



Mercury Exposure

and Prevention

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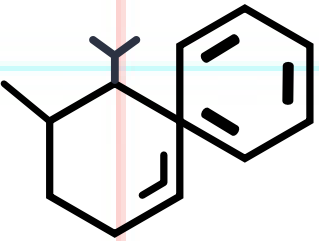
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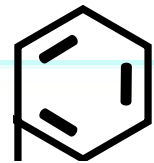
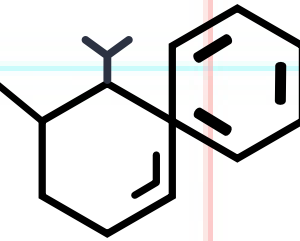
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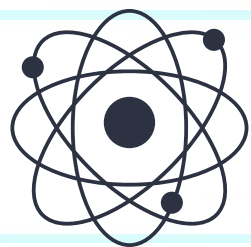
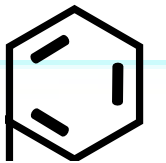
Introduction to Chemistry



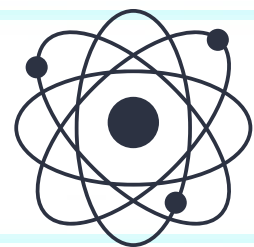
Chemical compounds and chemical mixtures are combinations of different types of elements.



Chemicals that are made up of one type of atom are elements.



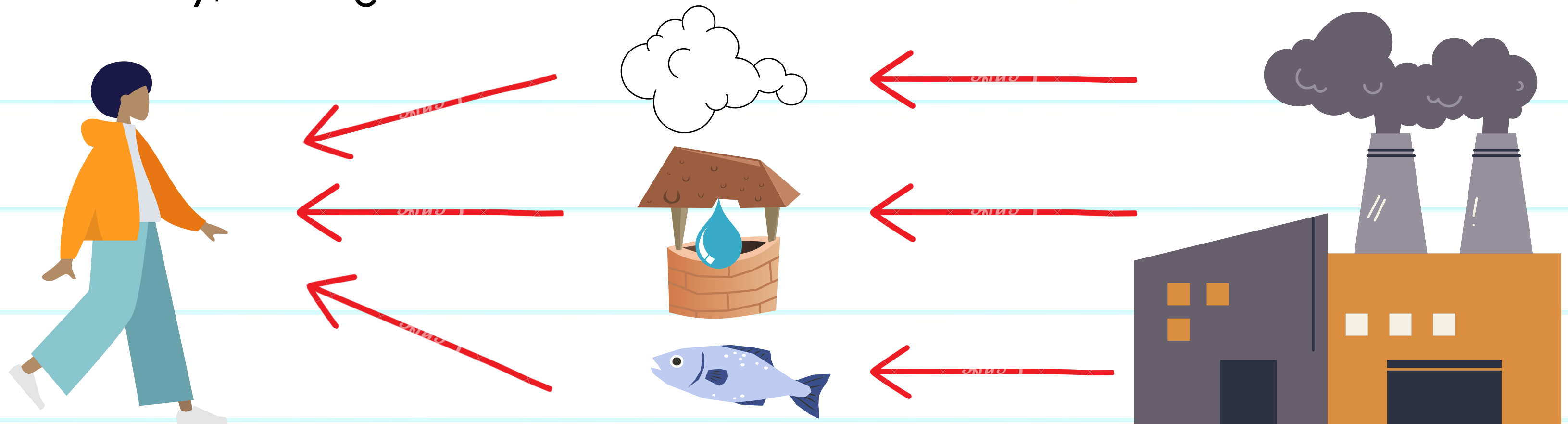
Atoms are the building blocks for all things in the universe because they make up everything.



Introduction to Chemistry

Human Exposure

When a person comes in contact with a chemical this is called exposure. Chemicals can get into the body through eating, drinking, breathing, and occasionally, through skin contact.

