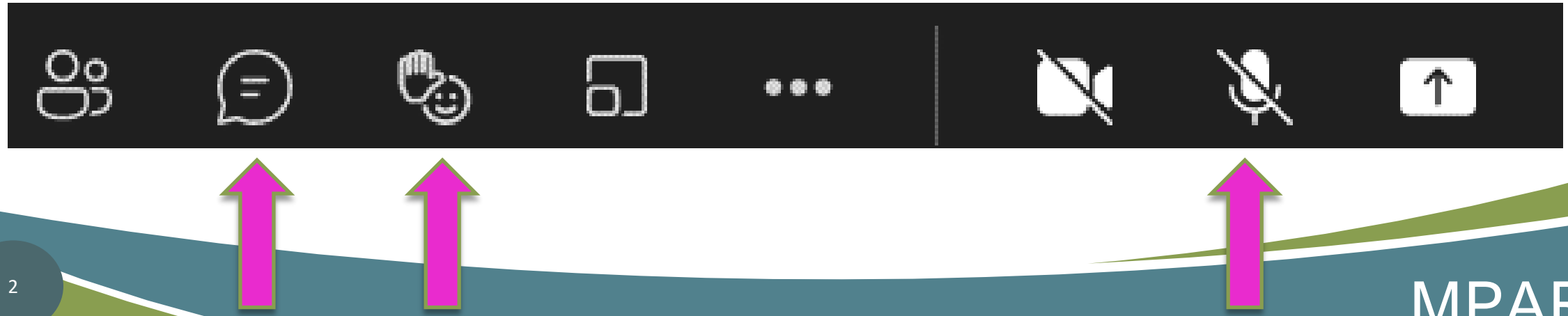
MPART Citizens Advisory Workgroup

April 11, 2023

MPART

Housekeeping

- Please keep your mic/phone muted unless speaking
- Only use the “raise hand” and/or “chat” function for questions or to request to speak
- Cameras are optional
- This meeting is being recorded



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Agenda

- Roll Call – Community Updates
  - Welcome New Member:
    John Vriese
- Subcommittee Updates
- Eat Safe Fish - DHHS
- MPART Updates
- Public Notification
- Future Meeting / Topics

Roll Call and local updates/events/ sharing from communities

CAWG Subcommittee's

- Membership Subcommittee
- Website Review Subcommittee
- Preventative Measures Subcommittee
- Engaging the Public Subcommittee

The Eat Safe Fish Program (ESF)

Brandon Reid, ESF Program Manager

Michigan Department of Health and Human Services

April 11, 2023

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Overview

- **Eat Safe Fish Program Goals**
- ***Eat Safe Fish (ESF)* Guideline Process**
  - Sampling & Analysis
  - Data Evaluation
  - Setting guidelines and publishing the *Eat Safe Fish Guide*
- **Outreach**
  - Materials and Community Fishing Events
  - River Walkers
  - Future outreach plans

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Eat Safe Fish Program Goals

- To promote safer consumption of fish from Michigan waterbodies
- To create consumption guidelines based on the health risks of eating fish that contain environmental contaminants, like mercury, PCBs, and PFAS
- To provide Michiganders with the knowledge they need to make informed decisions about which fish and how much fish to eat

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The *Eat Safe Fish* Guideline Process

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The *Eat Safe Fish* Guideline Process

Sampling & analysis

- Fish collection
- Processing
- Analysis

→ Data evaluation → Issuing a guideline

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Fish Sample Collection

- Fish consumption advisories are based on chemical levels in edible portions of fish from Michigan waterbodies
- Fish are primarily collected by EGLE's Fish Contaminant Monitoring Program (FCMP), with assistance from:
  - DNR Fisheries Division
  - US Geological Survey
  - Community partners and Tribal governments
- After collection, fish are frozen until they can be processed by FCMP biologists

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Fish Sample Processing

- During sample processing, FCMP biologists collect information like length and weight
- The edible portions of fish, usually the filet, are then removed and sent to the MDHHS Laboratory
  - The edible portion is the most representative of exposure
- The MDHHS Laboratory blends each fillet into a paste, which is then tested for contaminants

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Fish Sample Analysis

- The MDHHS Analytical Chemistry Lab can quantify concentrations of the following contaminants from fish tissue samples:
  - Mercury
  - PCBs and organochlorine pesticides (DDT/DDE/DDD, Chlordane)
  - Total dioxins, furans, and coplanar PCBs
  - Toxaphene
  - Selenium
  - PFAS (39 analytes including PFOS)
- Currently, all samples are tested for mercury and PFAS
  - Additional chemical analyses may be selected based on the location of the waterbody and the fish species

