

Eat Safe Fish in Areas of Concern

Outreach Items Available to Partners



Tape Measures - 60"

Colors available: purple, orange & yellow. Green discontinued.



Magnets - 4"x3"
Available in pink
or orange, as
shown.



Can Koozies - Available in pink or orange, as shown.



Eat Safe Fish Lanyard



Stickers - 4" round
Available in pink or
orange, as shown.



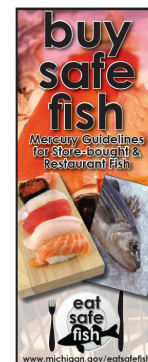
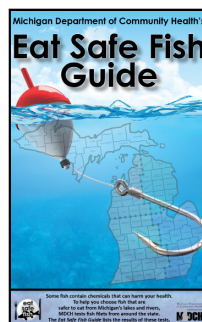
Temporary Tattoos

To request any of these free items, please contact Michelle Bruneau at the Michigan Department of Health & Human Services, 517-335-8984 or bruneaum@michigan.gov

Michigan Department of Community Health



Train-the-Trainer for Eat Safe Fish Materials



Includes talking points for:
Eat Safe Fish in Michigan
Eat Safe Fish Guide
Buy Safe Fish



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Overview for all audiences

What are “safe fish”?

As with any chemical, be it mercury or PCBs, it’s an over-simplification to call something that could potentially cause an illness ‘safe.’ However, MDCH uses science-based risk calculations to determine consumption limits that are well below those which would cause disease. We define that as “safe” for communication purposes.

That’s not to say that a person who always follows the fish consumption guidelines won’t ever have health effects such as cancer or fertility problems. However, by limiting their exposure to these chemicals using the MDCH guidelines, they are limiting their potential risk of developing disease.

Eating Safe Fish. It’s your choice.

It’s up to the individual to choose to follow these limits. There are no laws or regulations that require people to follow the MDCH fish consumption guidelines. MDCH simply makes the information available so people can opt to catch and eat fish that have been tested and are known to be lower in chemical contaminants.

Questions & Resources

If you or your clients have questions about Eat Safe Fish or the concepts herein, please do not hesitate to call us or provide our number to your clients. MDCH has health educators and toxicologists on staff to answer any questions.

We’re available Monday - Friday, 8am-5pm at 1-800-648-6942, excluding holidays.

We have some materials available in print form that we can provide to you free of charge, but you can also view, download and print items on your own 24/7 at www.michigan.gov/eatsafefish.



Does your client eat fish?

YES

Great! There are many health benefits to eating fish:

- They are a low-fat protein source
- Some fish are high in omega-3 fatty acids, which are good for heart health
- Fish are a source of vital minerals and vitamins, including Vitamin D, which is important for brain development

However, some fish are safer to eat than others. The materials from MDCH can help people choose fish to eat that have fewer chemicals - whether they are eating locally-caught fish or fish from their supermarket.



NO

Why not?

- Some people just don't like the taste, but others may be worried about what is safe to eat and what isn't - especially if they are pregnant or planning a pregnancy in the future.

The materials from MDCH can take the worry out of eating fish and give people the tools they need to choose safer fish to eat - at any point in their life.



Fresh fish can be an affordable way to put dinner on the table, and you don't even need a fancy fishing pole to catch them.

Learn how to make a fishing pole out of household items:

http://files.dnr.state.mn.us/publications/volunteer/young_naturalists/fishing_pole/fishing_pole.pdf

Chemicals in Fish

The three most common chemicals found in some of Michigan's fish are listed below with some of their potential health effects:

• Mercury

- Can harm brain development in fetuses and children
- Can harm heart function in older adults
- Can harm immune systems

• PCBs

- Can harm brain development in fetuses and children
- Linked to the development of cancer and diabetes
- Can harm immune systems

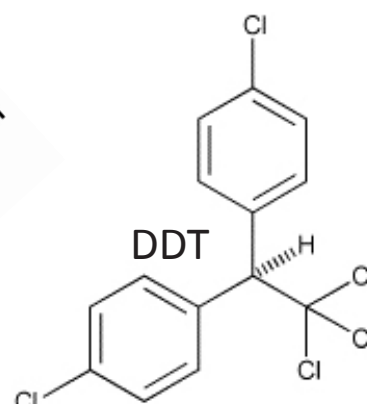
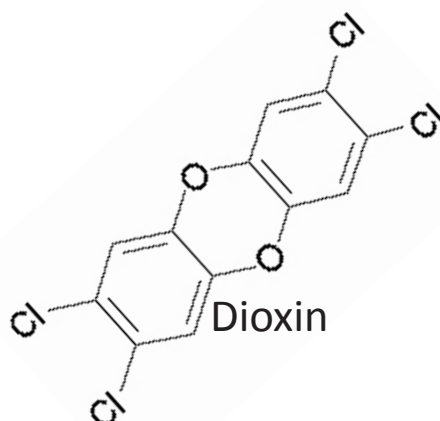
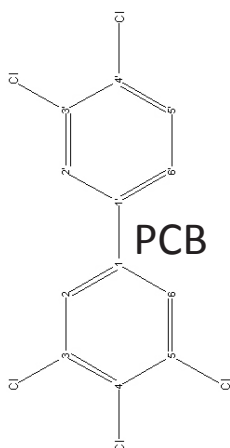
• Dioxins

- Linked to the development of cancer
- Linked to the development of diabetes
- Can harm fertility
- Can harm thyroid function
- Plus additional health issues...

PCBs and dioxin are stored in the fat of the fish. Up to half of these chemicals can be removed from the fish by proper cleaning and cooking methods. The 3Cs (Choose, Clean, Cook) by MDCH show you how. You can find information about the 3Cs in the *Eat Safe Fish in Michigan* brochure and the *Eat Safe Fish Guide*.



Mercury is in the muscle tissue – the filet of the fish. It can't be removed by cleaning and cooking the fish. The only way to avoid mercury is by choosing your fish wisely.



Eat Safe Fish in Michigan brochure

The *Eat Safe Fish in Michigan* brochure is a general introduction to the Michigan fish consumption guidelines.

- **Translations available:**

- Spanish
- Arabic
- Chinese (simplified)
- Vietnamese
- Hmong

- **Audience:**

- Anyone who eats Michigan fish or would like to eat Michigan fish.
- The information is applicable to individuals of all ages.
- The MDCH fish consumption guidelines are set to be safe for fetuses, children, anyone planning on having children in the next several years, breastfeeding women, as well as people with chronic health issues - like cancer or diabetes.
- It is also reasonable advice for anyone to follow who wishes to avoid getting too much of these chemicals in their body.
- By limiting exposure to the chemicals, you will also limit the chance of health problems related to these chemicals.




Key Messages

from the Eat Safe Fish in Michigan brochure

- **Fish are good for you.** But you should carefully choose the fish that you eat. Especially if you eat a lot of fish.
- **Some chemicals can be removed from the fish. Some cannot.** PCBs and dioxins are in the fat of the fish. Mercury is in the filet - the part of the fish that we eat.
 - If your clients follow the 3Cs (inside the brochure) as closely as possible, they can remove up to half of the dioxins and PCBs from the fish they are going to eat.
 - Mercury cannot be removed from fish by either cleaning or cooking. Choosing wisely is the only way to limit the amount of mercury eaten.
- **Larger fish, predator fish, and fish that eat directly from the bottom tend to have more chemicals in their bodies.** The chemicals build up in fish through their food chain (see image on back of brochure).
- **The water won't necessarily look dirty.** The chemicals have settled on the bottom of the lake or river. You can still swim in lakes and rivers with fish guidelines, unless the local health department has issued a temporary water quality advisory.
- **If you eat a lot of fish, use the *Eat Safe Fish Guide*.** Using the *Eat Safe Fish Guide*, published by MDCH on a yearly basis, is the best way to choose fish that are safer to eat. See page 14 for more information.

Inside the *Eat Safe Fish in Michigan* brochure...



Get to know the 3Cs

Choose, Clean, Cook

By choosing the right fish and then cleaning and cooking it the right way, you can reduce some of the chemicals in the fish by nearly half!

1 Choose

This quiz will help you find the best way for you to choose your fish. Read each sentence and mark 'T' for true or 'F' for false.

- ☐ I only eat fish caught in Michigan a few times each year.
- ☐ I'm 15 years old or older.
- ☐ I DON'T plan on having children in the next several years.
- ☐ I DON'T have health problems, like cancer or diabetes.
- ☐ I DON'T eat fish from a lake or river that has posted signs with "Do Not Eat" guidelines from MDCH.

If **ALL** are **TRUE** for you:
You're at lower risk from chemicals in fish. The S.A.F.E. tips will help you choose fish to eat once in a while without worry!

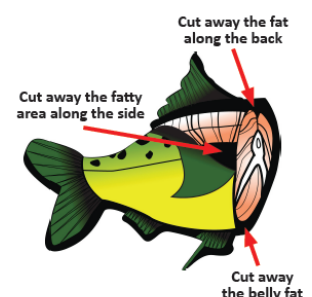
S **Smaller fish are better.**
They tend to have fewer chemicals.

a **Avoid large predator fish & bottom-feeders.**
Always check the *Eat Safe Fish Guide* before eating these fish.

f **Fat should be removed.**
Some chemicals are stored in the fat of the fish.

e **Eat fish that have been broiled or grilled on a rack.**
More fat can drip away during cooking.

2 Clean



Cut away the fat along the back

Cut away the fatty area along the side

Cut away the belly fat

Some chemicals, like PCBs and dioxins, collect in the fat of the fish.

☒ When cleaning the fish, trim away any of the fat you can see. Remove and throw away the organs, too.


Careful cleaning can remove a lot of the chemicals from the fish.

3 Cook

Even after trimming away the fat that you can see on the fish, some fat will still be hidden inside the fish filets.

- ☒ Poke holes in the skin or remove it completely so that fat can drip away from the fish filet as it cooks.
- ☒ Cook your fish on a grill or on a broiler pan in the oven. Any fat left can now drip away from the fish through the grates.

If you cook your fish like this, you can get rid of even more of the chemicals that can be in the filet...**except mercury**, of course!



Need a *Guide*? Call MDCH at 1-800-648-6942 or visit www.michigan.gov/eatsafefish.

You can't remove mercury from fish by cleaning and cooking. Always choose your fish wisely!

3Cs – Choose, Clean, Cook

(translated versions: 3 Steps to Safer Fish or 1,2,3...)

1 - Choose:

There is a short quiz that can help people self-identify whether or not they should use the *Eat Safe Fish Guide* (ESF Guide) or if the S.A.F.E. Fish Tips are enough.

The deciding factors are:

- **who** they are
- **how often** they eat fish
- and **what kind** of fish they eat

This determines:

- **how often** they are able to be exposed to the chemicals found in some fish
- as well as the **amount** of chemicals to which they may be exposed

But, keep in mind, these are just general guidelines. Every **body** is different. If your client wants to be the safest possible, they can always check the *Eat Safe Fish Guide* before eating fish for the MDCH fish consumption guidelines.

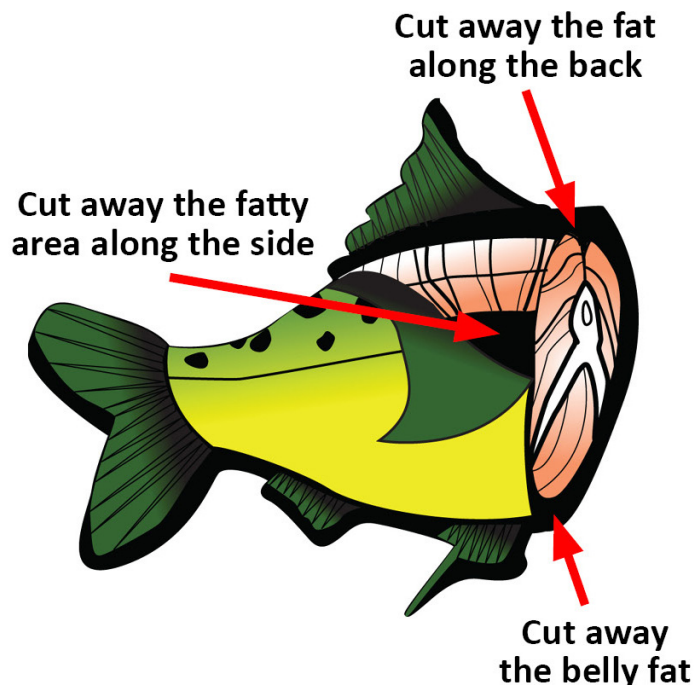
If your client is able to answer TRUE to all of the questions in the quiz box in the brochure, then they can opt to just use the S.A.F.E. Fish Tips (detailed under **Choose** in the brochure or see page 11 in this booklet). These tips are for people who don't eat a lot of Michigan fish.