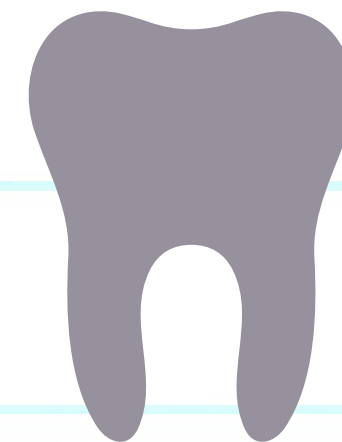
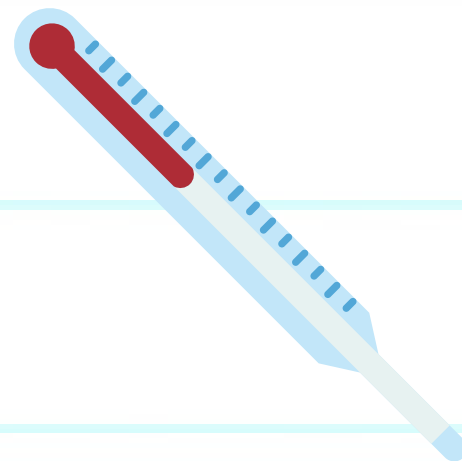


About Mercury

Mercury is an element that is a metal and is naturally part of Earth's environment. In nature, mercury will combine with other substances to create chemical mixtures or compounds.



Mercury was used in common items like batteries, thermometers, and dental fillings before we discovered that it was harmful to people's health.

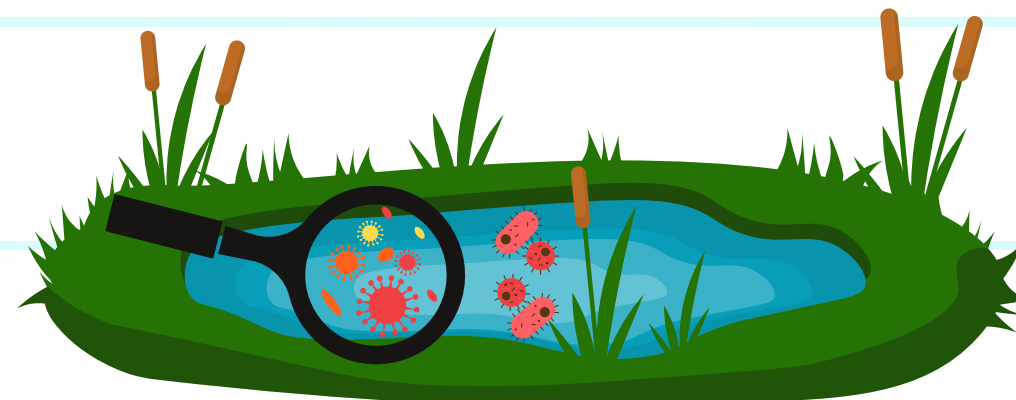


About Mercury

Mercury is a silver liquid. **It can evaporate into the air** and is then odorless and colorless, making it difficult to tell when you've been exposed.

When mercury gets into the air **it can travel and settle on rivers, lakes or on land,** and then be **washed into bodies of water.**