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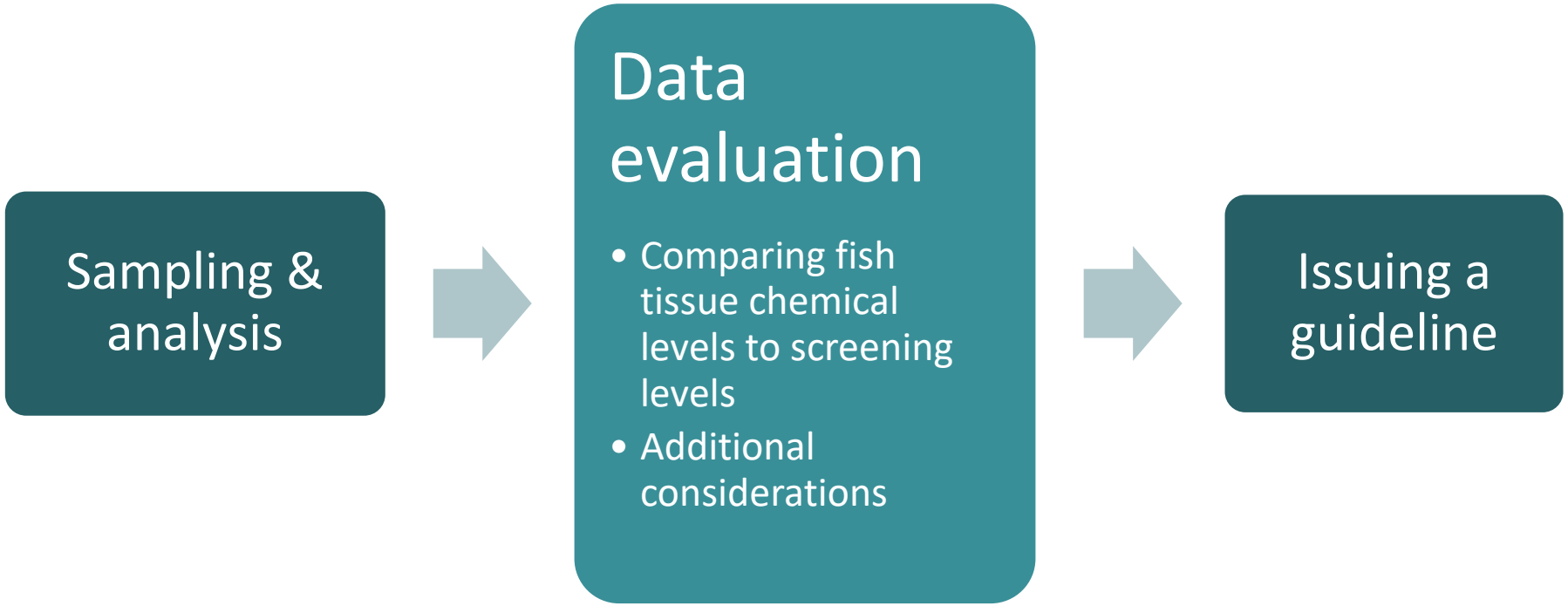
The *Eat Safe Fish* Guideline Process



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Fish Consumption Screening Values (FCSVs)

- Concentrations of chemicals from edible portions are compared to health-based screening values called FCSVs
  - FCSVs are based on toxicity values
    - EPA Reference Doses (RfDs)
    - ATSDR Minimal Risk Levels (MRLs)
  - FCSVs are protective against most sensitive toxicity endpoint (critical effect)
  - FCSVs include uncertainty factors to be health protective
  - Michigan Fish Consumption Advisory Program Guidance: Appendix A
- ESF uses the 95% Upper Confidence Limit (95% UCL) of the arithmetic mean for comparison with FCSVs
  - Health-protective approach due to variability within fish populations

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FCSV Equations

Cancer FCSVs are calculated using the following equation:

$$FCSV = \frac{CR \times BW \times AT}{CSF \times IR \times EF \times ED}$$ Equation 1

Where:

FCSV (Fish Contaminant Screening Value)	= chemical specific in µg/g or pg/g wet weight
CR (Cancer Risk)	= 10^{-4} to 10^{-6}, unitless
BW (Body Weight)	= kg
AT (Averaging Time)	= 28,470 days (365 x 78 years)
CSF (Cancer Slope Factor)	= chemical specific in µg/kg-day-1
IR (Ingestion Rate)	= g/day
EF (Exposure Frequency)	= days/year
ED (Exposure Duration)	= years