Other people who might opt to use the S.A.F.E. Fish Tips:

- Tourists from outside of the Great Lakes region
- Individuals chartering a fishing boat, but otherwise don't fish on their own
- People who only fish during the DNR's Free Fishing Weekends

2 - Clean:

- As mentioned, any PCBs or dioxins that might be in fish build up in the fat. Removing the fat removes some of these chemicals.
- Most of the fat on a fish can be found in three areas:
 - back
 - side
 - belly
- Organs - like the stomach, egg sac, and liver - should be removed and thrown away. The organs from Michigan fish should never be eaten. They tend to have higher concentrations of chemicals than the filet of the fish.



Also available from MDCH & at www.michigan.gov/eatsafefish:

- *How to Filet a Fish* - flyer with step-by-step directions

S.A.F.E. Fish Tips *(translated versions: fishing tips)*

The S.A.F.E. Fish Tips were developed for healthy adults who do not eat a lot of fish. However, there may be times when even a frequent fish eater is caught without the *ESF Guide* while out on a lake or river. The S.A.F.E. Fish Tips are good for anyone to remember - regardless of how often they eat fish.

Having a general idea of the concepts behind the S.A.F.E. Fish Tips will help them make better choices for themselves and their family. They are basic guidelines that will consistently lead to better fish eating choices.

- **S - Smaller fish are generally better.**
 - This is because small fish are most likely younger, haven't been exposed to chemicals for as long, and have less chemicals.
- **A - Avoid large predator fish and bottom-feeders.**
 - These fish tend to be older, giving them more time to store up chemicals. Since they eat other fish or directly off the bottom, they tend to be exposed to more chemicals, as well. They also typically have more fat than smaller panfish.
- **F - Fat should be removed.**
 - PCBs and dioxins are stored in the fat of fish. Removing the fat can remove a large amount of these chemicals.
- **E - Eat fish that have been broiled or grilled on a rack.**
 - Cooking the fat on a grill or broiling pan so more fat can drip away is also a good way to get rid of more chemical-containing fat.

3 - Cook:

- Even after trimming away the fat you can see, some will remain inside the filet. This can't easily be removed with a knife.
- If the fish is cooked on a grill or broiler pan, more of the chemical-contaminated fat can drip away from the fish.
- If your client prefers fried fish, recommend that they pan-fry it.
 - Your clients can still enjoy fried fish, but they should throw away the leftover oil and not use it to cook other things.
 - We recommend pan-frying because it takes a smaller amount of oil than a deep fryer. Therefore a person may be more willing to dispose of the used oil.
- Frying fish isn't the best option, though, for two reasons:
 - Frying doesn't allow a lot of the chemical-contaminated fat inside the filet to leave the fish.
 - Frying fish obviously adds a lot of fat to an otherwise low-fat and healthy food.



Also available from MDCH & at www.michigan.gov/eatsafefish:

- *Hooked on Fish: Recipes from the Great Lakes State* cookbook

Back of the *Eat Safe Fish in Michigan* brochure...

What are 'safe' fish?
Safe fish are fish that are low in chemicals. If you use the **Eat Safe Fish Guide** when you choose fish to catch and eat, you will protect yourself and your family from chemicals that could someday make you sick.



If there are chemicals in the fish, why should I still eat it?
 Fish have a lot of great health benefits.

- ☑ Fish can be a great low-fat source of protein.
- ☑ Fish are brain food.
- ☑ Some fish have heart-healthy omega-3s.

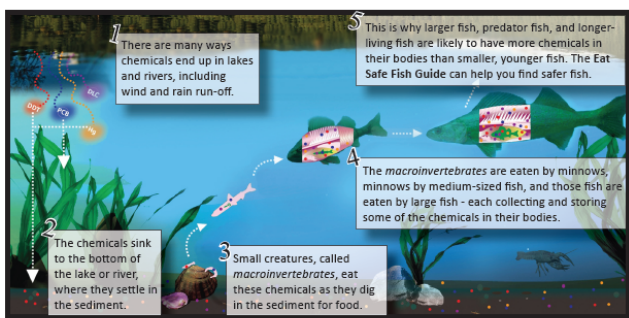
Plus, fishing is a fun way to get outside and enjoy Michigan's 11,000 lakes, rivers, and streams!

If you **follow the 3Cs** and go after fish that have **fewer chemicals** in them, you'll get a lot of health benefits and have **very little risk**.

Catching fish • Buying fish • Eating fish
 For more information on safe fish, call MDCH at 1-800-648-6942 or visit us online at www.michigan.gov/eatsafefish.


 with support from 

Why are there chemicals in some fish?



- ☑ PCBs, dioxins, and mercury are the most common chemicals found in filets of Michigan fish.
- ☑ These chemicals are *persistent* and *bioaccumulative*. This means the chemicals not only stay in the environment, they also build up in living things.
- ☑ Because of this, they have become part of the food chain for fish, as you can see in the picture above.
- ☑ Some chemicals, like PCBs and dioxins, build up in the fat of the fish. Mercury builds up in the muscle, or filet, of the fish.
- ☑ If you choose fish lower in mercury and follow the **3Cs**, you can keep chemicals from building up in your body, too.
- ☑ You can't see or taste these chemicals. They do not change how clear or dirty the water looks. The only way to know if these chemicals are in the fish is by testing for them in a laboratory.
- ☑ The **Eat Safe Fish Guide** can help you find fish species that have been tested for chemicals by the MDCH Lab. The **Guide** can help you and your family choose fish that are safer to eat.

To get the **Eat Safe Fish Guide** for your region or to learn more about catching or buying safe fish, call MDCH at 1-800-648-6942 or visit us online at www.michigan.gov/eatsafefish.



eat safe fish in Michigan

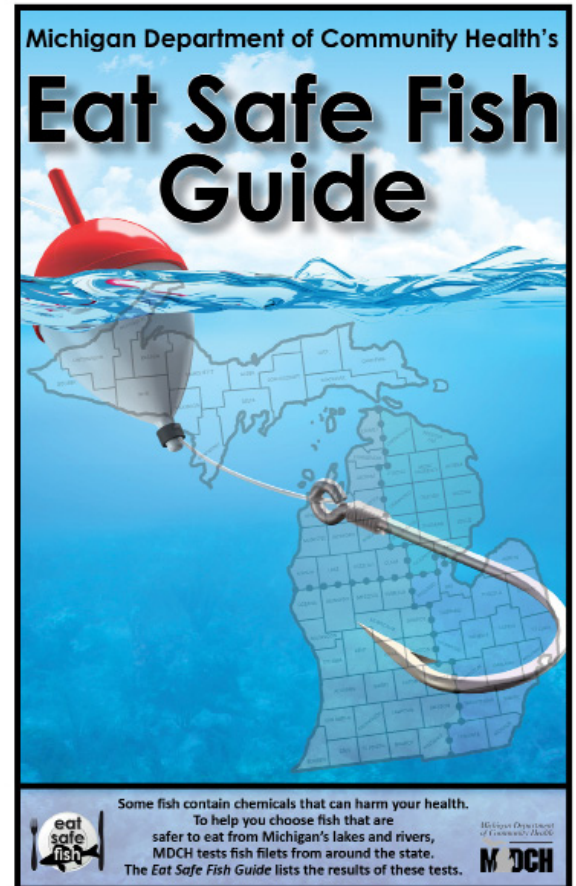
Learn about eating safe, local, and healthful fish from our Great Lakes State.

www.michigan.gov/eatsafefish

- On the flip side of the brochure, there is a diagram that explains how chemicals have gotten into fish.
- Beneath the image is a bulleted list with points about persistent chemicals, the process of bioaccumulation, and common myths.
 - Thanks to the federal Clean Water Act and Clean Air Act, along with other state regulations, chemicals aren't being dumped into our waterways like they once were.
 - Because of these stricter environmental regulations, levels of PCBs and dioxins are decreasing in our fish, and chemicals that are already in our waterways continue to slowly break down. However, mercury continues to increase. This can be attributed to coal-burning power plants and other industries around the world releasing mercury into our atmosphere.
 - However, despite the decrease in input, PCBs, dioxins, and mercury will remain in the sediment on the bottom of lakes and rivers, and they will continue to be in the food chain for fish for many years to come because these chemicals are *persistent*, meaning they don't break down easily.
 - There are still many great health benefits to eating fish, but because of these chemicals, it's important that people are aware of the importance of choosing fish that have less chemicals in order to avoid adverse health effects.
 - This brochure is written at the fifth grade level and is available in many languages to help make this information accessible to all of Michigan's citizens.

Eat Safe Fish Guide

- The *Eat Safe Fish Guide (ESF Guide)* is a detailed booklet of Michigan fish consumption guidelines.
- The guidelines are based on laboratory test results for chemicals that might be in the fish – like mercury, PCBs, or dioxins.
- Only the filet of the fish – the part that most people eat – is tested. The results of those tests are what MDCH uses to set the *ESF Guide* recommendations.
- The *ESF Guide* replaces the Michigan Fish Advisory booklet, beginning with the 2012-2013 edition.
- There are 5 regional *ESF Guides* for the state: Upper Peninsula, Northwest, Northeast, Southwest, & Southeast.
- **Translations available:**
 - Spanish
- **Audience:**
 - People who eat Michigan fish more than once or twice a year.
 - The advice in this brochure is protective of everyone – from the developing fetus, to the very elderly, and anyone in between, as well as individuals who may have health problems, like diabetes or heart disease.
 - The *ESF Guide* is also useful for anyone who wishes to avoid getting too many chemicals in their body and avoid potential health problems related to these chemicals.



Key Messages from the *Eat Safe Fish Guide*:

- **Fish in the *ESF Guide* have been tested.** The consumption guidelines published in the *ESF Guide* are based on laboratory testing of filets of fish only.
- **The *ESF Guide* is a tool that frequent fish consumers can use to choose safer locally-caught fish.** The guidelines can help your client make an informed decision when choosing and eating fish caught in Michigan waters.
- **The guidelines are designed to be health protective of everyone.** The recommendations in the *ESF Guide* can be used by pregnant women, children, the elderly, and people with health problems - as well as healthy adults - without concern. Page 8 of the *ESF Guide* explains how most of the recommendations can also be safely doubled if the 3Cs are followed carefully.
- **The guidelines are based on current science.** The recommendations in the new *ESF Guide* may differ from recommendations in past years. This is because scientists at MDCH have updated our methods and calculations so that they are based on current science. MDCH Reports and data are available at www.michigan.gov/eatsafefish.
- **The MDCH fish consumption guidelines are recommendations.** The guidelines are not laws, and they don't have to be followed. However, there are real health benefits to following these guidelines.

The Primary Chemicals: PCBs, Dioxins, Mercury

- The most common chemicals that trigger our guidelines have been linked to a variety of negative health outcomes – like cancer, diabetes, heart disease, fertility problems...
 - But like any chronic disease, it isn't certain that exposure to these chemicals will always cause these health issues or, conversely, if these health issues were caused by these chemicals.
 - A way to explain this to others is: ***"Your body contains a million different locks (DNA), and everyone's locks are different...there is no way to know what combination of keys (chemicals) will unlock cancer, diabetes, or other health issues that may be triggered by the chemicals found in some fish."***
- It is always an individual's choice to decide what amount of fish and/or chemicals is right for them. Unfortunately, there is no perfect choice when it comes to chronic chemical exposures.
 - Science cannot predict the effect of chronic chemical exposure on any one person's health. Each person needs to make their own choice based on their current health and their own informed opinion.
- Some Michigan-caught fish tend to be a uniquely high source of these chemicals when compared to other foods like store-bought fish, beef, or chicken.



For the most part, eating one or two meals of Michigan fish a year is generally going to be OK, as long as:

- the lake or river isn't posted with signs by MDCH, or
- you're not under the age of 15, or
- you're not pregnant, breastfeeding, or planning a pregnancy, or
- you're not under a doctor's care for the treatment of cancer, cardiovascular disease, diabetes, or another chronic illness.