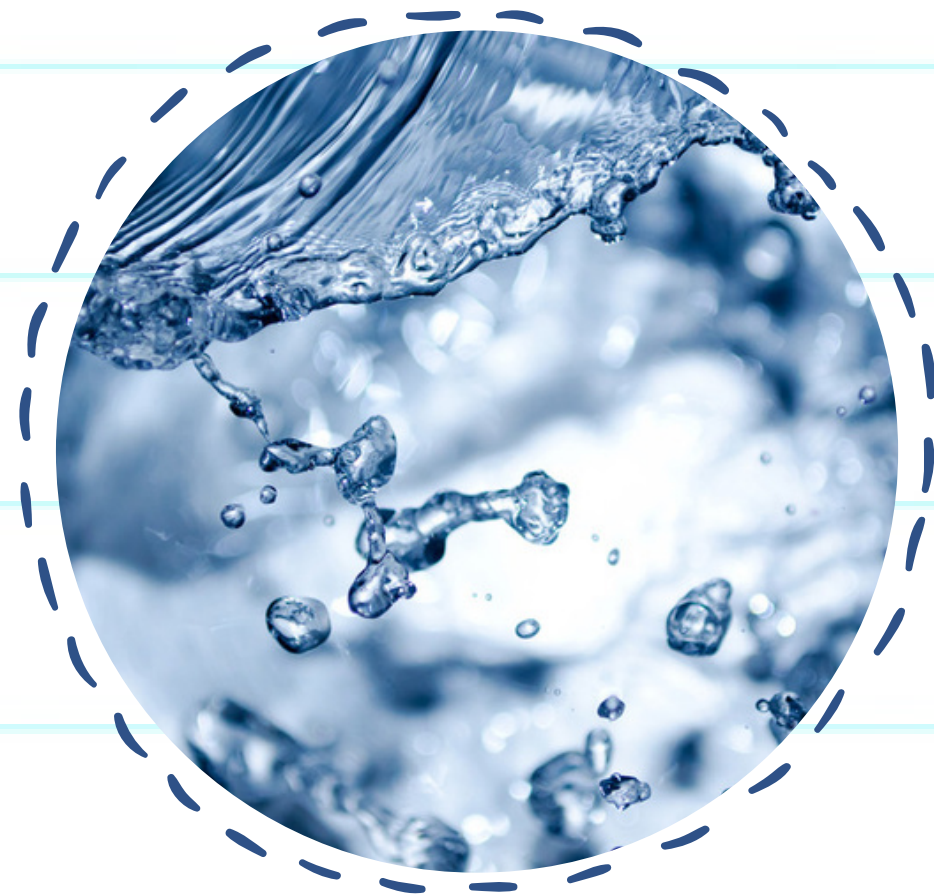
Methylmercury is one form that mercury takes after microorganisms in those bodies of water change it. Americans are most commonly exposed to methylmercury.



Ways to be Exposed to Mercury

Mercury can be found in:

Water



Soil

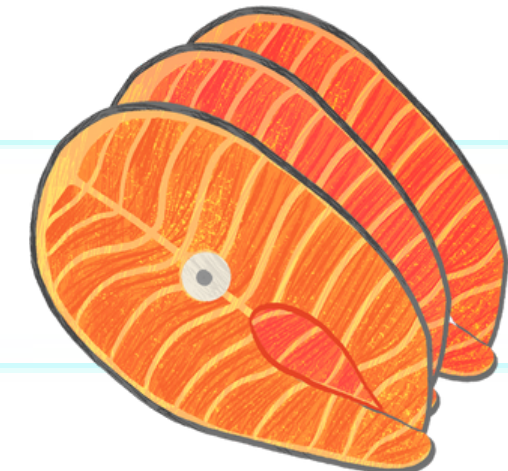


Air



Ways to be Exposed to Mercury

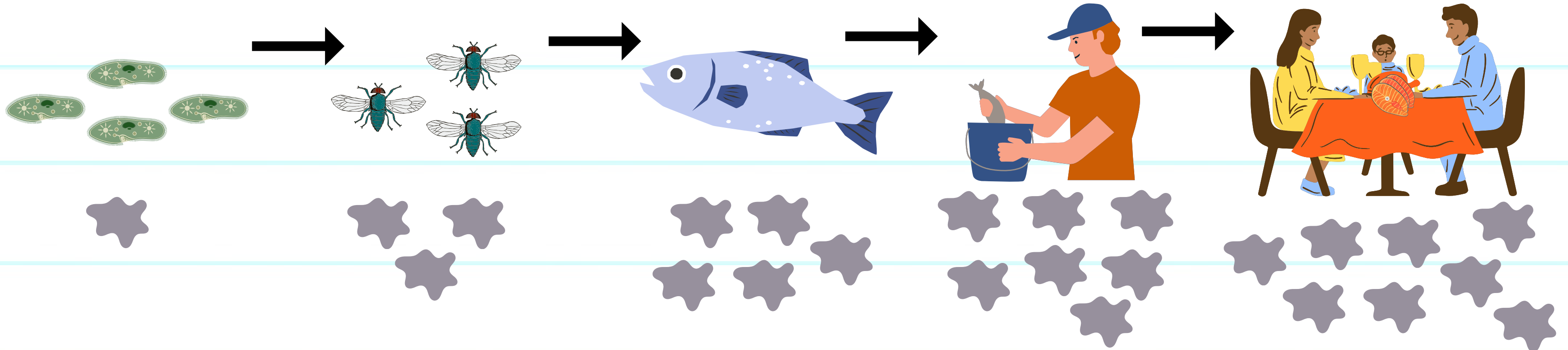
The majority of people in the United States are exposed to mercury through **eating contaminated seafood.**



Ways to be Exposed to Mercury

Microorganisms in bodies of water change mercury into methylmercury. These organisms are consumed by larger fish and shellfish, as shown below. The fish and shellfish are then caught and consumed by humans.