Standard U.S. EPA risk assessment equations

Non-Cancer FCSVs are calculated using the following equation:

$$FCSV = \frac{RfD \times RSC \times BW \times AT}{IR \times EF \times ED}$$ Equation 2

Where:

FCSV (Fish Contaminant Screening Value)	= chemical specific, µg/g or pg/g wet weight
RfD (Reference Dose)	= chemical specific, µg/kg-d or pg/kg-d
RSC (Relative Source Contribution)	= chemical specific, unitless
BW (Body Weight)	= kg
AT (Averaging Time)	= days
IR (Ingestion Rate)	= g/day
EF (Exposure Frequency)	= days/year
ED (Exposure Duration)	= years

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Table 1. Fish Consumption Screening Values (FSCV) for DDT plus metabolites, dioxin-like chemicals, mercury, PCBs, PFOS, selenium, and toxaphene.

Meal Category	DDT, DDE, DDD	Dioxins/Furans/co-planar PCBs	Mercury	PCBs
meals per month	*µg/g (ppm)[a]*	*pg TEQ/g (ppt-TEQ)[b]*	*µg/g (ppm)[a]*	*µg/g (ppm)[a]*
16	≤ 0.11	≤ 0.5	≤ 0.07	≤ 0.01
12	>0.11 to 0.15	>0.5 to 0.6	>0.07 to 0.09	>0.01 to 0.02
8	>0.15 to 0.23	>0.6 to 0.9	>0.09 to 0.13	>0.02 to 0.03
4	>0.23 to 0.45	>0.9 to 1.9	>0.13 to 0.27	>0.03 to 0.05
2	>0.45 to 0.91	>1.9 to 3.7	>0.27 to 0.53	>0.05 to 0.11
1	>0.91 to 1.8	>3.7 to 7.5	>0.53 to 1.1	>0.11 to 0.21
6 meals per year	>1.8 to 3.7	>7.5 to 15	>1.1 to 2.2	>0.21 to 0.43
Limited	>3.7 to 20	>15 to 90	NA	>0.43 to 2.7
Do Not Eat	>20	>90	>2.2	>2.7

Meal Category	PFOS	Selenium	Total Toxaphene	Toxaphene Parlars 26, 50, 62 ($\sum 3PC_{26,50,62}$)
meals per month	*µg/g (ppm)[a]*	*µg/g (ppm)[a]*	*µg/g (ppm)[a]*	*µg/g (ppm)[a]*
16	≤ 0.009	≤ 2.3	≤ 0.02	≤ 0.001
12	>0.009 to 0.013	>2.3 to 3.1	>0.02 to 0.03	>0.001 to 0.002
8	>0.013 to 0.019	>3.1 to 4.6	>0.03 to 0.05	>0.002 to 0.003
4	>0.019 to 0.038	>4.6 to 9.2	>0.05 to 0.09	>0.003 to 0.006
2	>0.038 to 0.075	>9.2 to 17	>0.09 to 0.18	>0.006 to 0.011
1	>0.075 to 0.15	NA	>0.18 to 0.36	>0.011 to 0.023
6 meals per year	>0.15 to 0.3	NA	>0.36 to 0.73	>0.023 to 0.046
Limited	NA	NA	>0.73 to 4.5	>0.046 to 0.28
Do Not Eat	>0.3	>17	>4.5	>0.28

[a]: micrograms of chemical per gram of wet weight fish tissue (µg/g) that is the same as parts per million (ppm).

[b]: picograms of toxic equivalents calculated according to US EPA methods[7] per gram of wet weight fish tissue (pg TEQ/g) that is the same as parts per trillion of toxic equivalents (ppt-TEQ).

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Meal Categories

- Each tested contaminant is assigned a meal category based on the level of that contaminant in the fish sample
- Possible meal categories include:
  - 16, 12, 8, 4, 2, or 1 serving(s) per month
  - 6 servings per year
  - Limited
  - Do Not Eat
- Fish servings are in “MI Servings per Month”
  - Vary based on body weight
  - 8 oz for adults, 2-4 oz for children

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Meal Categories

- **Limited**
  - Some populations should avoid fish with a Limited guideline
    - People who may have children in the next several years, are currently pregnant, or are breastfeeding
    - People with pre-existing health conditions like cancer or heart disease
    - Children under age 15
  - All others should limit consumption of Limited fish to 1 or 2 meals per year
- **Do Not Eat**
  - All populations should avoid fish with a Do Not Eat guideline
  - Even one meal of fish with a Do Not Eat can raise your risk of harmful health effects

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What does a guideline ‘mean’?