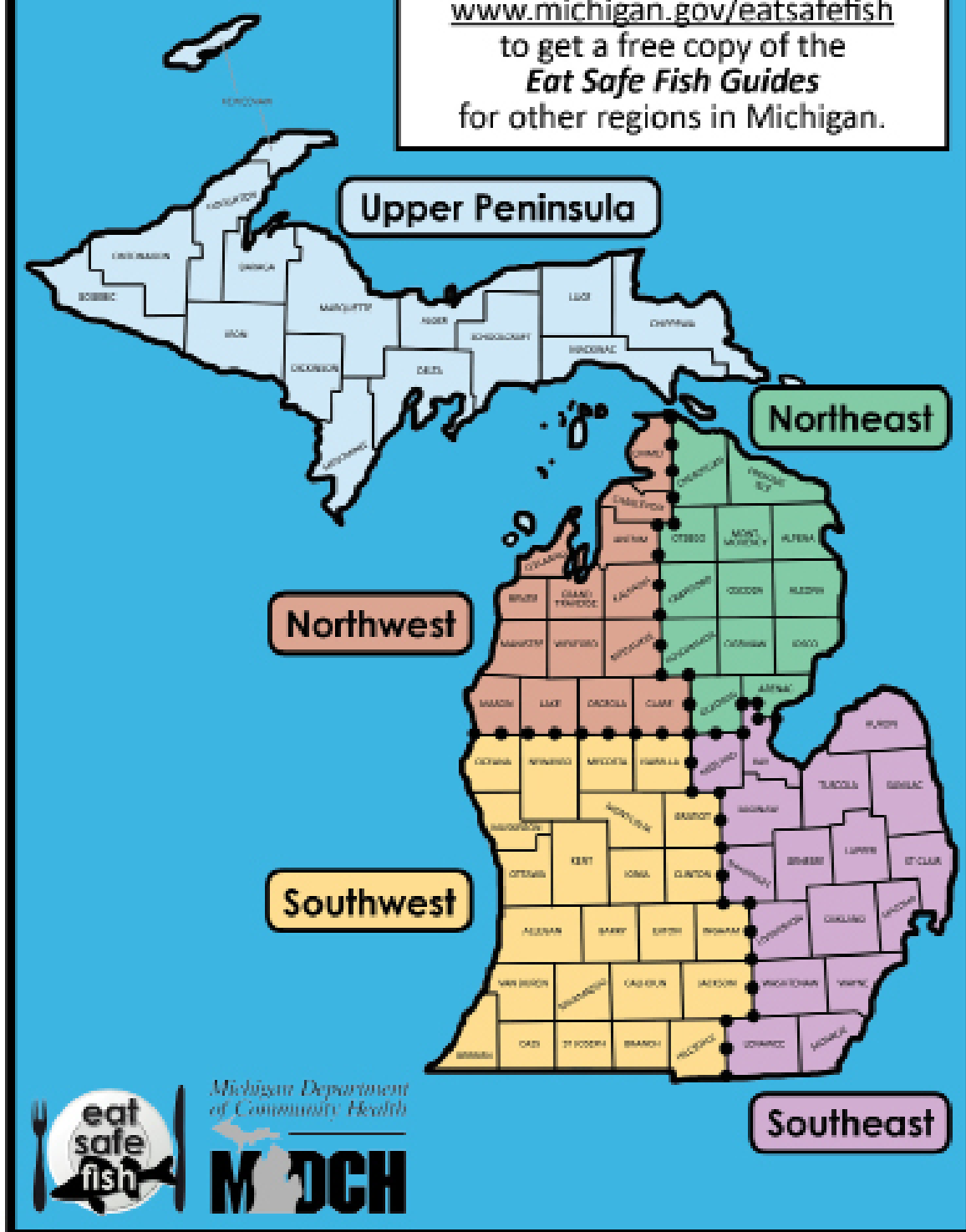
Using the *Eat Safe Fish Guide (ESF Guide)*

- There are 5 different *ESF Guides* for the state. One for each region. (See the next page for a map of the regions.)
- Each *ESF Guide* is organized alphabetically by county name.
- There is an index on page 14 of each *ESF Guide* that lists the counties and page number.
- There is an index at the end of each booklet that alphabetically lists the lakes and rivers by name included in the booklet.
- Each county section includes a map that shows only the lakes and rivers from which fish have been taken and filets of fish tested. There will be a lot of other lakes and rivers in every county that are not listed on these pages.
- To find guidelines for any lake or river that is not listed in the *ESF Guide*, use the ***Statewide Safe Fish Guidelines*** on page 9 of the *ESF Guides*.
- Each county is included in the booklet on its own page(s) making it easy to print only the information you need for your clients, should you choose to do so.

- **If you print information for just one specific county, it is important that you also print the information on:**
 - **Page 7 – the definitions of Limited vs Do Not Eat**
 - **Page 9 - the Statewide Safe Fish Guidelines****from the ESF Guide.**

Other Regional Eat Safe Fish Guides

Call 1-800-648-6942 or visit
www.michigan.gov/eatsafefish
to get a free copy of the
Eat Safe Fish Guides
for other regions in Michigan.



Statewide Safe Fish Guidelines

The **Statewide Safe Fish Guidelines** should be used only when a lake or river isn't listed, or in the case where the lake or river is listed, but a specific fish species is not.

- The fish included in the **Statewide Safe Fish Guidelines** have NOT all been tested for all waterbodies in Michigan.
 - There are too many fish, lakes, and rivers in Michigan to be able to test ALL of them.
 - The **Statewide Safe Fish Guidelines** represent a scientific estimate of mercury or PCB levels in fish based on the amount of mercury or PCBs found in species of fish that have actually been tested in the state.
- Not every lake or river will have PCBs or dioxins, but since mercury primarily enters our waters from the air, every lake and river in Michigan will have some amount of mercury.
 - In fact, every lake and river in the **country** contains some amount of mercury, as do the oceans.
 - The MDCH *Buy Safe Fish* brochure will help you choose fish caught outside of Michigan that are lower in mercury.
(See page 24 in this booklet for details.)

Statewide Safe Fish Guidelines
Michigan Department of Community Health

Use the Statewide Safe Fish Guidelines ONLY if:

- 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
Carp	PCBs	Any Size	2
Catfish	PCBs & Mercury	Any Size	4
Largemouth Bass	Mercury	Under 18" Over 18"	2 1
Muskellunge (Muskie)	Mercury	Any Size	1
Northern Pike	Mercury	Under 30" Over 30"	2 1
Rock Bass	Mercury	Any Size	4
Smallmouth Bass	Mercury	Under 18" Over 18"	2 1
Suckers	Mercury	Any Size	8
Sunfish	Mercury	Any Size	8
Walleye	Mercury	Under 20" Over 20"	2 1
White Crappie	Mercury	Any Size	4
Yellow Perch	Mercury	Any Size	4

*See page 2 to learn about MI Servings

To get a free copy of the *Eat Safe Fish Guide*, visit www.michigan.gov/eatsafefish or call 1-800-648-6942.

MDCH

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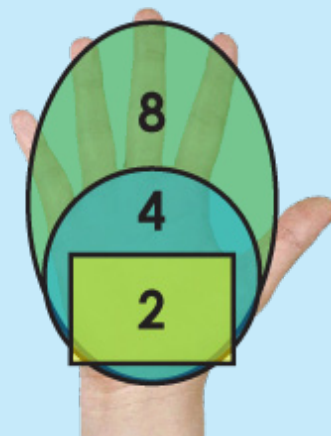
MI Serving – Serving Size (pronounced: My Serving)

- To estimate “*MI Serving*” you can use your hand – your “Michigan” – for a size reference.
- *MI Serving* is the serving size all statewide guidelines are based upon.
- If an adult or child is particularly small or large, or they want to calculate their *MI Serving* amount exactly, then they can use the chart on page 6 in the *ESF Guide* to figure it out...but for most people, the average amount is good enough for estimating purposes.
- Pregnant women should use their pre-pregnancy weight to determine the size of their *MI Serving*.



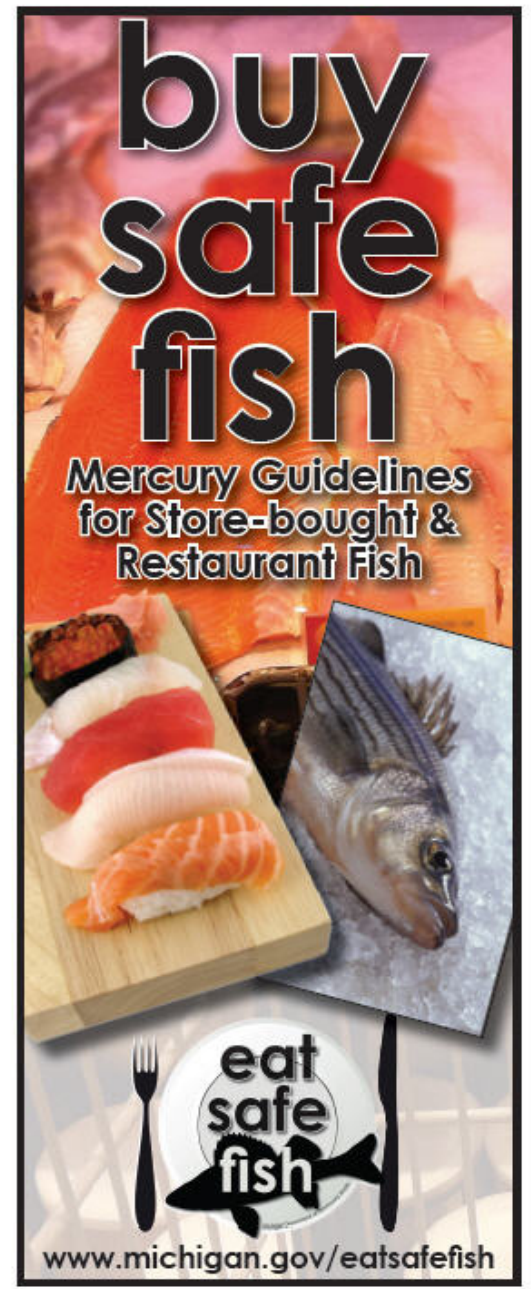
Average *MI Serving* sizes:

- For a 180-pound adult, an average *MI Serving* is 8 ounces.
 - A fish filet that is 8 ounces is approximately going to be about the size of an adult’s hand.
- For a 90-pound child, an average *MI Serving* is 4 ounces.
 - A fish filet that is 4 ounces is approximately the size of an adult’s palm.
- For a small child/toddler, an average *MI Serving* is 2 ounces.
 - A fish filet that is 2 ounces is approximately half of the size of an adult’s palm.



Buy Safe Fish brochure

- The **Buy Safe Fish** brochure has consumption guidelines for purchased fish that are sourced from places other than Michigan.
- This brochure features **Eat 8!** This is a simple tool that individuals can use to be sure they aren't eating too much mercury.
- **Translations available:**
 - Spanish
 - Arabic
 - Chinese (simplified)
 - Vietnamese
 - Hmong
- **Audience:**
 - Anyone who eats fish purchased from a store or restaurant.
 - The advice in this brochure is protective of everyone – from the developing fetus to the very elderly and anyone in between.
 - While mercury outreach used to primarily focus on pregnant women and children, recent studies have shown that mercury also has an effect on heart health – causing heart disease, including increased blood pressure and arrhythmias.
 - Therefore, we believe that all should be concerned with the health effects of mercury and avoid eating too much.



Key Messages

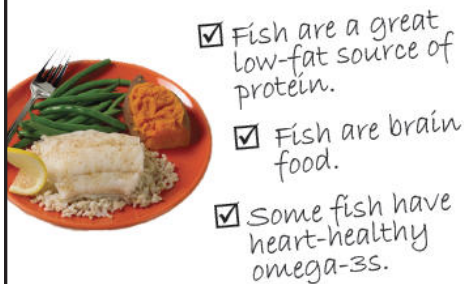
from *Buy Safe Fish*:

- ***Buy Safe Fish* is about fish purchased from restaurants and stores.** However, if those fish are caught in Michigan or any of the Great Lakes, please refer your clients to the *Eat Safe Fish Guide* or the S.A.F.E. fishing tips.
- **Mercury can be found in fish from all over the world.** Mercury is in our atmosphere and it falls into our lakes, rivers, and oceans. The greatest amounts of mercury are released into the air by coal-fired power plants and other industrial sources.
- **Mercury can't be reduced in fish by cooking or cleaning.** Mercury is found in the muscle tissue – the filet of the fish that we eat.
- **Choosing fish lower in mercury is the only way to avoid getting too much.** Eat 8! is a tool inside this brochure that helps make the choice easy.