The amount of methylmercury increases as you move up the food chain.



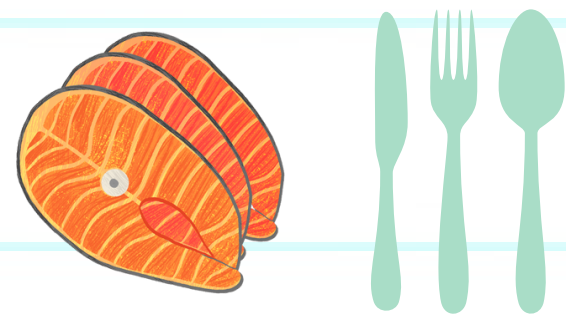
What happens when mercury enters my body?

What happens next depends on how and how much mercury gets into your body.

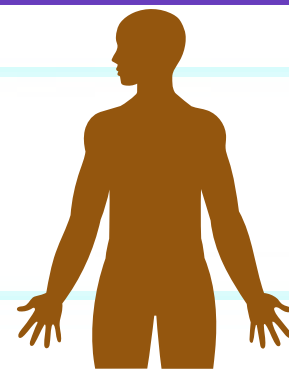
Note: The majority of Americans are exposed to mercury by eating contaminated food, so we will focus on this route of exposure.

There are different steps to how mercury moves throughout the body.

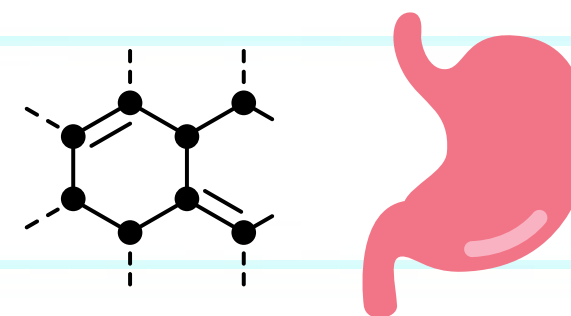
1. Absorption -
The manner in which
and amount of
mercury that gets into
the body.



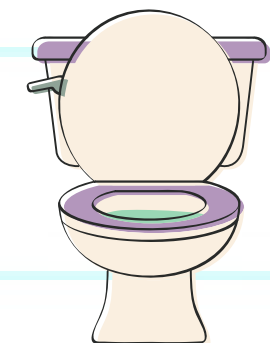
2. Distribution -
Where mercury
travels after it enters
the body.



