

The State of Shoreline Fishing in Dane County

A report on fishing, fish consumption and public health advisories

July 2008

INTRODUCTION

Background

Fishing is important to many Wisconsinites and to the state economy, and state tourism and natural resources managers promote fishing quite extensively. Fishing is also big business in Dane County, but not much information is available about urban shoreline fishing (as opposed to boat fishing in lakes and rivers). This report aims to shed a little light on those who fish from shorelines and who eat locally-caught fish, focusing on people of color and low-income families.

The Madison Environmental Justice Organization (MEJO) was founded in 2006, with a mission to educate the community about environmental justice issues, work to address them, and support environmental justice for the benefit of the general public.

We have been working with people of color and low-income residents for more than two years discussing toxins in locally-caught fish, and learning about cultural practices regarding fishing and preparing and eating fish.

Due to mercury and PCB levels in fish, the State of Wisconsin has issued fish advisory warnings for anglers and those who eat locally caught fish from inland Wisconsin waters. Yet many anglers are not aware of these advisories.

Levels of mercury, PCBs and other toxins that concentrate in fish are a known public health hazard. Shoreline anglers catch and consume many pan fish that may have lower toxin levels than larger fish, but when consumed in high quantities they may exceed levels recommended to avoid negative health effects; they also frequently catch and consume larger fish, which tend to have higher concentrations of toxins.

Through our investigations, we have learned that public agencies have very little data about local fish consumption habits and toxin levels in locally caught fish.

Levels of mercury, polychlorinated biphenyls (PCBs), polycyclic aromatic hydrocarbons (PAHs), pesticides, and other toxins are high enough in Dane County lake sediments and waters to raise concerns that people may need to limit their consumption of fish caught in these waters because these compounds build up in fish tissue, which humans consume (see the “Data Collection” section below).

Women of childbearing age, pregnant women and children are especially at risk for developmental, neurological and long term health problems from exposure to toxins present in locally caught fish. The environmental impacts of pollution on low-income and minority citizens are often unknown or underestimated because of a lack of data collection, and lack of consideration of these populations in determining public policy. This reality is a key component of environmental justice.

Public Policy

The common good and sound public health policy is served by informing anglers and others of potential risks associated with consuming many kinds of locally caught fish.

This report has been submitted to the Department of Public Health for the City of Madison and Dane County for use in compilation of its report to the Dane County Board of Supervisors, as directed by Sub. 1 to Resolution 238, 07-08 Posting of Fish Advisory Notices along Dane County Waters.

We ask that the Public Health Department include in its report a recommendation that fish consumption advisory information be better disseminated, especially to low-income and minority communities, through permanent, laminated metal signs at popular publicly-accessible shoreline fishing locations, in Hmong, Spanish and English.

RESEARCH

Fish Consumption Survey Results

Since there is no human exposure data to toxins in locally caught fish, MEJO gathered some. We developed a locally caught fish consumption survey that volunteers used to **interview 129 people** at meetings, neighborhood centers, fishing spots, parks and food pantries. The vast majority of respondents were **low-income** people.

The **demographics** of the survey respondents are as follows:

41% Hmong
32% White
17% African-American¹
5% Latino²
2% Other
1% Unidentified

67% Male³
23% Female
10% Unidentified

Does not equal 100% because of rounding

NOTES

1. Includes two couples (four people) whose answers were tabulated as two responses only.
2. Includes three men whose answers were tabulated as one response only.
3. The high number of males can be attributed to our Hmong respondents. In Hmong culture, it is common for a man to speak for a family; thus even though the interviews were often conducted with several members of a family present, the husband usually answered for everyone. Also, it is considered discourteous for a Hmong male to ask a Hmong female questions, and vice versa. Thus our two Hmong interviewers conducted interviews with Hmong males only and our one Hmong female interviewer conducted interviews with Hmong women only.

Highlights of the results include:

65% of respondents said they ate fish caught locally, and all of these fish were caught by shoreline anglers.

Table 1. Family fish meals per week by ethnicity of people who eat locally caught fish

| N=81 Ethnicity | Locally Caught Fish Meals for Families per Week | | | |
|-------------------|---|--------|------------------|-------------------|
| | Average | Median | Low ¹ | High ² |
| African American | 2.3 | 2 | 1 | 7 |
| Hmong | 3.6 | 1 | 0 | 21 |
| Latino | 3.9 | 2.5 | .75 | 10 |
| White | 1.5 | 1 | 0 | 8 |
| Other | .3 | .5 | .04 | .5 |
| All | 2.8 | 1.0 | 0 | 21 |

NOTES

1. .04 meals = “twice a year”; .75 meals = “three meals a month”
2. Some respondents said their families ate very high numbers of fish per week, and possibly may indicate the total number of fish eaten by a family per week (though the question specifically asked about “fish meals”). Both Whites and Hmong gave these higher range answers, so it may not have been a translation problem and could reflect actual numbers of meals. For many people, fish can be part of breakfast and lunch, as well as dinner (one respondent said “every meal”). And several people said they ate fish “every day” which was recorded as “seven meals per week,” thought it’s possible that the total number of meals they eat is actually higher!