Inside the Buy Safe Fish Brochure

Eating Safe Fish

You've heard that eating fish is healthy for you and your family.



But you've also probably heard that some fish have mercury in them. And mercury is bad for your health - no matter what age you are.



You want to make the **healthy choice** for you and your family, but what is the **right choice**? Should you eat fish or not? Which fish are safe?

Luckily, making the **right choice and the healthy choice** is now as easy as counting to eight!

Mercury in Fish

- ☑ Mercury is found in the muscle of the fish, which is the filet that we eat. You can't remove mercury from fish like you can other chemicals.
- ☑ Choosing fish to eat that are low in mercury is the only way to avoid getting too much in your body.



Health Problems

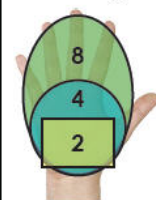
Mercury can cause health problems in people of all ages.

- ☑ Too much mercury can cause problems with the nervous system and kids' brain growth.
- ☑ Too much mercury can harm heart function.
- ☑ Too much mercury also limits your body's ability to fight off sickness.



What is 'MI Serving'?

MI Serving depends on who you are:



- ☑ For an adult, **MI Serving** is: 8 ounces of cooked fish = size of an adult's hand (large oval)
- ☑ For a child, **MI Serving** is: 2-4 ounces of cooked fish = size of the palm on an adult's hand (small circle/rectangle)

You might eat more than one MI Serving in a meal. That's OK, just keep track so you know!

Eat 8! Eat Great!

The FDA has tested for mercury in a variety of fish and shellfish that are available for sale in the United States.

Using the FDA test results for mercury in fish, MDCH created **Eat 8!**

Eat 8! can help you choose fish lower in mercury and higher in heart-healthy omega-3 fatty acids.

Eat 8! is safe for everyone to use, even pregnant women and kids!

How to Use Eat 8!

1. **Look on the back of this sheet and find the fish you plan to eat.** The lower the points, the lower the amount of mercury in the fish.
2. **Estimate how many 'MI Servings' you are going to eat.** One adult's MI Serving of fish is a filet about the size of their hand (8 ounces of cooked fish). A child's MI Serving is about the size of the palm of an adult's hand (2-4 ounces).
3. **Add up the points.** For example, one dinner, you have 16 ounces of salmon (2 MI Servings) for 2 points. The next week, you have one MI Serving (8 ounces) of halibut for 4 points. That's 6 points, so far, for the month.
4. **Keep track of your 'MI Serving' points during the month.** Eat no more than 8 points total of fish each month.

You can be sure you're not getting too much mercury in your body when you use **Eat 8!** to choose your meals.



Questions?
1-800-648-6942
www.michigan.gov/eatsafefish



- There are many health benefits of eating fish.
 - Low-fat source of protein
 - Heart-healthy omega-3s
- But there are health problems caused by mercury in fish, too.
 - We're most familiar with the damage to the nervous system - which is why, in the past, messaging on choosing safe fish and avoiding mercury focused primarily on pregnant women and small children.
 - However, new studies have shown that mercury also impairs heart function and, somewhat less so, your immune system. These effects have been primarily found in older adults.
 - This is why choosing safer fish to eat should be important for people of all ages.

Back of the Buy Safe Fish Brochure

Eat 8!

A Guide to Help You Choose
Fish Low in Mercury from
Restaurants and Grocery Stores

EAT
no more **8** points
than... per month

High in heart-healthy omega-3 fatty acids

Is the fish you're buying caught in Michigan waters? If so, please check the *Eat Safe Fish Guide* for advice.

<p>Per 1/2 Serving 1 Point</p> <p>Anchovies Catfish (farm-raised) Crab Crawfish Flatfish (flounder, sole) Herring Mullet Oysters Perch (ocean or freshwater)</p>	<p>Pollock Salmon (canned, frozen, fresh) Sardines Scallops Shrimp Squid Tilapia Trout (freshwater) Whitefish</p>
--	---

<p>Per 1/2 Serving 2 Points</p> <p>Cod Freshwater Drum (aka Sheephead) Jack Smelt</p>	<p>Mahi Mahi Snapper Tuna (canned light)</p>
---	--

<p>Per 1/2 Serving 4 Points</p> <p>Bass (sea, striped, rockfish) Bluefish Halibut Lobster Sablefish</p>	<p>Scorpion Fish Tuna (Albacore, canned white) Tuna (fresh, frozen) Weakfish (sea trout)</p>
---	--

<p>Per 1/2 Serving 8 Points</p> <p>Grouper Mackerel</p>	<p>Marlin Orange Roughy</p>
---	---------------------------------

Do not eat these fish:
Shark, Swordfish, Tilefish, King Mackerel

Other Resources

Sustainable & Planet-Friendly Fish
Shedd Aquarium Right Bite
<http://bit.ly/3FjgWm>

Monterey Bay Aquarium Seafood Watch
<http://bit.ly/McxPS> or 1-877-229-9990

Cooking & Food Safety
Farm-Raised Fish Regulations (FDA)
<http://1.usa.gov/pOLSZw> or 1-240-402-2300

Fresh & Frozen Seafood -
Selecting & Serving It Safely (FDA)
<http://1.usa.gov/qYLlYl> or 1-888-723-3366

Hooked on Fish: Recipes from the Great Lakes State Cookbook (MDCH)
<http://1.usa.gov/pri1qp> or 1-800-648-6942

Local Fish, Local Guide

If you are eating fish caught in Michigan or any of the Great Lakes, **please call MDCH to request the *Eat Safe Fish Guide*** for the region the fish is from. The regional **Guide** lists Michigan fish that have been tested for mercury and other harmful chemicals, like PCBs and dioxins.

Catching fish • Buying fish • Eating fish

For more information on safe fish, call MDCH at 1-800-648-6942 or visit us online at www.michigan.gov/eatsafefish.

Michigan Department
of Community Health

MDCH

with support from
WAYNE STATE
UNIVERSITY

buy safe fish

**Mercury Guidelines
for Store-bought &
Restaurant Fish**

**eat
safe
fish**

www.michigan.gov/eatsafefish

Questions? Call MDCH at 1-800-648-6942.

Great choices to go...You can cut the list out & take it with you!

- You will find resources for choosing sustainable and planet-friendly fish.
- MDCH does not include information about farm-raised fish versus wild-caught by design.
 - It's hard for any of us to know what may be in the fish that isn't reported, and the scientific community is still debating the health benefits of wild-caught vs. farm-raised.
 - The FDA regulates the farmed-fish market. Their phone number is included on the back of the brochure. They have been very friendly any time I have called with questions.
- You will also find Eat 8! MDCH's tool for choosing fish that are lower in mercury. **(Learn more about Eat 8! on page 26.)**

About Eat 8!

- Eat 8! is a point-based system. MDCH recommends fish consumers stay at or below 8 points per month in order to stay within a safe range of mercury consumption.
- Eat 8! only takes into account mercury contamination in fish.
- Eat 8! guidelines were developed using mercury test results from the FDA. Fish are assigned points based on the mercury test results.
- Some of MDCH's recommendations vary from the general FDA recommendations.
- The Eat 8! chart is printed so that it can be torn out from the brochure and folded into a wallet for later reference. There are usage instructions on the back of the chart.
- By simply adding up the points for the type of fish eaten and the number of MI Servings eaten each month, your clients will be able to easily calculate how much fish is safe to eat.

Eat 8! is safe for pregnant women and children.

How to Use Eat 8!

- 1. Find the fish you plan to eat.** The lower the points, the lower the amount of mercury in the fish.
- 2. Estimate how many 'MI Servings' you are going to eat.** One adult's *MI Serving* of fish is a filet about the size of their hand (8 ounces of cooked fish). A child's *MI Serving* is about the size of the palm of an adult's hand (2-4 ounces).
- 3. Add up the points.** For example, one dinner, you have 16 ounces of salmon (2 *MI Servings*) for 2 points. The next week, you have one *MI Serving* (8 ounces) of halibut for 4 points. That's 6 points, so far, for the month.
- 4. Keep track of your 'MI Serving' points during the month.** Eat no more than 8 points total of fish each month.

You can be sure you're not getting too much mercury in your body when you use **Eat 8!** to choose your meals.

Eat 8!
A Guide to Help You Choose Fish Low in Mercury from Restaurants and Grocery Stores

EAT no more than... **8** points per month

High in heart-healthy omega-3 fatty acids
Is the fish you're buying caught in Michigan waters? If so, please check the Eat Safe Fish Guide for advice.

Per MI Serving	1 Point	2 Points	4 Points	8 Points
	Anchovies Catfish (farm-raised) Crab Crawfish Flatfish (flounder, sole) Herring Mullet Oysters Perch (ocean or freshwater)	Cod Freshwater Drum (aka Sheephead) Jack Smelt	Bass (sea, striped, rockfish) Bluefish Halibut Lobster Sablefish	Grouper Mackerel
	Pollock Salmon (canned, frozen, fresh) Sardines Scallops Shrimp Squid Tilapia Trout (freshwater) Whitefish	Mahi Mahi Snapper Tuna (canned light)	Scorpion Fish Tuna (Albacore, canned white) Tuna (fresh, frozen) Weakfish (sea trout)	Marlin Orange Roughy

Do not eat these fish:
Shark, Swordfish, Tilefish, King Mackerel

Questions? Call MDCH at 1-800-648-6942.

Great choices to go...You can cut the list out & take it with you!



See page 21 to learn about MI Servings.

Other outreach materials available from MDCH:

Be Heart-healthy! Eat More Fish!

A flyer that has information about the health benefits of the omega-3 fatty acids that are found in some fish. Includes recipes featuring fish that are high in omega-3s.

Learn to Filet a Fish

A flyer that demonstrates a quick and easy way to clean and filet a fish. Two popular fish recipes are found on the flip side.

Eat Safe Fish FAQs

A flyer that covers some of the more basic questions MDCH is often asked. It includes a chart of chemicals that often trigger consumption guidelines in Michigan, the length of time the chemical could stay in a person's body, and linked health effects.

Hooked on Fish: Recipes from the Great Lakes State

A free cookbook featuring favorite fish recipes from Michiganders from around the state!

Specialized local materials

MDCH has developed location-specific materials for some areas in the state. Some of the locations include:

- Detroit Area
- Saginaw Bay Area
- Lange & Revere Canals (St Clair Shores)
- Clark's Marsh, Iosco County

Check www.michigan.gov/eatsafefish for other locations.

To order any of the free materials listed in this booklet, call MDCH at 1-800-648-6942.

If you would like to be notified when new materials are available, please also ask to be added to the ***Eat Safe Fish Newsletter*** distribution list.

Toxicologists and health educators are available to answer questions about the fish consumption guidelines from 8am-5pm, Monday through Friday.

Everyone is welcome to call us at 1-800-648-6942.

You can also download our e-Toolkit by going to www.michigan.gov/eatsafefish and clicking on the *Contact Us* button.

The e-Toolkit includes direct links to all the brochures included in this manual, a sample press release, news articles, and social media messages to promote the *Eat Safe Fish Guides*.



*Michigan Department
of Community Health*



Hooked on Fish

Recipes from the Great Lakes State



Michigan Department
of Community Health

MDCH

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Recipes marked with this symbol require a little extra time to prepare. Be sure to check the recipe before you get started.

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Special Technique

A popular and healthy way to cook fish is called “en papillote” or “in paper.” Cooking like this requires very little oil or butter and results in a very flavorful and healthful meal. Traditionally, people use parchment paper to make the packets, but it is much easier to use foil, as shown below. Several recipes in this cookbook call for this technique.



lay out a large sheet of foil



loosely fold over fish and other ingredients



tightly crimp the edges, leaving 1-2 inches of space between the fish and the edges



continue until the packet is completely sealed

About the *Hooked on Fish* Cookbook

Whenever we would go to events with our Eat Safe Fish information, people would often ask us if we had any good fish recipes. And we didn't...But after awhile, we thought, 'WHY don't we have recipes?! We want people to enjoy fish...let's put together a cookbook!'

We know that folks in Michigan like to cook and eat a lot of fish, so we put the word out far and wide, in order to "reel" in some of Michigan's best fish recipes.

The following pages have some fantastic recipes submitted by people from all over the state. They all look delicious, and we hope you'll be excited to try them out. Thank you to everyone who shared!