3. Biotransformation -
How the body attempts
to make mercury less
toxic by modifying its
chemical structure.



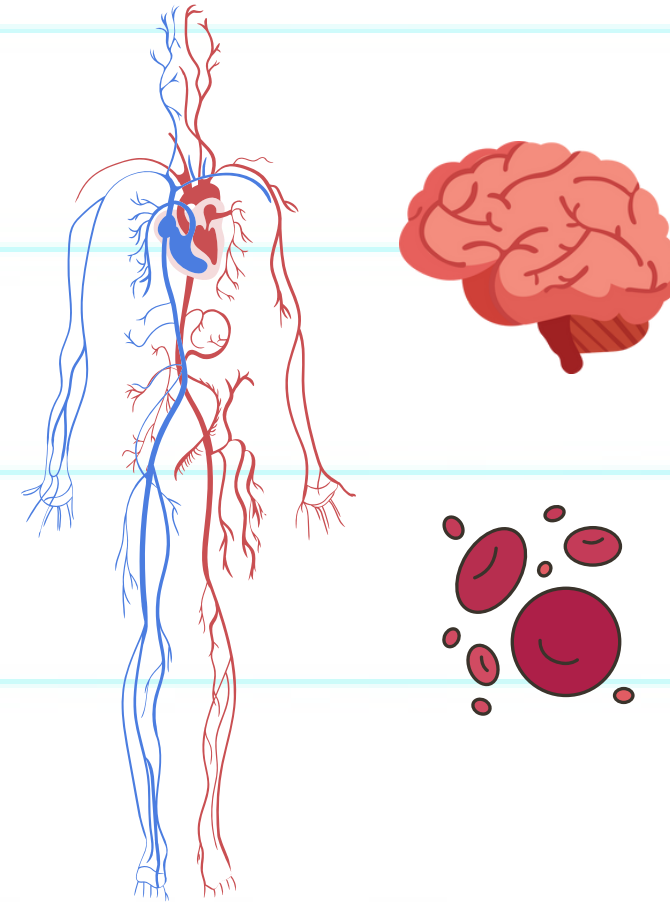
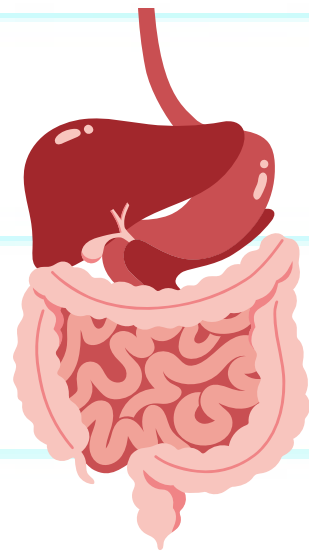
4. Excretion - How
mercury leaves the
body.



Note: Mercury refers to organic mercury or methylmercury.

What happens when mercury enters my body?

Absorption - Studies show that the GI tract (mouth, stomach, esophagus, intestines, anus) absorbs nearly all (100%) of ingested mercury.



Biotransformation - Mercury transforms in the brain to inorganic mercury.

Distribution - In the blood, most mercury is transported via red blood cells and accumulates in the brain.

Excretion - Inorganic mercury takes a long time to leave the body. After several months, it will leave primarily in the feces.

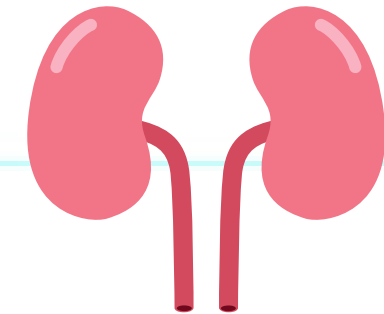
Note: Mercury refers to organic mercury or methylmercury.

Potential Health Problems

Just because you have been exposed to mercury does not mean that you will feel sick or have any health problems.