Table 2. Types of locally caught fish and who eats them by percentage.

| N=81 | Total | African American | Hmong | Latino | White | DHFS/DNR Advisory for mercury exposure: women (pregnant or who plan to be or who breast-feed), and children under 15 (Notes 4,5,6,7) | DHFS/DNR Advisory for mercury exposure: women beyond childbearing years and men (Notes 4,5,6,7) |
|-------------------------|-------|------------------|-------|--------|-------|--|---|
| Bass ¹ | 28% | 10% | 13% | | 11% | 1 meal/mo | 1 meal/wk |
| White Bass ² | 49% | 10% | 72% | | | Not listed | Not listed |
| Bluegill/Crappie | 69% | 55% | 49% | 20% | 39% | 1 meal/wk | 2 meals/wk |
| Carp | 9% | | 9% | 20% | 2% | Not listed | Not listed |
| Catfish | 40% | 35% | 38% | 40% | 10% | Not listed | Not listed |
| Muskie | 7% | | 3% | | 10% | Never | 1 meal/wk |
| Other ³ | 15% | 10% | 13% | | 7% | ⁸ | ⁸ |
| Perch | 16% | 10% | | | 22% | 1 meal/wk | 2 meals/wk |
| Pike | 14% | 5% | 6% | | 17% | 1 meal/mo | 1 meal/wk |
| Walleye | 21% | 10% | 9% | | 20% | 1 meal/mo | 1 meal/wk |

Almost all respondents reported catching and eating more than one type of fish; thus percentages do not add up to 100%.

NOTES

1. “Bass” are largemouth, smallmouth or just “bass,” implying that white bass could be in this category too. Thus, the total percentage of white bass could be higher.
2. White bass are also called silver bass.
3. “Other” fish include buffalo, bullhead and sheepshead.
4. No one had seen color DHFS/DNR brochure that we often showed people after surveying them.
5. The 40-page DNR booklet “Choose Wisely” (which none of the respondents had seen) lists carp, catfish and “bass” (generic) in the statewide advisory section. These fish have the “1meal/mo-1 meal/wk” designation.

6. Special advisories exist for PCB contaminant levels for carp in Lake Monona, Lake Mendota and Bad Fish Creek; and for carp and lake sturgeon in the stretch of the Wisconsin River within Dane County.
7. There are no advisories for other contaminants that are present in Dane County waters (polycyclic aromatic hydrocarbons, lead, cadmium, copper, pesticides, etc.) because there is either very little or no data for levels in fish.
8. Only bullhead are mentioned by name in the advisory: 1 meal/wk-2 meal/wk

Table 3. Most frequently fished shoreline areas

| Rank | Location | Percentage of Anglers Who Fished There |
|------|--|--|
| 1 | Lake Monona ¹ | 68% |
| 2 | Lake Mendota | 63% |
| 3 | Monona Bay (Brittingham Park, railroad tracks) ¹ | 46% |
| 4 | Tenney Park (Lagoon and Yahara River) | 41% |
| 5 | Cherokee Marsh (Cherokee Lake and Cherokee Marsh/Yahara River at State Highway 113/ Northport Drive) | 40% |
| 6 | Lake Wingra | 33% |
| 7 | Wisconsin River (mostly in Sauk City) ² | 28% |
| 8 | Other – outside of Dane County | 19% |
| 9 | Lake Waubesa | 10% |
| 10 | Jefferson County (Lake Koshkonong in Ft. Atkinson, Rock Lake in Lake Mills) ² | 7% |

NOTES

1. When Monona Bay and Lake Monona are taken together, almost all respondents report fishing in Lake Monona.
2. Many Hmong fish in Sauk City and Jefferson County, in addition to Madison waters. Otherwise, most non-Whites only fish in Madison waters.