- Consuming more fish than the ESF Guideline does not mean that you are guaranteed to experience a harmful health effect
- If a guideline is 8 Servings Per Month, consuming more than 8 Servings Per Month of that fish **may** raise your risk of some harmful health effect
- The goal is to minimize **risk,** since everyone responds to chemicals differently

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Recommendation sheets

- Contains data summary prepared by FCMP and MDHHS consumption recommendation

- Explains basis of recommendation and any additional considerations
  - Known sources of contamination
  - Dataset age and completeness

Bluegill **Fidelity Lake** **Ingham County**

Hg Analysis:

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
2010	2010	6	7.2	na	7.2	8.1

Datasets available: 2010

Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
Mercury	6	0.11	0.08	0.13	0.13	8

Chemical	Linear Regression	Exponential Regression
	R^2	R^2
Mercury	0.080	0.083

Organics Analysis:

Range of Years Used		N (All)	Overall Min Length	Legal Min (Inches)	Range of Legal Sized Samples	
Earliest	Most Recent				Min	Max
2010	2010	6	7.2	NA	7.2	8.1

Datasets available: 2010

Chemical	Sample Size (Legal)	Mean (ppm)	Min. Conc. (ppm)	Max Conc. (ppm)	95%UCL (ppm)	Meal Category
PCB	6	0.003	0.001	0.005	0.000	16
DDT	6	0.008	0.005	0.012	0.010	16
Chlordane	6	ND	--	--	--	--
Toxaphene	6	ND	--	--	--	--

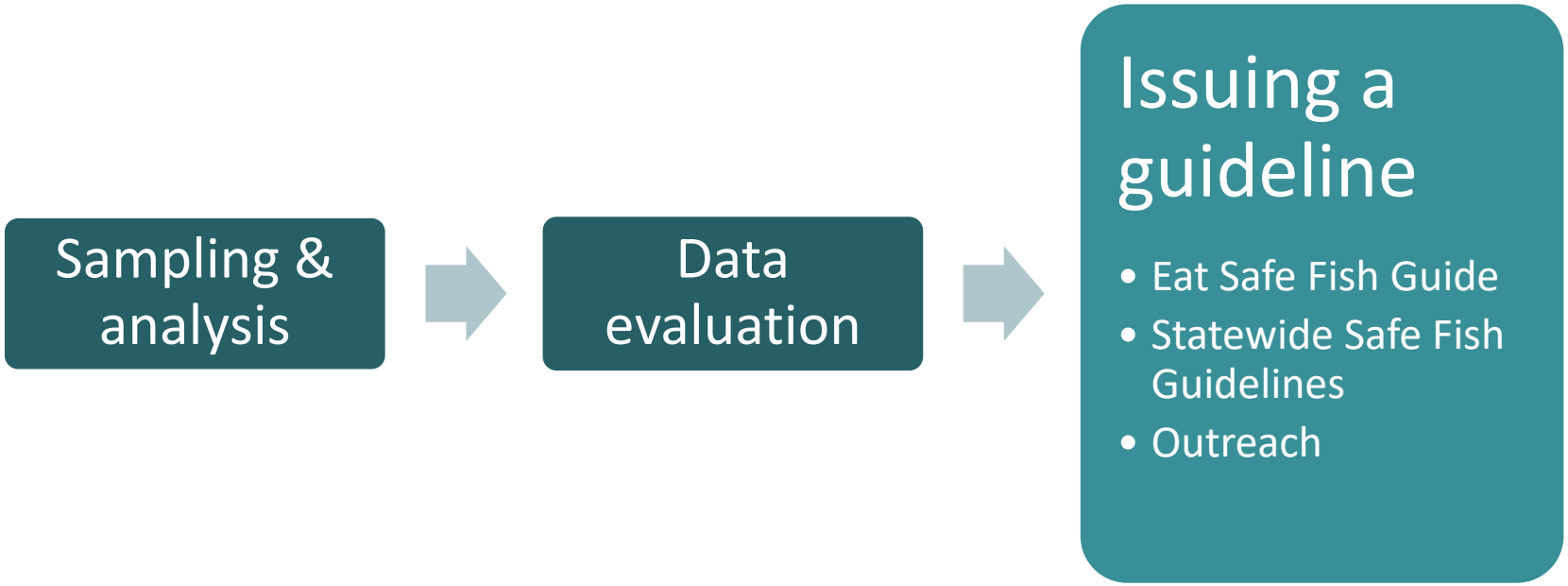
Chemical	Linear Regression	Exponential Regression
	R^2	R^2
PCB	0.087	0.029
DDT	0.473	0.381
Chlordane	--	--
Toxaphene	--	--

Final meal category based on UCL: 8

Existing Advisory: There are no current consumption advisories for Fidelity Lake bluegill.