Mercury primarily affects



The Nervous System

- **Brain**
- **Spinal cord**
- **Nerves**

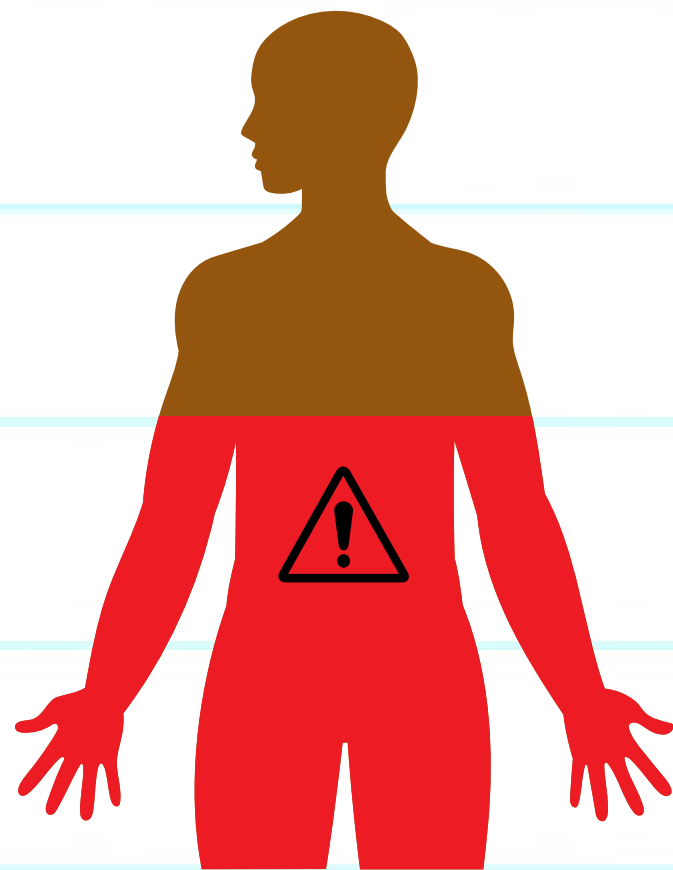
Kidneys

Potential Health Problems

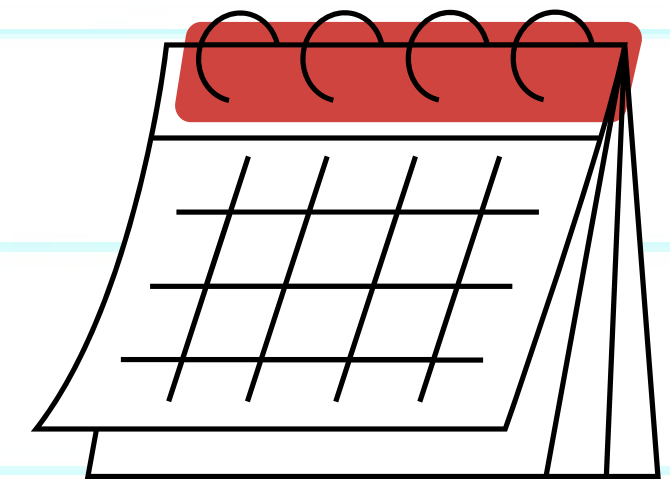
Just because you have been exposed to mercury does not mean that you will feel sick or have any health problems.

Health symptoms depend on:

1. How much mercury gets into your body



2. How and how long you are exposed to mercury.



Potential Health Problems

The Environmental Protection Agency and International Agency for Research on Cancer have determined that methylmercury ***can possibly cause cancer in humans.***

Although not common, people exposed to high levels of methylmercury through eating contaminated seafood might experience certain health effects.

Symptoms of High Mercury Exposure

Just because you have been exposed to mercury does not mean that you will feel sick or have any health problems.

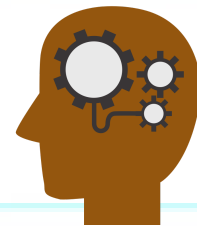
Impairment of coordinated movements such as walking or writing.



Impaired speech, hearing, and peripheral vision.



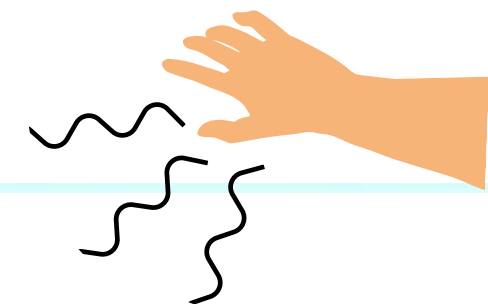
Mood swings and memory loss.



Muscle weakness.



Numbness and a "pins and needles" feeling in the hands, feet and sometimes around the mouth.



Skin rashes.

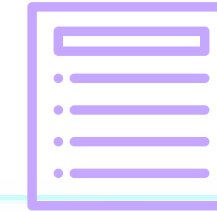


Reducing Future Exposure

Fish are an important part to a healthy diet, as a low calorie source of protein. They provide essential nutrients for adults and children.



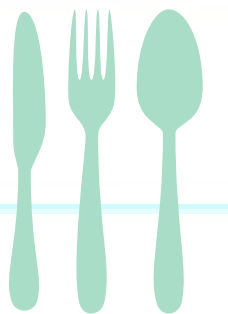
General guidelines exist for safely including fish in your diet.



Consumption advisories will be issued when fish are not safe to eat.



The best way to reduce your exposure to mercury is to follow these fish consumption advisories and guidelines.