Fishing and Fish Consumption Focus Groups

MEJO held **12 focus group meetings with 150 participants** over the past two years. The meetings were held at neighborhood centers, agency facilities and public locations such as Brittingham Park. We learned the following:

- Most people are **unaware of fish consumption advisories**, and **no one had seen the DNR booklet or the DHFS brochure**.
- **Many people eat large numbers of fish weekly during fishing season** (which can extend from April into October).
- **Hmong prefer white bass**, which is smaller game fish that can have higher levels of some contaminants, but which is not identified on the DHFS brochure and is rarely tested for contaminants by the DNR.
- **African Americans prefer catfish** (while many others also like to eat catfish). Catfish can have higher levels of some contaminants (especially PCBs), but which is not identified on the DHFS brochure and is rarely tested for contaminants by the DNR.
- **Awareness of mercury, PCBs and other contaminants in the water and fish is low**, with little understanding of the pollution cycle.
- **Most people are not aware that trimming fat and removing the skin will help reduce PCBs in the cooked fish, or that mercury is in the muscle tissue and cannot be removed at all**.
- **Many people do not fillet fish**. Leaving the skin on, not removing fat and using fish heads in soups are all common practices which lead to greater exposure to many contaminants.
- **When shown the DHFS brochure (in English, Spanish or Hmong), many people did not find the fish they ate and therefore erroneously assumed that those fish are okay to eat (meaning no advisory exists for those fish)**.
- **People thought fish consumption advisory signs at shoreline fishing locations would be beneficial**.

RECOMMENDATIONS

Fish Consumption Advisory Signs

Metal, laminated, permanently-installed fish consumption advisory signs posted at popular fishing location, in English, Hmong and Spanish, will be read by many anglers and most likely will be their only source of this information.

The fish listed (and represented graphically) on the signs needs to include white bass, catfish, carp, bullhead, buffalo and sheepshead because these fish are popular to catch and eat locally, but are not on the DHFS brochure or the DNR signs on the Fox River and Green Bay. People need to see the fish on the signs that they catch and eat.

Signs should explicitly state that the advisory exists for all Dane County waters, not just the location where the sign is posted; or in the case of carp, for all of Lake Mendota and Lake Monona. This will keep people from erroneously assuming that locations without posted signs are not under advisories.

The signs should be adapted from the existing DNR signs posted along the Fox River and Green Bay, but include white bass, catfish, buffalo, carp, bullhead, buffalo and sheepshead.

The special PCB advisory for larger carp in Lake Monona and Lake Mendota should be included in the signs.

Dr. Powell is working with the Nelson Institute for Environmental Studies to develop a study where students can survey anglers on Monona Bay after signs have been installed to determine the effectiveness of the signs.

While in-person interactions with poor and minority communities about fish advisories should be at the core of fish advisory communications strategies, signs are still a cost effective method of getting information to people who may need it the most. They would ideally complement more comprehensive, in-person community outreach approaches. Also, a few signs are cheaper than some other agency outreach methods that have been tried, and shown to be ineffective, around Wisconsin and elsewhere (see Beehler, 2003; Gliori et al., 2006; Imm et al, 2005; Steenport et al, 2000; and Trasande et al, 2006).

Signs should be posted at the following popular public access fishing locations (prioritized locations in **bold**):

DANE COUNTY PARKS

Salmo Pond
Fish Lake
Lussier (Fish Lake)
Indian Lake
Donald (Sugar River)
Stewart
Mendota
Token Creek

Goodland (Waubesa)
Babcock (Waubesa)
Lake Farm (Waubesa)
Fish Camp Launch (Kegonsa)
LaFollette (Kegonsa)
Viking (Yahara River near Stoughton)
Riley-Deppe (Marshall Mill Pond)
Cam-Rock (Rockdale Mill Pond)

CITY OF MADISON PARKS

Brittingham (Monona Bay – boathouse, dock near shelter, near railroad tracks)
Tenney (Lagoon, Yahara River, Lake Mendota shoreline)
Monona Terrace/Law
Cherokee Lake/Cherokee Marsh
Wingra Creek
Lake Wingra
Yahara Place Park (Lake Monona shoreline, Yahara Rover shoreline?)
Olbrich Park (Lake Monona shoreline/Stark weather Creek confluence with Lake Monona)

OTHER MUNICIPALITIES/JURISDICTIONS

Westport – Yahara River at confluence with Lake Mendota, under State Highway 113
(northeast shore is in City of Madison Cherokee Marsh Dog Park boundary)

Outreach

In addition to installation of advisory signs, and partially in an effort to promote and explain the signs, we recommend that public agencies conduct an outreach campaign that could include the following:

