumbo Perch] were running a month and a half ago, me and a friend and his brother were fishing the Hydro every day and we were feeding just about everybody down at Hydro that come down. With fish crisps. Everybody really enjoyed it...people we didn't even know.”

Perceived Benefits

3. Identity

- “being Asian” a way to distinguish “self” from “other”, and “Asian” from “Canadian”
 - “You may notice that those who say ‘don’t eat’ are, like, the Canadians or Whites. Catch and release, we don’t believe that, no.”
- Love of fishing and eating fish not part of cultural identity for Euro-Canadians
 - role fulfillment – self-sufficiency, productivity, skill

Perceived Benefits

4. Economic Benefits

- Tabulated cost of gas, lures, food, smokes, coffee, line and equipment → cheaper to buy!
- To admit to fishing “for food” may imply short-sightedness, irresponsibility and poverty, but the social, cultural value of fish was appreciated

Perceived Benefits

5. Health Benefits

- Fish was superior to red meat, described in dichotomies:
 - Fish has no fat and meat is fatty
 - Fish is easy to digest and meat is difficult to digest
- “brain food”; prevents goiter
- “I think eating fish is good for you but with all the toxins, I don’t think it’s 100%”

Perceived Risks

1. Ignoring Risk

- Reactions from others were disturbing (“You eat the fish? How could you eat it?”)
- “If they don’t want to eat ‘em, that leaves more for me.”
- “I just don’t let that bother me.”
- “If I’m going to die, I’m going to die, and if I’m going to live, I’m going to live.”

Perceived Risks

2. Lack of Evidence for Concern

- “I haven’t started glowing in the dark or anything.”
- Perception that health effects would be acute and short-term (e.g., “rash”, “pox”, “skin outbreak”); resembling food poisoning
- Euro-Canadians all said pregnant women should be cautious

Perceived Risks

3. Risk in Context

- Participants who have experienced pollution

“If you say the fish here is unsafe to eat, then the fish in Taiwan should be completely inedible.”

“I cannot say that it's not polluted in Canada, but we cannot compare this pollution with pollution in Poland. Or Russia, or Czech area or another country.”

Perceived Risks

3. Risk in Context, cont'd

- Canadian-born: comparative risks
 - “I do smoke, I drink beer, I don’t take vitamins, I don’t follow a diet.”
 - “Everything can kill you, so it’s just basically a chance that I’m taking.”

Perceived Risks

4. Belief in Environmental Improvement

- Locals have noticed improvements

“We’ve come a long way since I was young ...back in those days, the Niagara River was so full of junk that you could smell the chemicals from the top of the gorge. It was that strong. And now, I guess there’s still stuff getting in there, that’s leaching in from the dump sites that you read about. But, the water, at least it looks clean and it smells clean and it’s a thousand percent better than it was.”

Perceived Risks

5. A Desire for More Information on Risk

- Inconsistent messages → uncertainty → desire for more information on risk
- Participants felt they lacked the expertise to make judgments and decisions, esp. Vietnamese

Managing Risk

1. Choosing a Location to Fish

- Avoiding hydro or nuclear power plants; locations with murky, cloudy or stagnant water; places where others wouldn't eat fish
- Choose fish from “moving waters”
- Euro-Canadians looked for indicator species, known to be vulnerable to pollution

Managing Risk

2. Species Eaten

- Euro-Canadians: Walleye, Yellow Perch
- Asian-Canadians: Rock Bass, other Bass
- Euro-Canadians condemned “bottom feeders” as “dirty”

Managing Risk

3. Identifying Contaminated Fish

- Many were confident they could visually distinguish between a “healthy” and “unhealthy” fish
 - Some acknowledged that chemical contamination was different: “It could look like the cleanest fish and there could actually be something wrong with it. You just don’t even know.”

Managing Risk

4. Keeping the Small Ones

- Almost all were Euro-Canadians:
 - Concern over contaminants
 - Better taste, texture
 - Protect breeding stocks
- Understood size-contaminant connection

Managing Risk

5. Cleaning Fish

- Euro-Canadians removed fat, “mud-line”
- Asian-Canadians removed scales, used vinegar, Chinese tea, or lemon juice to get rid of smells

6. Limiting Consumption

- Euro-Canadians ate more fish at a meal → some Asian-born felt they didn't need to limit their consumption
- Some Asian-Canadians ate fewer fish in Canada

Conclusions

- “Who is at risk?” → “Who **defines** risk?”
- “How do fishers perceive risk?” → “How do fishers and risk assessors alike **balance risk and benefit?**”
- “Why don’t fishers follow fish advisories?” → “How can fish advisories better respond to the **needs of fishers?**”

Conclusions

- Participants saw life as full of risks, and understood that there were no definitive answers re: risks and alternatives
- Cultural identity, sense of self-worth, place in family/community were defined to some extent by fishing, eating + sharing fish
 - Purchased fish doesn't fill same social/cultural role

Conclusions

- Scientists and health professionals don't share the same values, understandings
 - Eating GL fish not a mainstream cultural norm
- Definition and management of risk must be a negotiated, collaborative process that begins and ends with those who have the most to lose – the fish consumers.

Acknowledgements

- Funding from the Great Lakes Health Effects Program in Health Canada
- Publication: Dawson J, Sheeshka J, Cole D, Kraft D, Waugh A. Agriculture & Human Values (2008) 25:349-364