Recommendation: No one should eat more than 8 meals per month of Fidelity Lake bluegill and sunfish due to mercury.

The *Eat Safe Fish* Guideline Process



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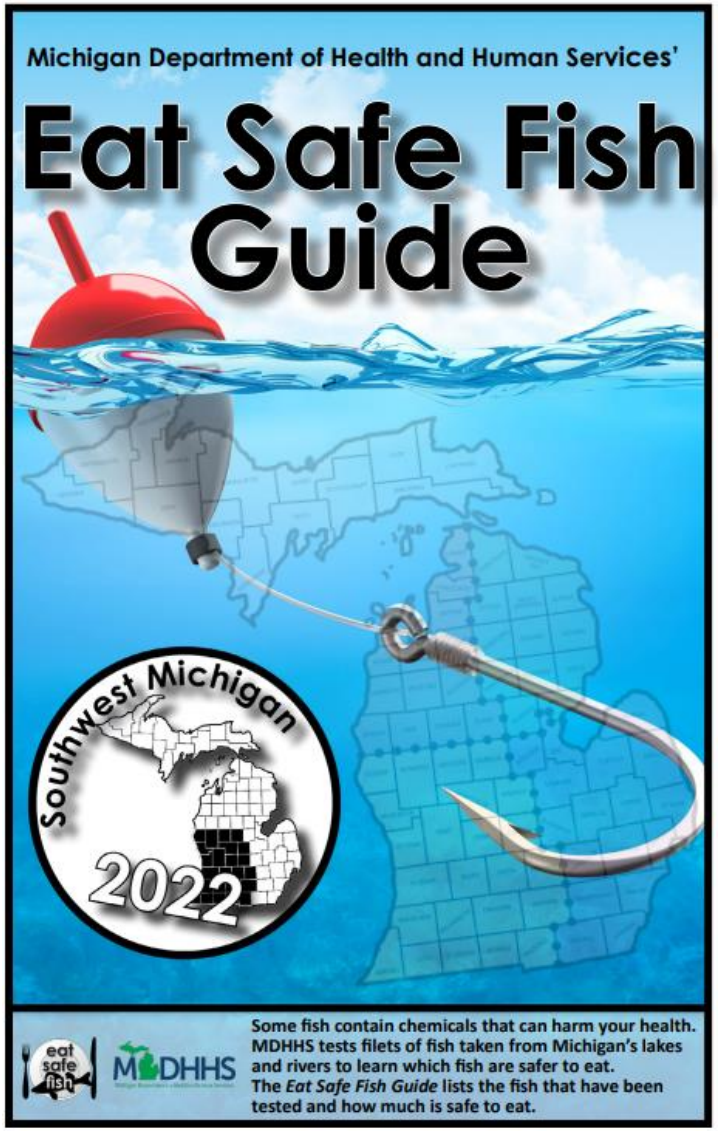
Eat Safe Fish Guide

- The *Eat Safe Fish Guide* contains all waterbody-specific guidelines issued by the Eat Safe Fish program.
  - Composed of 5 regional guides (UP, SW/SE/NW/NE LP)
- The *Eat Safe Fish* program updates the *Eat Safe Fish Guide* regularly with new and updated guidelines



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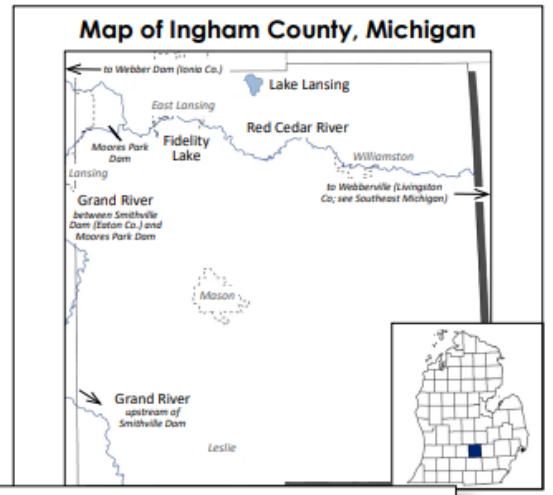
Reading the *Eat Safe Fish Guide*

- Guidelines are organized by county, waterbody, and species
- Each county has a map showing waterbodies that have specific guidelines
- The chemical driving the guideline is listed, along with the size of fish (if applicable), and consumption guideline

Ingham County



Filets of fish from the lakes and rivers listed here have been tested for chemicals.

For all other lakes and rivers in this county, and for any species not listed below, see page 9.

Bluegill, perch, and other panfish are often a Best Choice. See page 9 for guidelines if these fish aren't listed below.

