



# Can You Teach Old Anglers New Tricks?

## Fish Consumption and Advisory Effectiveness

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### Study Purpose and Methods

#### Purpose of study:

- Evaluate WI's fish consumption advisory program
- Obtain further information about older male anglers found to have high fish consumption by hair mercury study (Knobeloch et al. 2011)
- Identify advisory outreach messages needing improvement

#### Methods:

- Online survey gathered information on participants' demographics, health, fishing and fish consumption, and awareness, knowledge and effectiveness of consumption advisories. October 2011 – August 2013
- Open Survey – potential duplicate participants examined
- Target population: men age 50 and older who fish Wisconsin waters and live in the state
- Survey Topics:
  - Fished locations
  - Awareness of consumption advisories
  - Consumption of sport-caught and purchased fish
  - Health
  - Demographics



#### Recruitment:

- Press releases
- DNR Website button to survey website
- Emails to GovDelivery subscribers and tweets on Twitter®
- Notices in Natural Resources magazine, fishing and lake organization publications targeted at anglers and lake users
- Flyers and posters at local and group lake and fishing events
- Emails to 2011 fishing season license holders (male >=50)

### Sources of Advisory Information

- 73% Fishing Regulation Guide provided with their license
- 67% DNR website and publications
- Up to 58% many other sources
- 0.7% Apps (survey completed prior to WI DNR F&WL app)



### Male Anglers Age ≥ 50 Characteristics

<b>Total Respondents (N)</b>	3740
<b>Mean Age (SD)</b>	62.2 (6.9) years
Resides in County bordering L Michigan or Superior	24%
Non-Hispanic, white race/ethnicity	98%
Education beyond high school	83%
Married or marriage like relationship	89%
Household Income >\$35,000	87%
Lived in Wisconsin >10 years	97%
Fished in Wisconsin > 10 years	96%

### Fish Meals Consumed Per Year

Number of Respondents varies per group, Total N = 3230 to 3667  
 Mean Number of Meals Per Year (SD)

	Locally Caught	Purchased & Caught
<b>Total</b>	<b>34 (60)</b>	<b>89 (69)</b>
Working (full or part)	32 (74)	87 (71)
Retired	36 (43) *	92 (65) *
Eats GL fish	45 (77) *	100 (73) *
Does not eat GL fish	21 (27)	76 (61)

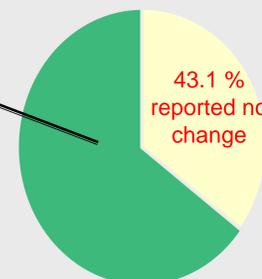
\* statistically significant differences, p<0.05; based on t-test with Cochran adjustment

### Most Popular Species Consumed

% Participants who ate ≥ 6 times in last 12 months			
Locally Caught	%	Purchased	%
Bluegill	70%	Shrimp	75%
Walleye	67%	Cod	57%
Crappie	57%	Canned tuna	54%
Yellow perch	54%	Haddock	45%
Northern pike	32%	Salmon	42%

### Behavioral Changes to Reduce Intake

- Made ≥1 change – 56.9%
- Ate fewer fish meals – 14.7%
- Ate different types – 25.3%
- Ate from different locations – 52.5%



Note: Changes are not mutually exclusive.

### Advisory Knowledge of Participants

	Nothing %	A bit to some %	Quite a bit to a great deal %
Mercury Advice (N=3568)	2	74	24
PCB Advice (N=2871)	8	77	16

Most (67 to 94%) answered 8 of 10 knowledge questions correctly

- To reduce mercury intake:
  - favor panfish over gamefish
  - favor smaller sizes of fish
- To reduce PCB intake:
  - trim and drain fat
  - favor smaller sizes, less fatty species
  - avoid bottom fish and fish from high contaminant locations

### Conclusions

#### Conclusions:

- Participants overall ate about the same number of meals of locally caught fish and purchased fish/shellfish – retired anglers and those who eat Great Lakes fish ate more of each type
- WI's advisory program does not appear to discourage men from eating the fish – older WI male anglers eat more fish than GL license holders and US men
- Most respondents were aware of advice for mercury (93%) and PCBs (67%)
- Those who ate more sport-fish were more likely to be very knowledgeable of advisories
- Advice encourages behavioral changes that reduce contaminant exposure
- Participants were able to use the internet to access and complete the survey with relative ease: may prove useful for future outreach efforts

#### Strengths & Weaknesses:

- Strengths: large sample of older fishermen; successful exploration of use of technology
- Weaknesses: biases due to nature of survey (computer-literate, access to internet); study population more educated, had higher incomes, more leisure time and more racially homogeneous compared with state population

#### Future directions:

- Continue improvements in communication methods using social media and interactive web programs
- Target ways to steer anglers and fish consumers towards these websites, online programs and similar messaging
- Build on outreach messages that promote safer behaviors