- Tie in with beginning/early fishing season (May)
- Public Health Dept. promotes signs and advisories through a public relation effort through the media, and at community center events.
- Nurses, social workers and others involved in Madison Neighborhood Resource Teams can disseminate information to low-income and color communities.
- Volunteers can distribute advisory brochures on weekends in May/June at popular shoreline fishing spots (volunteers would come from collaborator groups listed below).
- Possible collaborators:

| | | |
|--|---|---|
| Public Health Dept. Lakes & Watershed Commission Madison Environmental Justice Org. (MEJO) | Friends of the Yahara River Parkway Friends of Monona Bay Friends of Lake Wingra Friends of Starkweather Creek | Centro Hispano United Asian Services Urban League NAACP Communities United Planning Councils |
|--|---|---|

Data Collection

The lack of contaminant data for local lakes and fish makes it difficult to adequately assess exposure risks and disseminate health advisory information. We recommend that both lake sediment and human exposure data be collected especially since that is already recommended in existing water management plans:

- Because of high polychlorinated biphenyl and mercury levels in sediment samples, the WDNR Lower Rock River Water Quality Management Plan, 2001, states that “Fish

monitoring for PCBs and mercury through WDNR's fish consumption advisory program will continue indefinitely."

- The Dane County Regional Planning Commission recommendations in the Yahara Monona Priority Watershed Project Plan (1992) calls for "fish monitoring in Lake Waubesa, the Yahara River, and Lake Monona for mercury" and "additional sediment core sampling in Lake Monona and Lake Waubesa to identify possible trends in PCB contamination" and "a more complete assessment of in-place pollutants in Monona Bay by expanding sediment sampling to areas not previously sampled."

Additionally, according to the Nelson Institute Water Resources Management Practicum Team report on Monona Bay (2006), sediment data indicate contaminant levels of polycyclic aromatic hydrocarbons that exceed "midpoint concentrations" and "probable effect concentrations." And levels of several heavy metal levels and other contaminants were also high. Both indicate the need for further testing, and especially for testing of contaminants in fish.

Toxin contaminant data in people who eat fish is sorely lacking, even though this is the best way to determine exposure (see Arnold et al, 2005; Center for Science and Public Policy, 2005). Unfortunately, we don't have any of this data.

In this light, the recent Wisconsin Department of Health and Family Services effort, led by Lynda Knobeloch, to collect and analyze hair samples for mercury content has been invaluable, especially since results showed high mercury levels in some white males, a category previously thought to have low mercury levels. Unfortunately, very few minorities participated in the study. When we contacted Knobeloch about this, she demonstrated a willingness to work with us to collect hair samples from minorities, and a small number of samples were collected at the Kennedy Heights Community Center in 2006.

Based on this opportunity, MEJO hopes to work with the Public Health Department and the State DHFS to collect hair samples from minorities in culturally sensitive ways and have them tested, thus creating the exposure data for these populations which currently does not exist. Public health nurses are in an excellent position to collect the hair samples, and the State is willing to test the samples for mercury. It is our hope that the results can be provided to participants by the same public health nurses who collected the samples, thus ensuring that the results are thoroughly and appropriately communicated to them.

References

Arnold et al. (2005) Human biomonitoring to optimize fish consumption advice: reducing uncertainty when evaluating benefits and risks. *American Journal of Public Health* 95:393–397.

Beehler. (2003) Characterizing Latino Anglers' Environmental Risk Perceptions, Sport Fish Consumption and Advisory Awareness. *Medical Anthropology Quarterly* 17(1):99-116.

Center for Science and Public Policy. (2005) Making Sense of State Fish Advisories: A Policy-Maker's Guide to Mercury, Fish and Public Health. Washington, D.C.

Glori et al. (2006) Fish Consumption and Advisory Information Among Expectant Women. *Wisconsin Medical Journal* 105(2):41-44.

Imm et al. (2005) Fish Consumption and Advisory Awareness in the Great Lakes Basin. *Environmental Health Perspectives* 13(10):1325-1329.

Steenport et al. (2000) Fish Consumption Habits and Advisory Awareness Among Fox River Anglers. *Wisconsin Medical Journal* November 2000:43-46.

Trasande et al. (2006) Pediatrician Attitudes, Clinical Activities, and Knowledge of Environmental Health in Wisconsin. *Wisconsin Medical Journal* 105(2):45-49.

Contacts

Maria Powell, Executive Director
Jim Powell, Community Organizer
Madison Environmental Justice Organization
608.240.1485
mariapowell@mejo.us
jimpowell@mejo.us
www.mejo.us

The Madison Environmental Justice Organization educates the community about environmental justice issues, facilitates the community's ability to address these issues, and supports environmental justice for the benefit of the general public.

Our local air and water pollution has a disproportionate impact on the poor and minorities which is not being addressed by our institutions or our community as a whole.

MEJO aims to change this.

www.mejo.us