Fidelity Lake

Type of Fish	Chemicals of Concern	Size of Fish (length in inches)	MI Servings per Month*
Bluegill	Mercury	Any	8
Largemouth Bass	Mercury	Under 18"	1
		Over 18"	6 Per Year
Smallmouth Bass	Mercury	Under 18"	1
		Over 18"	6 Per Year
Sunfish	Mercury	Any	8

(continued on the next page)

Special Guidelines

- **2x guidelines** are based on chemicals like PCBs and dioxins that build up in fat and skin
- They can be doubled if the **3Cs** (**Choose, Clean, Cook**) are followed:
  - **Choose** fish lower in chemicals
  - **Clean** the fish by removing the skin and cutting off the fat
  - **Cook** the filet on a grate and so that more fat in the filet can drip away while it is cooking
- These techniques can remove up to half of these chemicals from your meal
  - Mercury and PFOS primarily build up in the filet, so these techniques do not remove as much of those chemicals and the 2x rule cannot be applied
- **Length Breaks**
  - Concentrations in some fish are correlated with length
  - If a trend is present, different guidelines may be issued for fish of different sizes

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Galloway Lake

Type of Fish	Chemicals of Concern	Size of Fish (length in inches)	MI Servings per Month*
Carp	PCBs	Any	2^{2x}
Largemouth Bass	Mercury	Under 18”	2
		Over 18”	1
Smallmouth Bass	Mercury	Under 18”	2
		Over 18”	1

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Statewide Safe Fish Guidelines

- ESF also issues statewide consumption guidelines, which apply to fish that do not have waterbody-specific guidelines.

- Statewide consumption guidelines are based on average statewide levels of contaminants over several decades of testing
  - Most based on mercury
  - Carp, catfish based on PCBs

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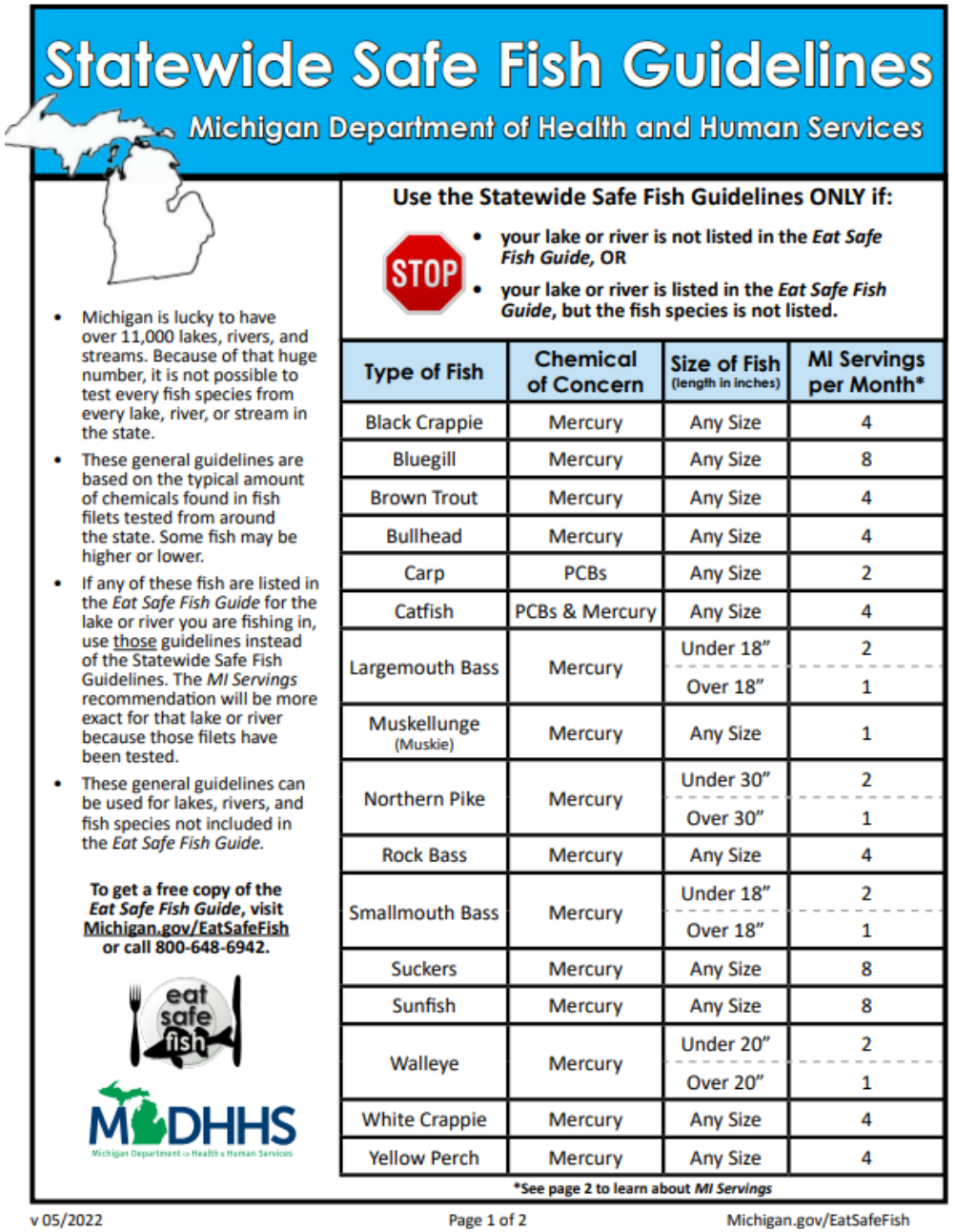
Statewide Safe Fish Guidelines