If you have a recipe you'd like to share for the next version of the cookbook, please visit www.michigan.gov/eatsafefish and look for the 'Hooked on Fish' logo or call 1-800-648-6942 for a submission form.

Stay healthy and eat safe fish, Michigan!
"Bone" appetit!
- MDCH Division of Environmental Health



Fishing is a fun family activity!

You don't need a lot of equipment to get started. Plus, with over 11,000 inland lakes, rivers, and streams, and the longest freshwater coastline in the entire United States, you're never far from a fishing hole in Michigan!

It's time to grab a pole, hang up the sign that says, *Gone Fishin'*, and head out to the water.



Fishing is great for your family's health!

The fish you catch provide a cheap and healthy source of protein, vitamins, and minerals for your family's meals.

In fact...

- ☒ Some fish have heart-healthy omega-3s.
- ☒ Most fish are low in saturated fat.
- ☒ Eating fish may help prevent heart disease in adults.

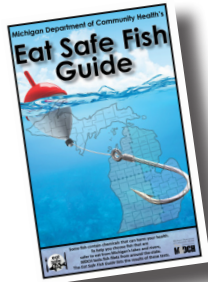


Get to know the



Choose

- Use the MDCH *Eat Safe Fish Guide* (www.michigan.gov/eatsafefish) to choose safe fish for you and your family to eat from your favorite lake or river.
- Use the information at the DNR's Fish Identification (www.michigan.gov/fishid) page to choose the fishing lure and method that best works for catching those fish.
- If you buy your fish from the grocery store, use the MDCH *Buy Safe Fish* brochure to choose the safest fish to buy. You can get the brochure at www.michigan.gov/eatsafefish or by calling 1-800-648-6942.

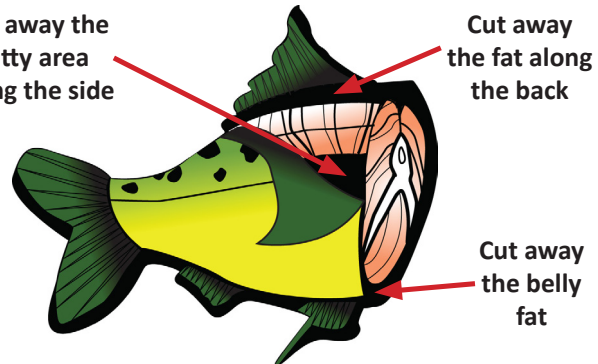


Clean

- Some chemicals, like PCBs and dioxins, collect in the fat of the fish. Trim away any of the fat you can see. Throw away the organs. Careful cleaning can remove a lot of the chemicals from the fish.
- You can't remove mercury from fish. Always choose wisely.

Cut away the fatty area along the side

Cut away the fat along the back



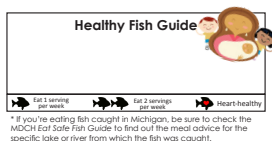
Cut away the belly fat



Cook

- Poke holes in the skin or remove it completely so that fat can drip away from the fish as it cooks.
- The best way to cook your fish is on a grill or broiler pan so that the fat can drip away.

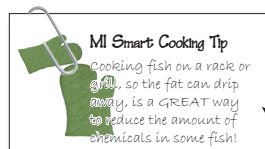
Helpful hints for using this cookbook...



About the Healthy Fish Guide

Use the *Healthy Fish Guide* on the upper right corner of each page of the cookbook to find the MDCH guidance for store-bought fish featured in that recipe. The *Guide* will help you choose fish that are lower in mercury for you and your family. The *Healthy Fish Guide* uses MDCH mercury limits for pregnant women and children, so it is safe for everyone to follow.

If you are catching your fish in Michigan, be sure to check the MDCH *Eat Safe Fish Guide* for information specific to the lake or river that you're fishing in.



Look for MI Smart Cooking Tips

Some recipes include a *MI Smart Cooking Tip*. These tips are from MDCH and will help you make your meals even healthier. In fact, if you follow the 3Cs and any other *Smart Cooking Tips*, you can reduce the amount of chemicals that may be in your sport-caught fish by up to half!



How much fish is in "MI Serving"?

The Michigan Department of Community Health uses the term *MI Serving* when giving advice about how much fish is safe to eat.

- ☑ For adults: **MI Serving** is 8 ounces of fish - about the size of an adult's hand (large oval).
- ☑ For children: **MI Serving** is 2-4 ounces of fish - about the size of the palm of an adult's hand (small circle or rectangle).

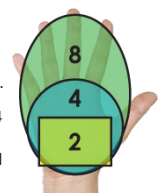




Photo submitted by Susan Simmer

"Tart rhubarb pairs with the sweetness of oranges to create a tangy sauce for roasted black sea bass. Cinnamon and ginger add a lovely background flavor, perfect for the holiday season."

Healthy Fish Guide



Bass* - eat 2 *MI Servings* or less per month of store-bought bass



Heart-healthy

* If you're eating fish caught in Michigan, be sure to check the MDCH Eat Safe Fish Guide to find out the meal advice for the specific lake or river from which the fish was caught.

Black Sea Bass with Orange Rhubarb Sauce

Recipe adapted by Susan Simmer
Lansing, Michigan

Ingredients

- | | |
|---|--|
| 4 navel oranges | 1 1/2 teaspoons fresh ginger, |
| 3 tablespoons olive oil | peeled and minced |
| 2 tablespoon unsalted butter | 1/4 teaspoon cinnamon |
| 1 large onion, halved lengthwise
and thinly sliced | 1 (14- to 15-oz) can diced tomatoes,
including juice |
| 1 pound rhubarb,
cut into 1-inch pieces | 1/4 teaspoon black pepper |
| 2 tablespoons mild honey | 6 (6- to 8-oz) black sea bass fillets,
skin and small bones removed |
| 1 1/4 teaspoons salt | 1/4 cup fresh mint, chopped |

MDCH - Division of Environmental Health



Arrange oven rack in middle position and preheat oven to 375 degrees F.

Cut 4 oranges in half. With a small sharp knife, working over a bowl, cut out segments from 3 oranges and put in measuring cup. Squeeze juice from remaining orange into cup to total 2/3 cup of juice.

Heat 2 tablespoons oil with butter in a 12-inch heavy skillet over moderate heat. Cook the onion, stirring occasionally, until softened and golden brown, 18 to 20 minutes.




While onion is caramelizing, cook rhubarb, honey, 1/3 cup orange juice, and 1/4 teaspoon salt in a 2-quart heavy saucepan over moderate heat, stirring occasionally, until rhubarb is very tender, about 12 minutes.

Add ginger and cinnamon to onion and cook, stirring, 1 minute. Add remaining 1/3 cup orange juice and boil until thickened, about 1 minute. Stir in rhubarb compote, tomatoes, pepper, and 1/2 teaspoon salt and briskly simmer, stirring occasionally until sauce is thickened slightly, 7 to 10 minutes. Remove from heat.

While sauce simmers, grease a 17- by 12-inch glass or ceramic baking dish with remaining tablespoon oil. Pat fish dry and sprinkle with remaining 1/2 teaspoon salt. Arrange fish, skinned sides up, in 1 layer in baking dish and bake until opaque and just cooked through, 12 to 14 minutes. The fish should flake easily with a fork when done. Stir in remaining orange segments and juice into sauce and cook until heated through, 1 to 2 minutes, and season with salt. Stir mint into sauce and serve with fish.

Fun Fish Facts!

Yellow perch are the most often caught game fish in Michigan. Unlike many kinds of fish, perch remain active all year long in both shallow and deeper water, and provide the fisherman with much sport and many a meal. Learn more at www.michigan.gov/fishid.

Healthy Fish GuidePerch*  Eat 1 serving per week Eat 2 servings per week Heart-healthy

* If you're eating fish caught in Michigan, be sure to check the MDCH Eat Safe Fish Guide to find out the meal advice for the specific lake or river from which the fish was caught.

Healthy Italian Perch

Recipe by Jennifer Waters
Rockford, Michigan

Ingredients

1-2 pounds lake perch
2 tablespoons Smart Balance Butter Spread
1 bottle Light Done Right Zesty Italian dressing
1 lemon, cut into wedges (optional)
tartar sauce (optional)

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Preheat oven to 375 degrees F.



Divide SmartBalance butter into small pieces and place in a 9x13 casserole dish. Gently place fish fillets in the dish in a single layer. Pour the Light Done Right Zesty Italian dressing over all.

Bake for 30 minutes until butter is melted and the fish flakes easily with a fork. Serve immediately with a lemon wedge and/or tartar sauce.

Goes great with a salad! Enjoy!

Fun Fish Facts!

Shhhh! The US Fish & Wildlife Service says fish don't have ears. They actually "hear" or feel vibrations along the lateral line of their bodies.

Healthy Fish GuideSalmon*  Eat 1 serving per week Eat 2 servings per week Heart-healthy

* If you're eating fish caught in Michigan, be sure to check the MDCH Eat Safe Fish Guide to find out the meal advice for the specific lake or river from which the fish was caught.

Baked Salmon in Asian Marinade

Recipe by Mrs. Allen J. Bell
North Muskegon, Michigan

Ingredients

4 fresh or frozen salmon steaks
(about 1 inch thick)
1/3 cup orange juice
1/3 cup soy sauce
2 tablespoons parsley, finely snipped
2 tablespoons canola oil
1 clove garlic, crushed
1/2 teaspoon dried basil, finely crushed

MDCH - Division of Environmental Health

MI Smart Cooking Tip

Salmon is high in
omega-3s and is a heart-
healthy choice for everyone!



Prepare in advance.
Fish needs to
marinate for
4-6 hours.

Hooked on Fish
Recipes from the Great Lakes State

Thaw fish if frozen and place in an ovenproof shallow baking dish. Combine orange juice, soy sauce, oil, garlic and basil and pour over fish.







Chill in the refrigerator for 4-6 hours, turning pieces occasionally. Drain and reserve marinade.

Preheat oven to 425 degrees F. Bake for 12-15 minutes or until the fish flakes easily with a fork.

Gently bring marinade to a boil over medium heat and drizzle over fish when serving (optional).

Serves 4.



Healthy Fish Guide			
Salmon*  			
	Eat 1 serving per week	 	Eat 2 servings per week
			Heart-healthy

* If you're eating fish caught in Michigan, be sure to check the MDCH *Eat Safe Fish Guide* to find out the meal advice for the specific lake or river from which the fish was caught.

Pecan Crusted Baked Salmon

Recipe by Sue Manente
Lansing, Michigan

Ingredients

3 tablespoons butter, softened
3 tablespoons Dijon or other spicy brown mustard
5 tablespoons honey
1/2 cup dry bread crumbs
1/2 cup pecans, finely chopped
3 teaspoons parsley
6 salmon fillets (4 ounces each), skin and dark flesh removed

MI Smart Cooking Tip

Salmon is a high in Omega-3s and is a heart-healthy choice for everyone!



MDCH - Division of Environmental Health

Hooked on 
Recipes from the Great Lakes State

Preheat oven to 400 degrees F.

Rinse, then pat the salmon fillets dry with a paper towel. Spray a baking sheet with olive oil or non-stick cooking spray and lay the fillets on the pan.

In a small bowl, combine the first three ingredients. Spread the mustard mixture evenly over the salmon.

Combine the dry ingredients in another small bowl. Sprinkle the bread crumb mixture evenly over the top of each of the fillets. Spray the tops lightly with olive oil or non-stick cooking spray.

Bake for 10-15 minutes or until the fish flakes easily with a fork.

Fun Fish Facts!


Some salmon species are endangered. If you buy salmon, Shedd Aquarium's Right Bite program says to stick to wild-caught or farmed Alaskan salmon. Learn more at <http://www.sheddaquarium.org/3155.html>.

If you like to fish, the Michigan Department of Natural Resources stocks our Great Lakes with lots of chinook and coho salmon each year. Yum!


Healthy Fish Guide

Salmon*  



 Eat 1 serving per week

  Eat 2 servings per week

 Heart-healthy

* If you're eating fish caught in Michigan, be sure to check the MDCH Eat Safe Fish Guide to find out the meal advice for the specific lake or river from which the fish was caught.

Salmon Bake

Recipe adapted by Stephen Davidson
Muskegon, Michigan

Ingredients

4 salmon steaks
1 cup zucchini, julienned or sliced
1 cup carrots, julienned or sliced
1 cup mushrooms, sliced
1 cup onions, sliced thinly
1 cup baby corn

4 tablespoons lemon juice, divided
1/2 cup seasoned bread crumbs

4 sheets of heavy aluminum foil
canola or olive oil

MI Smart Cooking Tip

Salmon is a high in Omega-3s and is a heart-healthy choice for everyone!



