

A Consumer's Guide for Wisconsin Farm-Raised Fish



Developed and compiled by:

Wisconsin Aquaculture Association

**UW Stevens Point – Northern Aquaculture Demonstration
Facility**

UW-Extension Aquaculture Outreach

And the

**Wisconsin Department of Agriculture, Trade and
Consumer Protection**

**Something Special
from
Wisconsin**

The Safety of Wisconsin, Farm-Raised Fish.

- Mercury
- PCBs
- Consumer Consumption Advisories for Fish
- How can Wisconsin farm-raised fish help reduce your risk of exposure to contaminants?
- Food Safety and Food Fish Processing

Like any food product, food concerns can arise through potential contaminants or improper food processing and handling. Good aquaculture and fish processing practices can reduce these risks.

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Many organizations have identified fish as an important part of a balanced diet. However, there have also been concerns raised about the safety of eating some types of fish. This can sometimes create confusion for consumers. Like any food product, food concerns can arise through potential contaminants or improper food processing and handling. Good aquaculture and fish processing practices can reduce these risks. Fish is a good, healthy food and you should be able to eat fish without concern and without hesitation.

To eat fish or not is an individual choice, and only you can make that decision for yourself. The goal of this document is to provide resources to you, so you can make the informed decision that is best for you and your family.

A. Contaminants of Concern

Mercury and PCBs are the contaminants of greatest concern in fish prompting recommendations that people limit or avoid eating certain species of fish from many waters throughout the nation. To reduce your exposure to these contaminants, Wisconsin DNR provides advice about wild caught fish to help you choose what fish and how much fish to eat. This information is not intended to discourage you from eating fish, but should be used as a guide to eating fish low in contaminants.⁽¹⁾

(Please note: These two contaminants are typically related to the consumption of wild caught fish. Based on testing conducted, there are no suggested restrictions of Wisconsin, farm-raised fish for men, women or children.)

1. Mercury ⁽²⁾

Mercury is a naturally-occurring heavy, silvery-white metal often used in thermometers, barometers, electrical switches, thermostats, energy saving light bulbs, and in dental fillings. Mercury is released into the environment when power plants burn coal, from some chemical manufacturing plants and incinerators, and when mercury containing products are not disposed of properly. When mercury is released into the air, it can travel long distances and be deposited on land and directly into water. Mercury is changed to a form of organic mercury (methylmercury), which can build up in fish. Mercury can reach higher concentrations in older, larger and predatory (fish that eat other fish) fish.

2. Polychlorinated biphenyls (PCBs) ⁽³⁾

PCBs are a group of man-made chemicals used in a variety of industries. From 1929 to 1977 PCBs were manufactured in the United States and widely used in electrical equipment and other industrial uses. Manufacture of PCBs was banned in the US in 1977. Because they take a long time to breakdown in the environment, PCBs cling to lake and river bottom sediments and can build up in the fatty tissues of fish and animals. PCBs can reach higher concentrations in older, larger, fatter species of fish, like carp and great lakes trout and salmon.

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B. Consumer Consumption Advisories for Fish

The Food and Drug Administration (FDA), the Environmental Protection Agency (EPA), the Wisconsin Department of Natural Resources (DNR) and Wisconsin Department of Health Services (DHS) have developed consumption advisories for fish. It is important to remember that these advisories are primarily directed toward the consumption of wild caught fish.

Based on testing conducted, there are no suggested restrictions on the consumption of Wisconsin, farm-raised fish for men, women or children.

The fundamental goal of the fish consumption advisory is to keep dietary mercury ingestion on average below 0.1 µg mercury per kg body weight per day. ⁽⁴⁾

Fish consumption advisories are based on several primary components:

- 1) The US EPA reference dose (RfD) – This is an estimate, based on human studies, of a daily methylmercury exposure to people that is likely to be without an appreciable risk of detrimental health effects during a lifetime. The current RfD for methylmercury is 0.1 µg/kg/day.
- 2) Meal frequencies.
- 3) Testing protocols for fish sampled from wild fish populations. Since the 1970s, the State of Wisconsin has conducted fish sampling from waters suspected of or susceptible to contamination, popular angling waters or other lakes or streams that are being monitored for changes over time.