Statewide Safe Fish Guidelines

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- Michigan is lucky to have over 11,000 lakes, rivers, and streams. Because of that huge number, it is not possible to test every fish species from every lake, river, or stream in the state.
- These general guidelines are based on the typical amount of chemicals found in fish filets tested from around the state. Some fish may be higher or lower.
- If any of these fish are listed in the *Eat Safe Fish Guide* for the lake or river you are fishing in, use those guidelines instead of the Statewide Safe Fish Guidelines. The *MI Servings* recommendation will be more exact for that lake or river because those filets have been tested.
- These general guidelines can be used for lakes, rivers, and fish species not included in the *Eat Safe Fish Guide*.

To get a free copy of the *Eat Safe Fish Guide*, visit Michigan.gov/EatSafeFish or call 800-648-6942.

eat safe fish

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Use the Statewide Safe Fish Guidelines ONLY if:

STOP

- **your lake or river is not listed in the *Eat Safe Fish Guide*, OR**
- **your lake or river is listed in the *Eat Safe Fish Guide*, but the fish species is not listed.**

Type of Fish	Chemical of Concern	Size of Fish (length in inches)	MI Servings per Month*
Black Crappie	Mercury	Any Size	4
Bluegill	Mercury	Any Size	8
Brown Trout	Mercury	Any Size	4
Bullhead	Mercury	Any Size	4
Carp	PCBs	Any Size	2
Catfish	PCBs & Mercury	Any Size	4
Largemouth Bass	Mercury	Under 18"	2
		Over 18"	1
Muskellunge (Muskie)	Mercury	Any Size	1
Northern Pike	Mercury	Under 30"	2
		Over 30"	1
Rock Bass	Mercury	Any Size	4
Smallmouth Bass	Mercury	Under 18"	2
		Over 18"	1
Suckers	Mercury	Any Size	8
Sunfish	Mercury	Any Size	8
Walleye	Mercury	Under 20"	2
		Over 20"	1
White Crappie	Mercury	Any Size	4
Yellow Perch	Mercury	Any Size	4

*See page 2 to learn about *MI Servings*

Eat Safe Fish Outreach

- *Eat Safe Fish Guide,* Eat Safe Fish Brochure, and other printed materials
- Signage for waterbodies with Do Not Eat advisories
- Press releases and interviews with state and local news
- Attendance at fishing events
  - Kids' fishing tournaments
  - Fish fry/fish boils
  - Fishing-related festivals

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Eat Safe Fish Outreach – River Walkers

- Seasonal employees who work to spread Eat Safe Fish information and messaging through in-person conversations with anglers
- Four River Walker programs have been established so far:
  - Saginaw Bay Area
  - Detroit River
  - Huron River Watershed
  - Kalamazoo River Watershed
- Across the four programs, River Walkers talk with thousands of anglers each year.

Future Outreach Plans

- Eat Safe Fish Ambassador (Detroit)
  - Create sustainable sources of information about safe fish consumption in the Detroit area.

- Eat Safe Fish Community Outreach Educator (Statewide)
  - Attend community events and conduct non-traditional outreach related to safe fish consumption, primarily in environmental justice communities.

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Presentation at May 9 CAWG Meeting

- This presentation will be focused on how the program is issuing PFAS consumption guidelines in fish.

- Please reach out to me or Kelly Ploehn if there are any topics related to PFAS consumption guidelines that you would like to hear about during the presentation.

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Thank you!