Butter Topping

6 tablespoons butter, softened
1 bunch of cilantro, finely chopped
2 tablespoons roasted garlic, mashed or chopped
1 tablespoon lime juice
dash of hot sauce
dash of salt

MDCH - Division of Environmental Health



Preheat oven to 400 degrees F.

In a small bowl, beat together the ingredients for the butter topping. Set aside.

Lightly oil a square of aluminum foil and place one salmon steak in the center. Layer 1/4 of the vegetables over salmon steaks. Lightly salt to taste and pour 1 tablespoon of lemon juice over the fish and vegetables. Sprinkle each salmon packet with 1/8 cup of seasoned bread crumbs. Top with 1 1/2 tablespoons of the butter topping.

Bring the sides of one of the foil squares together and double fold. Then double fold the two open ends of the foil to create a sealed packet. Be sure to leave room in the packet so that heat can circulate throughout. Repeat with the other 3 fish fillets.

Bake for 15-20 minutes. Serve over rice.

Fun Fish Facts!

The US Fish and Wildlife Service says that young salmon, known as smolts, migrate downstream tail first—scientists are not sure why. One theory is that oxygen rich water can more easily flow into the gills of the fish; or maybe salmon orient themselves based on their natural instinct to swim upstream.

Healthy Fish Guide

Salmon*



Eat 1 serving per week

Eat 2 servings per week

Heart-healthy

* If you're eating fish caught in Michigan, be sure to check the MDCH Eat Safe Fish Guide to find out the meal advice for the specific lake or river from which the fish was caught.

Salmon Baked in Lettuce Leaves

Recipe adapted by Myrna Liepins
Spring Lake, Michigan

Ingredients

4 - 4 ounce skinless salmon fillets
1 teaspoon minced garlic
1 head romaine lettuce
1 small bunch fresh dill
1 small onion, sliced thinly
1 cup chicken broth
juice of 1/2 lemon
salt and pepper

MDCH - Division of Environmental Health

MI Smart Cooking Tip

Salmon is a high in Omega-3s and is a heart-healthy choice for everyone!



Hooked on FISH
Recipes from the Great Lakes State

Preheat oven to 400 degrees F.

Spray a baking dish with non-stick cooking spray. Line the dish with romaine lettuce leaves, allowing them to hang over the edges. Arrange the fish on the leaves; then top with the rest of the ingredients. Fold lettuce over to cover the fish, using more if needed.



Cover the dish tightly with aluminum foil and bake for 20 minutes or until fish flakes easily with a fork. At this point, you can also uncover the fish and bake a few minutes longer.


Serve with or without lettuce, on steamed white rice. Delicious!!







Sofrita is a flavorful combination of sauteed vegetables and spices that is popular in Cuba, Latin America and many Mediterranean countries. Bring a little sunshine into your Michigan kitchen, and try it today!

Healthy Fish Guide

Salmon*  



 Eat 1 serving per week	  Eat 2 servings per week	 Heart-healthy
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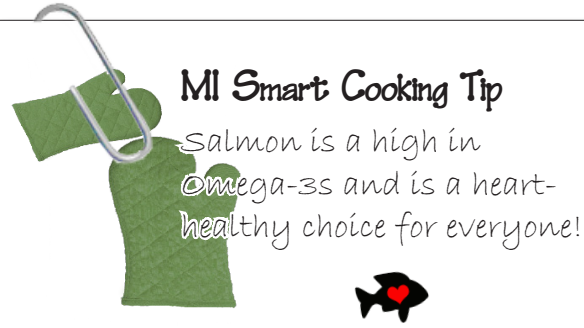
* If you're eating fish caught in Michigan, be sure to check the MDCH *Eat Safe Fish Guide* to find out the meal advice for the specific lake or river from which the fish was caught.

Salmon with Cuban Sofrita

Recipe by Deborah Garcia
West Bloomfield, Michigan

Ingredients

- 4 pieces of Alaskan Salmon
(about 1/4 pound each,
with skin on)
- 1-2 tablespoons olive oil or
canola oil
- Cuban Sofrita (recipe on page 25)
- Lemon Dill Baby Lima Beans
(recipe on page 26)



MDCH - Division of Environmental Health



Heat oil in a skillet over medium-high heat.

Add salmon and cook for 5-8 minutes on skin side until crispy. Turn salmon and cook for 3-5 minutes or until the fish flakes easily with a fork.

Place 1-2 tablespoons Cuban Sofrita on top of each piece of Salmon and cover the skillet. Turn heat down to a simmer, and heat for 3-5 minutes.

Serve with a salad and Lemon Dill Baby Lima Beans.

Serves 4.



Healthy Fish Guide



Walleye* - eat 1-2 *MI Servings* or less per month of store-bought walleye



Heart-healthy

* If you're eating fish caught in Michigan, be sure to check the *MDCH Eat Safe Fish Guide* to find meal advice for the specific lake or river from which the fish was caught.

Crunchy Baked Walleye

Recipe by Melissa Freye
Muskegon, Michigan

Ingredients

3 pounds walleye fillets
1 cup milk or buttermilk
1 1/2 cups crushed corn flakes
3 tablespoons Parmesan cheese
2 tablespoons melted butter

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Preheat oven to 400 degrees F.

Spray a baking sheet (with sides) with cooking spray or grease thoroughly.

Crush corn flakes & mix with Parmesan cheese.

First dip the fish fillets in milk, and then dip them into the corn flake mixture. Place the fish on the prepared baking sheet. Pour butter over fish.

Bake for about 20 minutes or until fish flakes easily with a fork. Enjoy!



Healthy Fish Guide			
Cod			
Perch*		Whitefish*	
Tilapia			
	Eat 1 serving per week		Eat 2 servings per week
			Heart-healthy

* If you're eating fish caught in Michigan, be sure to check the MDCH Eat Safe Fish Guide to find out the meal advice for the specific lake or river from which the fish was caught.

Fish Tacos

Recipe by Deborah Garcia
West Bloomfield, Michigan

Ingredients

1-2 pounds fish
(tilapia, cod, perch, whitefish)
salt & pepper to taste
flour or corn tortillas

Garnish

lettuce, shredded
tomatoes, diced
onions, diced (white, yellow, Vidalia, green)
bell or Serrano peppers
fresh cilantro
1-2 limes, cut into wedges
hot sauce or salsa

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MI Smart Cooking Tip

Cook fish on a broiler pan so the fat can drip away. It's a great way to reduce some of the chemicals that may be in some fish.



Preheat oven to 375 degrees F.

Season fish with seasoning salt, salt or pepper on both sides. Place on cookie sheet or glass baking dish for 15 - 20 minutes or until the top of fish is golden brown and it flakes easily with a fork.

Heat up the tortillas on griddle, grill or microwave. You can also pan fry the tortillas in small amount of olive, canola, safflower or vegetable oil folding over in half once both sides are cooked to softness or leave in oil longer for crispier tortillas. Then remove from pan to paper towel.

Place baked pieces of fish inside taco - breaking into smaller pieces, if preferred. If desired, add lettuce, tomato, onion, chilies, and squeeze lime over top. Feel free to add sour cream, plain yogurt, Spanish cheeses (goat, caceca, grated monterey jack) and your favorite salsa, too!



Healthy Fish Guide		
Whitefish*		
Eat 1 serving per week	Eat 2 servings per week	Heart-healthy

* If you're eating fish caught in Michigan, be sure to check the MDCH *Eat Safe Fish Guide* to find out the meal advice for the specific lake or river from which the fish was caught.

Great Lakes Whitefish Chowder

Recipe adapted by Linda Dykema
Lansing, Michigan

Ingredients

2 tablespoons butter
1 bunch green onion, chopped
3/4 cup celery, chopped
1 1/2 cups carrot, chopped
3-4 medium red potatoes with skin, chopped
2 cups chicken stock
1 teaspoon salt
1/4 teaspoon pepper
1/4 teaspoon thyme
1 bay leaf
2 cups milk
About 1 pound Great Lakes Whitefish

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For roux:

1/4 cup butter
1/4 cup flour

Toppings (optional):

green onion, chopped
crisp bacon, crumbled



Hooked on Fish
Recipes from the Great Lakes State

In a 4- to 5-quart dutch oven or other deep pot, sauté chopped green onion and celery in butter over medium heat until soft and transparent. Add next seven ingredients (through bay leaf) and simmer until carrots and potatoes are soft (about 15-20 minutes). Add milk.










Carefully transfer 1 to 2 cups of the hot soup to a blender or food processor. Blend until smooth and add back into the pot of soup.

Add whitefish and simmer until fish is flaky and thoroughly cooked.

To make roux: In a separate pan, melt butter over medium heat and stir in flour all at once. Cook while stirring constantly until flour is lightly browned. Stir the roux into the chowder and simmer for an additional 5 minutes until thick.

To serve, top with chopped green onion and crumbled crisp bacon.



Healthy Fish Guide 			
Cod			
Perch*		Tilapia	
Shrimp		Whitefish*	
	Eat 1 serving per week		Eat 2 servings per week
			Heart-healthy

* If you're eating fish caught in Michigan, be sure to check the MDCH *Eat Safe Fish Guide* to find out the meal advice for the specific lake or river from which the fish was caught.

Mexican Ceviche

Recipe by Deborah Garcia
West Bloomfield, Michigan

Ingredients

1/2 to 1 pound uncooked or cooked fresh white fish or shrimp diced in small cubes
2 limes
1 small to medium white onion diced
1/2 Serrano pepper, without seeds, diced
1 tablespoon fresh cilantro, coarsely chopped (you can add more if you like)
salt to taste
Tabasco Sauce to taste

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Hooked on 
Recipes from the Great Lakes State

Chop and mix all ingredients in glass or plastic bowl.

Let sit for at least 1 hour in refrigerator for uncooked fish, or if cooked, for 15 minutes.

Add salt and/or Tabasco Sauce to taste and serve with white, yellow, or blue corn chips. Enjoy!



Science at work!

The citric acid in the lime juice “cooks” the fish while you wait.



Photo submitted by Susan Simmer

Healthy Fish Guide			
Cod			
Perch*		Whitefish*	
Tilapia			
	Eat 1 serving per week		Eat 2 servings per week
			Heart-healthy

* If you're eating fish caught in Michigan, be sure to check the MDCH *Eat Safe Fish Guide* to find out the meal advice for the specific lake or river from which the fish was caught.

White Fish with Lemon Walnut Sauce

Recipe adapted by Susan Simmer
Lansing, Michigan

"A fish dish that feels meaty and satisfying."

Ingredients

2 pounds firm white fish fillets
1/2 cup flour (can use equal parts
wheat and white)
1/2 teaspoon salt
1/4 teaspoon ground black pepper
4 tablespoons olive oil

Lemon Walnut Sauce:

1 1/2 cups walnuts
1/2 cup water
2 lemons, juiced
1 teaspoon salt
1/4 teaspoon cayenne pepper
1 small bunch cilantro, finely chopped
6 cloves garlic, crushed
2 tablespoons butter

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Pat fish fillets dry. Combine flour and salt and black pepper. Coat fish with flour and let sit on a rack for 10-15 minutes. Fry in hot olive oil for 2 minutes per side. Remove to a rack to drain and cool.

After the sauce (instructions below) cools to room temperature, place fish on plate and spoon sauce over the top.

Lemon Walnut Sauce:

In a blender, pulse the walnuts into a fine puree. Pour the ground walnuts into a mixing bowl and slowly add 1/2 cup water, stirring constantly. Gradually add the lemon juice, salt and cayenne. The sauce should be somewhat on the thick side.

Very finely chop the cilantro with the garlic. In a skillet, over medium heat, add butter and sauté the garlic and cilantro mixture until the garlic is a pale yellow. (You can use the same skillet you fried the fish in for this step, if you prefer.) Add the walnut sauce to the skillet and simmer over medium-low heat for about 10 minutes, stirring occasionally.



Healthy Fish Guide			
Catfish*		Tilapia	
Cod		Trout*	
Perch*		Freshwater Drum*	
 Eat 1 serving per week		 Eat 2 servings per week	
 Heart-healthy			

* If you're eating fish caught in Michigan, be sure to check the MDCH Eat Safe Fish Guide to find out the meal advice for the specific lake or river from which the fish was caught.