For details about the consumption advisories, please see:

- FDA/EPA Consumer Advisory on Methylmercury in Fish ⁽⁵⁾, or
- Wisconsin DNR “Fish Consumption Advisories.” ⁽¹⁾

The DNR's current fish consumption advisories are also available in [Choose Wisely: A Health Guide for Eating Fish in Wisconsin \[PUB-FH-824, PDF 1.25MB\]](#). ⁽⁶⁾

C. How can you reduce your risk of exposure to contaminants? (And how can Wisconsin farm-raised fish help?)

1. Educate yourself about the fish consumption advisories. Know what they mean and follow them for wild caught fish or when you are in doubt.
2. Know where your fish comes from.
 - (a) Avoid or limit eating fish from waters with elevated levels of contaminants.
 - Many farms use wells or springs to provide water for their aquaculture systems. These sources are typically low in contaminants and monitored similar to the wells that provide your drinking water.
 - Fish farms regularly remove wastes from the aquaculture systems so external contaminants cannot accumulate as rapidly.
 - (b) Buy Local, Buy Wisconsin

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- Wisconsin aquaculture operates under some of the most stringent standards and regulations in the world.
3. Avoid eating fish that are more likely to have higher levels of contaminants:
 - (a) Avoid or limit Shark, swordfish, king mackerel, tilefish
 - Note: NONE of these are Wisconsin aquaculture species.
 - (b) Avoid or limit larger, older, or predatory fish
 - Farm-raised food fish are processed at a preferred uniform size.
 - Overly large, trophy fish are not necessarily desired in an aquaculture facility.
 - Food fish are processed at a younger age – just as they reach adulthood.
 - Most farm-raised food fish are fed pelleted feed which is regulated and low in contaminants.
 - (c) Eat farm-raised fish that are more likely to have lower levels of contaminants:
 4. Know how best to select, handle and prepare the fish.(5)

A. Food Safety and Food Fish Processing

Fish processing must comply with Wisconsin Administrative Code ATCP 70 which includes a Hazard Analysis Critical Control Point (HACCP) Plan. These regulations are administered by the Wisconsin Department of Agriculture, Trade and Consumer Protection (DATCP) – Division of Food Safety.

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Resources

Wisconsin Aquaculture Association (WAA):

<http://www.wisconsinaquaculture.com/>

University of Wisconsin- Stevens Point – Northern Aquaculture Demonstration Facility (NADF):

<http://aquaculture.uwsp.edu>

National Aquaculture Association (NAA)

<http://www.thenaa.net/>

Superscript References

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(2) Wisconsin Department of Health Services (Fact sheet) “Information on Toxic Chemicals Mercury” [Online] Available (2010). <http://www.dhs.wisconsin.gov/eh/ChemFS/fs/Mercury.htm>

(3) Wisconsin Department of Health Services (Fact sheet) “PCBs and Your Health” [Online] Available (2010). <http://www.dhs.wisconsin.gov/eh/hlthhaz/fs/PCBlink.HTM#Fact Sheets>

(4) Great Lakes Consortium “A Protocol for Mercury-based Fish Consumption Advice – An addendum to the 1993 ‘Protocol for a Uniform Great Lakes Sport Fish Consumption Advisory’” May, 2007. [Online] Available (2010) http://www.dhs.wisconsin.gov/eh/fish/FishFS/2007Hg_Add_Final_05_07.pdf

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(6) Wisconsin Department of Natural Resources (DNR) “[Choose Wisely: A Health Guide for Eating Fish in Wisconsin](#)” 2010. [Online] Available (2010). [PUB-FH-824, PDF 1.25MB].

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