

# Michigan's Fish Consumption Advisory

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## Persistent, Bioaccumulative, and Toxic

- Persistent- minimal degradation in the environment or in the organism.
- Bioaccumulative – builds up in organisms, including humans
- Toxic
  - Dose makes the poison
  - Chronic exposure – adult – long term health concerns
  - Fetal exposure – developmental

## Great Lakes Trends : 1970-2005

- PCBs, Cl-pesticides, dioxins in Great Lakes Fish have declined due to strong government regulatory intervention. Continuing problem of contaminated sediments.
- Mercury concentrations – trends unclear – much less government intervention.
- Emerging chemicals such as PBDE and PFOS plus others currently learning about. PBDEs have increasing trends in biota.

## Parts of a Fish Advisory Program

- Experimental Design
  - species, tissues, chemicals, and water bodies will be monitored
- Collect the fish, process the tissues, and analyze for the chemicals.
- Establish toxicology screening values for the chemicals of concern (“Trigger Values”)
- Method of comparing fish tissue concentrations to the trigger values.
- Communication of the results to the public.

## Fish Consumption Advisory Program

- Multiple agencies: DNR, DEQ, DCH, and DA<sub>g</sub>
  - Fish and Wildlife Contaminant Advisory Committee (FAWCAC)
- DEQ’s Fish Contaminant Monitoring Program
  - Analytical Costs of \$~450K
    - Edible Portion Monitoring (~70%) – FC Advisory
    - Whole Fish Monitoring (~25%) – Trend Monitoring
    - Caged Fish Monitoring (~5%) – Trend Monitoring
- Trigger values: FDA or MI derived values
- Post advisory on Website at [www.michigan.gov/mdch-toxics](http://www.michigan.gov/mdch-toxics)

Water body	Species	Contaminant(s)	General Population							Women & Children									
			Length (inches)							Length (inches)									
			6-8	8-10	10-12	12-14	14-18	18-22	22-26	26-30	30+	6-8	8-10	10-12	12-14	14-18	18-22	22-26	26-30
<b>Lake Erie Watershed</b> All other locations refer to general advice on page 6.																			
Lake Erie #	Carp, Catfish	PCBs, Dioxins	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲
	Chinook Salmon	PCBs			▲	▲	▲	▲	▲	▲			●	●	●	●	●	●	●
	Coho Salmon	PCBs			▲	▲	▲	▲	▲	▲			●	●	●	●	●	●	●
	Freshwater Drum	PCBs	▲	▲	▲	▲	▲	▲	▲	▲	▼	▼	▼	▼	▼	▼	▼	▼	▼
	Lake Trout	PCBs			▲	▲	▲	▲	▲	▲			■	■	■	■	■	■	■
	Rainbow Trout (Including Steelhead)	PCBs			▲	▲	▲	▲	▲	▲			●	●	●	●	●	●	●
	Smallmouth Bass	PCBs					▲	▲	▲	▲					●	●	●	●	●
	Walleye	PCBs					▲	▲	▲	▲			▼	▼	▼	▼	▼	▼	▼
	White Bass	PCBs	▲	▲	▲	▲	▲	▲	▲	▲	●	●	●	●	●	●	●	●	●
	Whitefish	PCBs, Dioxins	▼	▼	▼	▼	▼	▼	▼	▼	◆	◆	◆	◆	◆	◆	◆	◆	◆
	White Perch	PCBs	▲	▲	▲	▲	▲	▲	▲	▲	●	●	●	●	●	●	●	●	●
	Yellow Perch	PCBs	▲	▲	▲	▲	▲	▲	▲	▲	▼	▼	▼	▼	▼	▼	▼	▼	▼
<b>Barton Pond*</b> (Huron R.)	Carp	PCBs	▲	▲	▲	▲	▲	▲	▲	▼	▼	▼	▼	▼	▼	▼	▼	▼	
<b>Belleville Lake*</b> (Huron R.)	Carp	PCBs	▲	▲	▲	▲	▲	▲	▲	▲	●	●	●	●	●	●	●	●	
	Gizzard Shad	PCBs	▲	▲	▲	▲	▲	▲	▲			●	●	●	●	●	●	●	
	Walleye	PCBs					▲	▲	▲	▲			▼	▼	▼	▼	▼	▼	
	White Stuckers	PCBs	▲	▲	▲	▲	▲	▲	▲	▲	●	●	●	●	●	●	●	●	
<b>Black Creek</b> (Lezavon Co.)	Carp	PCBs	▲	▲	▲	▲	▲	▲	▲	●	●	●	●	●	●	●	●		
<b>Cass Lake*</b> (Oakland Co.)	Smallmouth Bass	Mercury, PCBs					▼	▼	▼			●	●	●	●	●	●	●	
	Walleye	Mercury, PCBs					▼	▼	▼					●	●	●	●	●	
<b>Clear Spring Lake*</b> (Macomb Co.)	Largemouth Bass	Mercury, PCBs					▲	▼	▼			▼	●	●	●	●	●	●	

## General Inland Lake Mercury Advisory

Even in the lakes tested that did not have fish consumption advisories due to mercury it is wise to limit meals of large fish.

**No one should eat** more than one meal a week of rock bass, yellow perch, or crappie over nine inches in length and bass, walleye, northern pike or muskellunge of any size.

**Women of childbearing age and children under 15** should not eat more than one meal per month of these fish.

## Mercury in Fish from Michigan Lakes

- 266 inland lakes or reservoirs have been monitored at least once since 1980.
- 71% of these lakes had at least 1 fish with mercury concentration above the MDCH “restrict consumption” trigger level.
- 7% of these lakes had at least 1 fish with mercury concentrations above the MDCH “no consumption” trigger level

## Pilot Project in Saginaw Bay Watershed

- Grant Funding
  - Saginaw Bay Watershed Initiative Network
    - Promote healthy choices of fish consumption
    - Better understand fish consumption patterns
  - U.S EPA
    - Work with Urban Fishers of Saginaw, MI

### Fish Contaminant Monitoring and Consumption information available online:

[www.deq.state.mi.us/fcmp](http://www.deq.state.mi.us/fcmp)

Includes:

- [MDEQ FCMP online database](#)
- [link to Annual Fish Contaminant Monitoring Reports](#)
- [link to MDCH fish consumption advisories](#)

[www.michigan.gov/mdch-toxics](http://www.michigan.gov/mdch-toxics)



## Michigan Department of Community Health's "Trigger Levels"

<b>Mercury</b>		<b>Total Chlordane</b>	0.3 ppm
Restrict Consumption	0.5 ppm	<b>Total DDT</b>	5.0 ppm
No Consumption	1.5 ppm	<b>Dieldrin</b>	0.3 ppm
<b>Total PCBs</b>		<b>Heptachlor + Heptachlor epoxide</b>	0.3 ppm
General Population	2.0 ppm	<b>Mirex</b>	5.0 ppm
Women and Children		<b>Toxaphene</b>	5.0 ppm
1 meal per week	0.05 ppm		
1 meal per month	0.2 ppm		
6 meals per year	1.0 ppm		
no consumption	1.9 ppm		
<b>Dioxin TEQ</b>	10.0 ppt		

## Uniform Protocol Mercury Addendum for Sensitive Population

Fish Meals	Fish Mercury Concentration (ppm)
Unrestricted	0 ≤ 0.05
2 meals/week	>0.05 ≤ 0.11
1 meal/week	>0.11 ≤ 0.22
1 meal/month	>0.22 ≤ 0.95
No Consumption	>0.95