Fish Batter for Your Catch

Recipe by Mrs. Allen J. Bell
North Muskegon, Michigan

Ingredients

1 tablespoon Miracle Whip
3 tablespoons ketchup
2 eggs
1 (12-ounce) can of beer
2 cups white flour
1 1/2 cups Bisquick
2 cups finely crushed corn flakes
fish fillets

MI Smart Cooking Tip

You can fry fish in a shallow pan to avoid using too much oil. Never save and re-use the oil when frying fish.

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Hooked on FISH
Recipes from the Great Lakes State

In a mixing bowl, stir together the Miracle Whip, ketchup, eggs, beer and white flour until smooth.

In another container, mix Bisquick and corn flakes together.

Dip fish, one at a time, into the batter and then roll in the dry mixture. Set aside on wax paper.

Preheat a deep-fryer or a deep pot filled halfway with oil to 350 degrees F. Gently place the fish in the oil, making sure it is fully covered and fry until they are golden brown and cooked through, about 4 minutes. Turn the fish to ensure even browning.

Fun Fish Facts!

The Great Lakes are a great resource! According to the Environmental Protection Agency, the Great Lakes are the biggest bodies of freshwater on the surface of the Earth. They hold about 84 percent of North America's surface fresh water and about 21 percent of the world's supply. Only the polar ice caps have more fresh water in one place!

Healthy Fish Guide




Lake Trout* 


Steelhead Trout* 

Salmon* 

Whitefish* 

 Eat 1 serving per week

  Eat 2 servings per week

 Heart-healthy

* If you're eating fish caught in Michigan, be sure to check the MDCH *Eat Safe Fish Guide* to find out the meal advice for the specific lake or river from which the fish was caught.

Fish Boil

Basil Walker
Eaton Rapids, Michigan



Ingredients

20 medium potatoes
20 medium onions
8-10 pounds of salmon, steelhead, lake trout, or whitefish
1 cup salt, divided
fresh lemons, cut into wedges
Drawn Butter (recipe follows)

1 large trout kettle

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Hooked on 
Recipes from the Great Lakes State

Peel potatoes and onions, place in trout kettle, add 1/2 cup salt and cover with water. Bring to a boil and cook for 22 minutes at a fast boil. Add the fish fillets, skinned and chunked up in metal colander, and remaining 1/2 cup salt to the kettle. Cook for 8 more minutes.

Lift colander of fish out and rinse with hot water. Pour water quickly out of kettle and serve potatoes, onions and fish. Serve with lemon wedges and drawn butter.

Drawn Butter

2 sticks margarine or butter

In a small saucepan, melt the butter over medium heat. Bring to a boil until the milk solids have separated and sunk to the bottom of the pan. Scoop out the clear butter from the top of the pan and serve in a warm cup.



Healthy Fish Guide

Cod 

Salmon*  

Halibut - eat two MI Servings per month or less 

 Eat 1 serving per week	  Eat 2 servings per week	 Heart-healthy
--	---	---

* If you're eating fish caught in Michigan, be sure to check the MDCH *Eat Safe Fish Guide* to find out the meal advice for the specific lake or river from which the fish was caught.

Fish Chowder

Basil Walker
Eaton Rapids, Michigan

Ingredients

5 medium potatoes, cubed
1 medium onion, diced
1 tablespoon butter or margarine
2 quarts water
2 cups milk
8 ounces Cheez Whiz
1 pound salmon, halibut, cod or other fish, diced
salt & pepper to taste



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Combine water, potatoes, onion and salt. Cook until tender, drain. Add milk and butter.

In separate pan, cook diced fish in salted water about 4 minutes. Drain and rinse with hot water.

Add fish to potatoes and fold in Cheez Whiz. Cook on low heat. Do not allow to boil.

Serve with oyster crackers.



Healthy Fish Guide			
Catfish*		Tilapia	
Cod		Trout*	
Perch*		Freshwater Drum*	
 Eat 1 serving per week		 Eat 2 servings per week	
 Heart-healthy			

* If you're eating fish caught in Michigan, be sure to check the MDCH *Eat Safe Fish Guide* to find out the meal advice for the specific lake or river from which the fish was caught.

Fish on a Rack over Coals or in Oven

Recipe by Basil Walker
Eaton Rapids, Michigan

Ingredients

1/2 cup flour
6 tablespoons margarine
2 teaspoons lemon juice
salt and pepper to taste
1 medium onion, thinly sliced and separated into rings
4-6 fish fillets, any kind, freshwater or salt
Original Open Pit Barbecue Sauce

2 large sheets heavy aluminum foil

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Preheat oven to 425 degrees F.

Melt the margarine and stir in the lemon juice.








Line a baking sheet with one sheet of the aluminum foil and coat it with half of the margarine and lemon mixture.

Rinse and gently dry the fish fillets. Lightly coat the fillets with flour, and place them on the foil. Pour a strip of barbecue sauce down the center of each filet. Place onion on top of filets and drizzle with remaining margarine and lemon mixture. Add salt and pepper to taste. Place foil over top and crimp all around.

Place on rack and cook until fish flakes and onions are done, about 12-15 minutes. You can flip once if necessary.



Dogfish - Summer 2000
Photo submitted by
Mrs. Allen J. Bell

Healthy Fish Guide			
Catfish*		Tilapia	
Cod		Trout*	
Perch*		Freshwater Drum*	
 Eat 1 serving per week		 Eat 2 servings per week	
 Heart-healthy			

* If you're eating fish caught in Michigan, be sure to check the MDCH Eat Safe Fish Guide to find out the meal advice for the specific lake or river from which the fish was caught.

Foiled Again!

Recipe by Mrs. Allen J. Bell
North Muskegon, Michigan

Ingredients

4 fish fillets (any kind, 4-6 ounces each)
1/4 cup Miracle Whip
1/4 cup grated Romano cheese, divided
2 medium zucchini, sliced
1/4 red bell pepper, cut into small pieces
1/3 cup white sweet onions, chopped

4 – 12x18 sheets of aluminum foil

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Preheat the oven to 450 degrees F.

Spray one square of foil with non-stick cooking spray. Place on fish fillet on the center of the foil. Spread with 1/4 of the Miracle Whip and 1/4 of the Romano cheese. Salt and pepper to taste and top with 1/4 of the vegetables.

Bring up sides of the foil together and double fold. Then double fold the two open ends of the foil to create a sealed packet. Leave room in the packet so that heat can circulate throughout. Repeat with the other 3 fish fillets.

Place the packets on a cookie sheet and bake for 18-22 minutes.

Open packets carefully and serve.

Serves 4.

Fun Fish Facts!

Did you know that the Brook Trout is Michigan's State Fish? Originally found only in Michigan's Upper Peninsula and northern Lower Peninsula, the Michigan Department of Natural Resources has now stocked the popular fish in cold waters throughout Michigan.

**Healthy Fish Guide**

Catfish*



Tilapia



Cod



Trout*



Perch*



Freshwater Drum*



Eat 1 serving per week



Eat 2 servings per week



Heart-healthy

* If you're eating fish caught in Michigan, be sure to check the MDCH Eat Safe Fish Guide to find out the meal advice for the specific lake or river from which the fish was caught.

Lemon Baked Fish

Recipe by Betty Wilson

Submitted by Sal Wilson

Allegan, Michigan

*In Memory of Betty Wilson***Ingredients**

1 pound fresh fish fillets (recommended: brook trout)

2 lemons, one juiced & one peeled and thinly sliced

1 teaspoon salt

1/2 teaspoon paprika

1 1/2 teaspoon dried dill

1 tablespoon butter

1 tablespoon parsley flakes

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Preheat oven to 325 degrees F.

Place fish in greased baking dish and sprinkle with lemon juice and seasonings. Dot fish with butter. Arrange lemon slices on fish.

Bake in oven for 20 minutes, or until fish flakes easily with a fork.

Sprinkle with parsley flakes.

Serves 4.

This recipe is in memory of Betty Wilson, who retired from the Michigan Department of Natural Resources in 1993. She would have loved to have this submitted in her name.

- Sal Wilson, step-daughter

Fun Fish Facts!

The Michigan Department of Natural Resources stocks many Michigan lakes and rivers with fish. Find a location near you by visiting www.michigan.gov/fishid.

Healthy Fish Guide

Catfish*		Tilapia	
Cod		Trout*	
Perch*		Freshwater Drum*	
 Eat 1 serving per week		 Eat 2 servings per week	
 Heart-healthy			

* If you're eating fish caught in Michigan, be sure to check the MDCH Eat Safe Fish Guide to find out the meal advice for the specific lake or river from which the fish was caught.

Lightly Breaded Fish

Recipe by Chuck Stafford
Muskegon, Michigan

Ingredients

1-2 pounds fish fillets
1 box saltine crackers
2-3 cups flour
salt
pepper
3 or 4 eggs
cooking oil

MI Smart Cooking Tip

You can fry fish in a shallow pan to avoid using too much oil. Never save and re-use the oil when frying fish.

MDCH - Division of Environmental Health

Hooked on 
Recipes from the Great Lakes State

In a zip-top bag, crush the crackers, or place in blender and pulse until the crackers are finely chopped. (Note: unused crumbs can be stored in freezer.) Place fish fillets on paper towel to partially dry.

Put a scoop or two of flour into a gallon size zip-top bag and add a little salt and pepper. Place fillets into the bag with the flour and shake. Place the floured fillets on a plate.

In a shallow bowl, beat the eggs. Dip pieces of the fish into the egg, bathing the pieces thoroughly. Next, roll fish in the cracker crumbs. The fillets can be placed on another plate or fried immediately.

Fry the fish in a shallow pan or in a deep fryer. Preheat the oil to 350 degrees F. Gently place the fish in the oil and fry until it is golden brown and cooked through (fish should flake easily with a fork), about 4 minutes. Turn the fish to ensure even browning.

Any remaining cracker crumbs can be mixed in with the leftover egg mixture and fried, making something like "hush puppies." Served with french fries, this makes a delicious meal!



Cuban Sofrita

Recipe adapted by Deborah Garcia
West Bloomfield, Michigan

Ingredients

25 cherry tomatoes, chopped
2 green peppers, chopped
2 large onions, chopped
10 garlic cloves, chopped
1 bay leaf
1 teaspoon of ground cumin
1 teaspoon of dried oregano
4 tablespoons olive oil
3/4 cup good cooking wine

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Finely chop the tomatoes, peppers, onions and garlic in a blender. Add cumin and oregano. Add the oil and bay leaf to a skillet and sauté the chopped mixture until all the vegetables are limp.

Add cooking wine and let simmer 15 minutes.

Store, covered, in the refrigerator for a few days; or freeze in 1/2 cup portions for up to 3 months.

Makes 20 servings.



Lemon Dill Baby Lima Beans

Recipe by Deborah Garcia
West Bloomfield, Michigan



Prepare in advance.
Refrigerates
overnight.

Ingredients

16 ounce package frozen baby lima beans
1 tablespoon dill weed
1 teaspoon dill seed
1/4 - 1/2 cup lemon juice
1 teaspoon olive oil

MDCH - Division of Environmental Health



Place frozen baby lima beans in covered saucepan, with 1/4 cup of water.
Cook until tender (about 10-15 minutes).

Add dill weed, dill seed, lemon juice and olive oil to the pan. Cook, covered
for 5-8 minutes till heated through.

NOTE: best if cooked the day before and refrigerated, covered, overnight.

Eat Safe Fish Quick Reference Guide

Have questions about buying or catching safe fish in Michigan?

Call the Michigan Department of Community Health
at 1-800-648-6942

or visit:

www.michigan.gov/eatsafefish

Have questions about fishing regulations or your fishing license?

Call the Michigan Department of Natural Resources
at (517) 373-1230

Want to know how to ID a fish you caught or find a lake that is stocked with fish?

Call your local DNR Operation Service Center
or visit:

www.michigan.gov/fishid

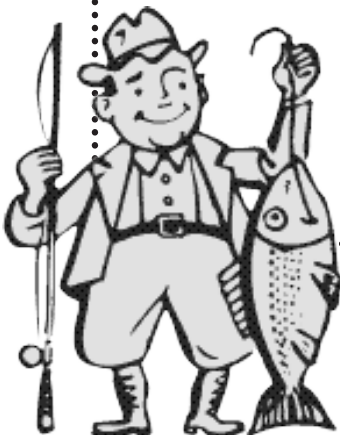
Have a question about choosing planet-friendly and sustainable fish at your grocery store?