For more information on the Eat Safe Fish program, please visit michigan.gov/eatsafefish

Brandon Reid
Eat Safe Fish Program Manager
Michigan Department of Health and Human Services

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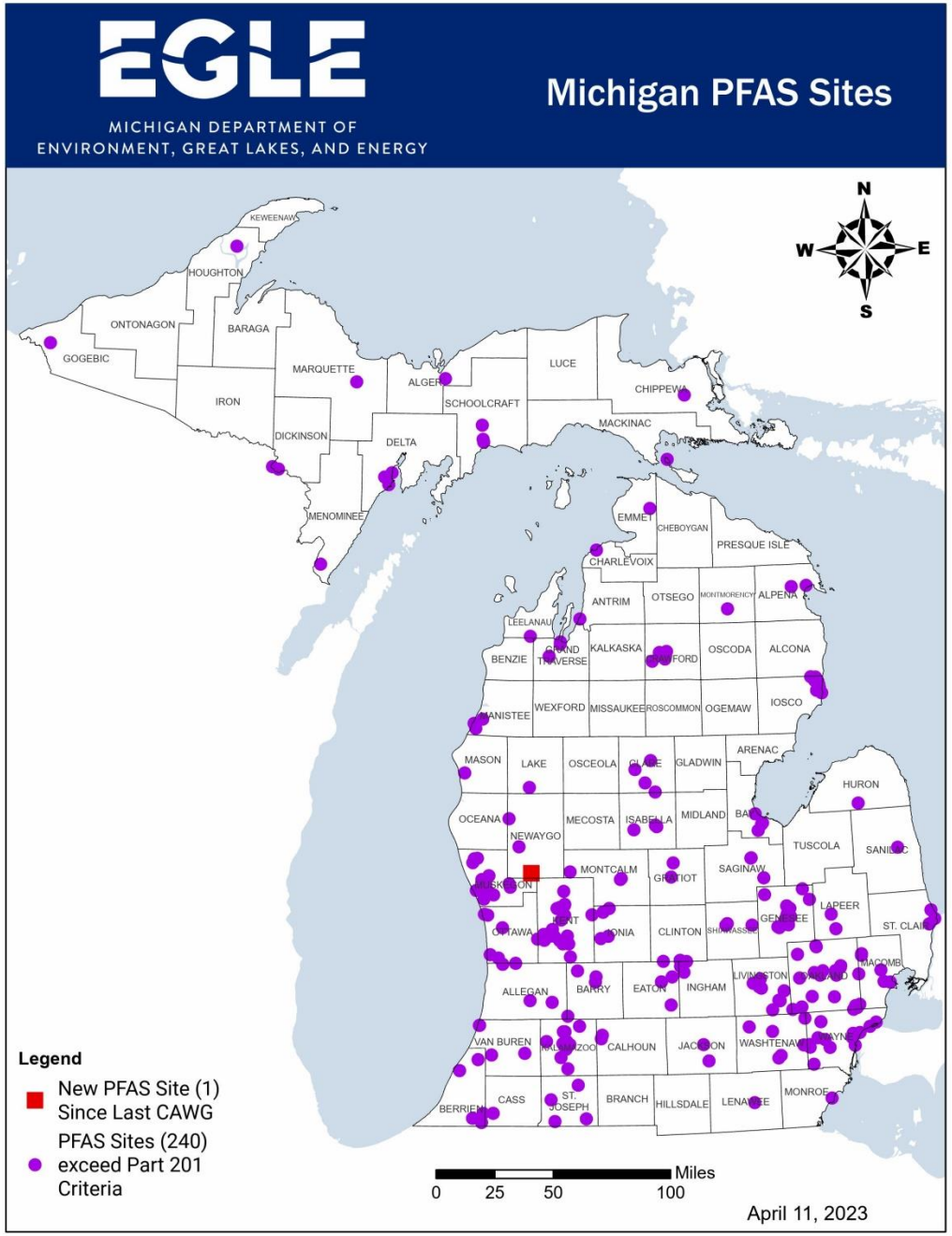
MPART Update

- Updated Minimum Analyte List
- List of Certified Labs (residential wells) – now includes out of state labs as well
- Michigan PFAS Exposure and Health Study First Summary Report Open House
  - 4/19 – Parchment / Cooper Twp
  - 4/20 – Belmont / Rockford
- Heritage Crystal Clean
- 60,000 gallons of AFFF collected from Fire Stations
- Independence Township
- FAA Letter

New Sites

- Riveridge Sewage Lagoon, Grant, Newaygo County



Sara Pearson, DWEHD

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Update - $5M to LHD for Residential Well Sampling

Public Notification

Future Topics?

May / June CAWG Meetings

Michigan PFAS Action Response Team (MPART)

www.Michigan.gov/PfasResponse

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