Visit:

<http://www.sheddaquarium.org/3155.html>

or

<http://www.montereybayaquarium.org/cr>



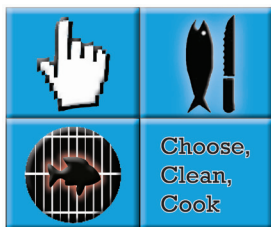
*Michigan Department
of Community Health*



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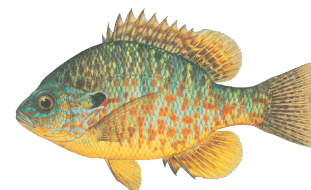
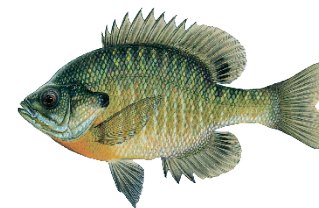
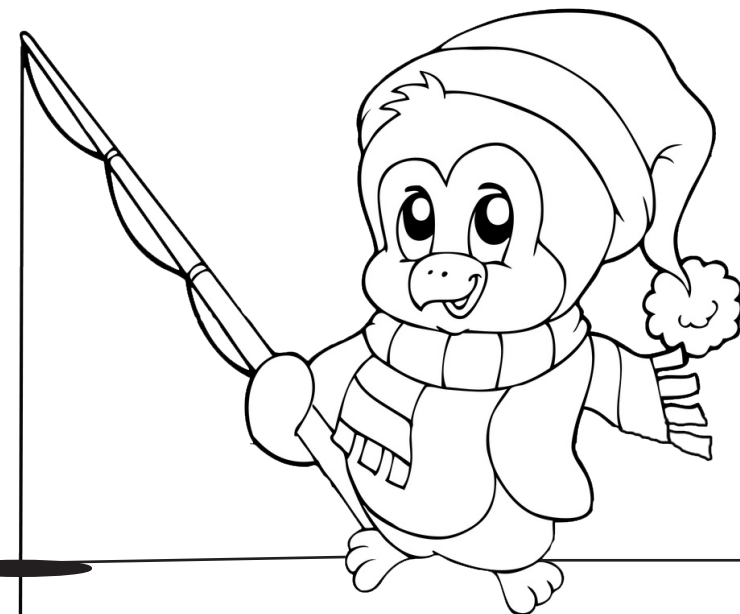
**WAYNE STATE
UNIVERSITY**

& the Great Lakes
RESTORATION Initiative



Help Penny the Penguin Find Safe Fish to Eat!

Penny the Penguin used the *Eat Safe Fish Guide* to find fish that are safe for her to eat from Lake Icy! She wrote them down on a list to share with you. Can you help Penny catch the fish that are safe for her to eat? Draw a line from the name of the fish on her list to the fish in the lake that matches it. Watch out for the fish not on her list - they might try to trick you!



Learn more at
www.michigan.gov/deq/aocprogram

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Great Lakes
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Learn more at
www.michigan.gov/eatsafe/fish



Eat Safe Fish! ♥ Your Watershed!



Learn more at
www.michigan.gov/deqaocprogram

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& Great Lakes
the RESTORATION Initiative



Learn more at
www.michigan.gov/eatsafefish





Eat Safe Fish! ♥ Your Watershed!



Michigan is A-MAZE-ING!

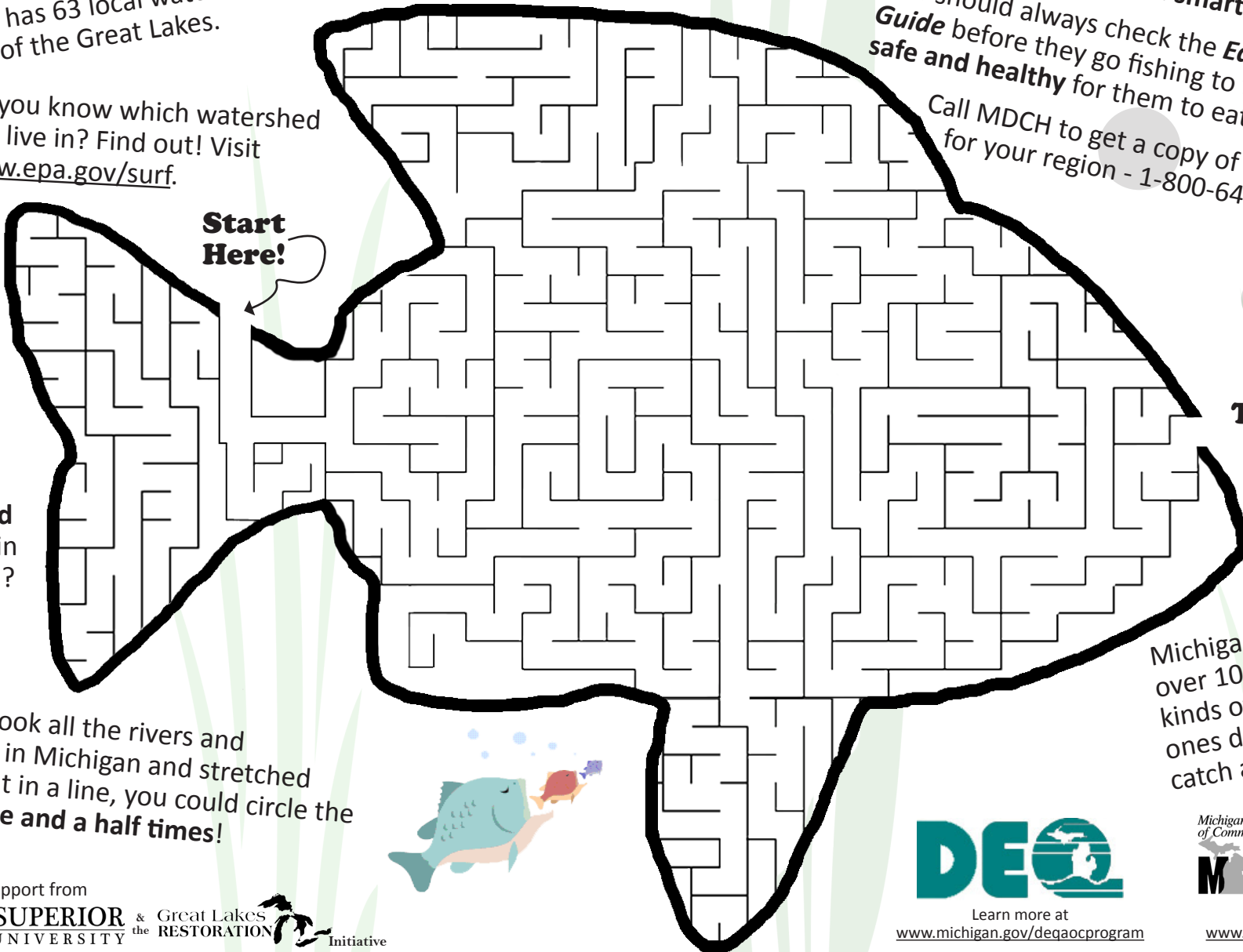
A **watershed** is an area of the state where all the water that drains off of it goes to the same place. Michigan has 63 local watersheds, and each flows into one of the Great Lakes.

Do you know which watershed you live in? Find out! Visit www.epa.gov/surf.

Did you know there are over **11,000 lakes, rivers and streams** in Michigan?

If you took all the rivers and streams in Michigan and stretched them out in a line, you could circle the Earth **one and a half times!**

Start Here!



The End!

Michigan is home to over 100 different kinds of fish. Which ones do you like to catch and eat?

FIND your way to safe fish!
Most fish are healthy to eat and help kids like you grow up **strong and smart!**
Kids should always check the **Eat Safe Fish Guide** before they go fishing to find fish that are **safe and healthy** for them to eat!
Call MDCH to get a copy of the **Guide** for your region - 1-800-648-6942.

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Learn more at www.michigan.gov/deqaocprogram

Michigan Department of Community Health

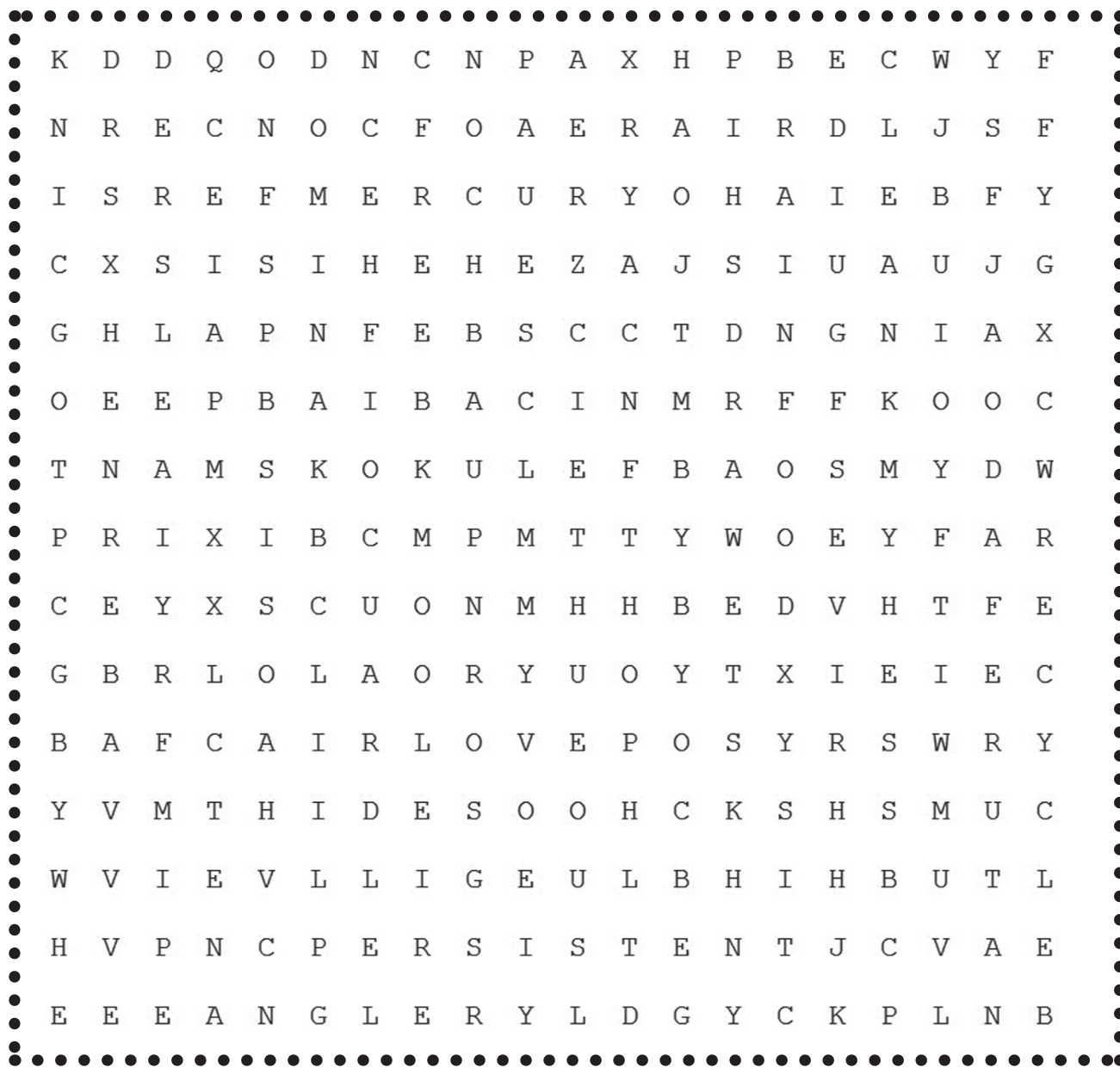


Learn more at www.michigan.gov/eatsafefish





Eat Safe Fish! ♥ Your Watershed!



All of these words are about choosing safe fish to eat and your environment. How many words can you find?

BLUEGILL	CHEMICALS
PERCH	BRAIN FOOD
CRAPPIE	HEALTHY
ROCK BASS	SAFE
PUMPKINSEED	WATERSHED
CHOOSE	STEWARDSHIP
CLEAN	RECYCLE
COOK	BUI
FILET	NATURE
FISH	ENVIRONMENT
ESF GUIDE	LOVE
PCBs	HOOK
DIOXIN	BOBBER
MERCURY	FISHING
PERSISTENT	ANGLER
AREA OF CONCERN	
BIOACCUMULATIVE	



Learn more at
www.michigan.gov/deqaocprogram

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