Note: Fish refers to both fish and shellfish.

National Fish Consumption Guidelines




Choose a variety of fish that are lower in mercury.

While it is important to limit mercury in the diets of those who are pregnant or breastfeeding and children, many types of fish are both nutritious and lower in mercury.


This chart can help you choose which fish to eat, and how often to eat them, based on their mercury levels.

What is a serving? As a guide, use the palm of your hand.



Pregnancy and breastfeeding:
1 serving is 4 ounces

Eat 2 to 3 servings a week from the “Best Choices” list (OR 1 serving from the “Good Choices” list).



Childhood:
On average, a serving is about:


- 1 ounce at age 1 to 3
- 2 ounces at age 4 to 7
- 3 ounces at age 8 to 10
- 4 ounces at age 11


Eat 2 servings a week from the “Best Choices” list.

Best Choices			Good Choices		
Anchovy	Herring	Scallop	Bluefish	Monkfish	Tilefish (Atlantic Ocean)
Atlantic croaker	Lobster, American and spiny	Shad	Buffalofish	Rockfish	Tuna, albacore/white tuna, canned and fresh/frozen
Atlantic mackerel	Mullet	Shrimp	Carp	Sablefish	Tuna, yellowfin
Black sea bass	Oyster	Skate	Chilean sea bass/Patagonian toothfish	Sheepshead	Weakfish/seatrout
Butterfish	Pacific chub mackerel	Smelt	Grouper	Snapper	White croaker/Pacific croaker
Catfish	Perch, freshwater and ocean	Sole	Halibut	Spanish mackerel	
Clam	Pickering	Squid	Mahi mahi/dolphinfish	Striped bass (ocean)	
Cod	Plaice	Tilapia	Choices to Avoid HIGHEST MERCURY LEVELS		
Crab	Pollock	Trout, freshwater	King mackerel	Shark	Tilefish (Gulf of Mexico)
Crawfish	Salmon	Tuna, canned light (includes skipjack)	Marlin	Swordfish	Tuna, bigeye
Flounder	Sardine	Whitefish	Orange roughy		
Haddock		Whiting			
Hake					

What about fish caught by family or friends? Check for [fish and shellfish advisories](#) to tell you how often you can safely eat those fish. If there is no advisory, eat only one serving and no other fish that week. Some fish caught by family and friends, such as larger carp, catfish, trout and perch, are more likely to have fish advisories due to mercury or other contaminants.

www.FDA.gov/fishadvice
www.EPA.gov/fishadvice

 U.S. FOOD & DRUG ADMINISTRATION

 United States Environmental Protection Agency

Note: Fish refers to both fish and shellfish.

Source: EPA

Glynn County Fish Consumption Guidelines

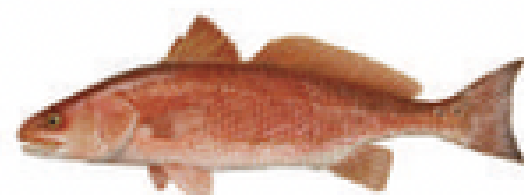
Consumption Guidelines for Advisory Area

NO LIMIT – EAT AS OFTEN AS YOU LIKE



Shrimp*

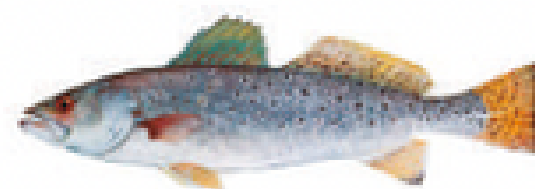
EAT ONLY ONCE PER WEEK



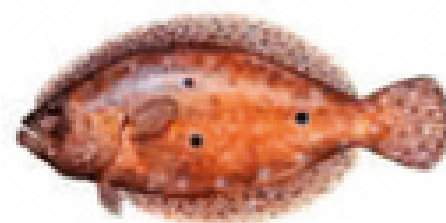
Red Drum (Red Fish)



Blue Crab



Spotted Seatrout



Flounder

EAT ONLY ONCE PER MONTH



Spot*



Black Drum



Striped Mullet*



Whiting

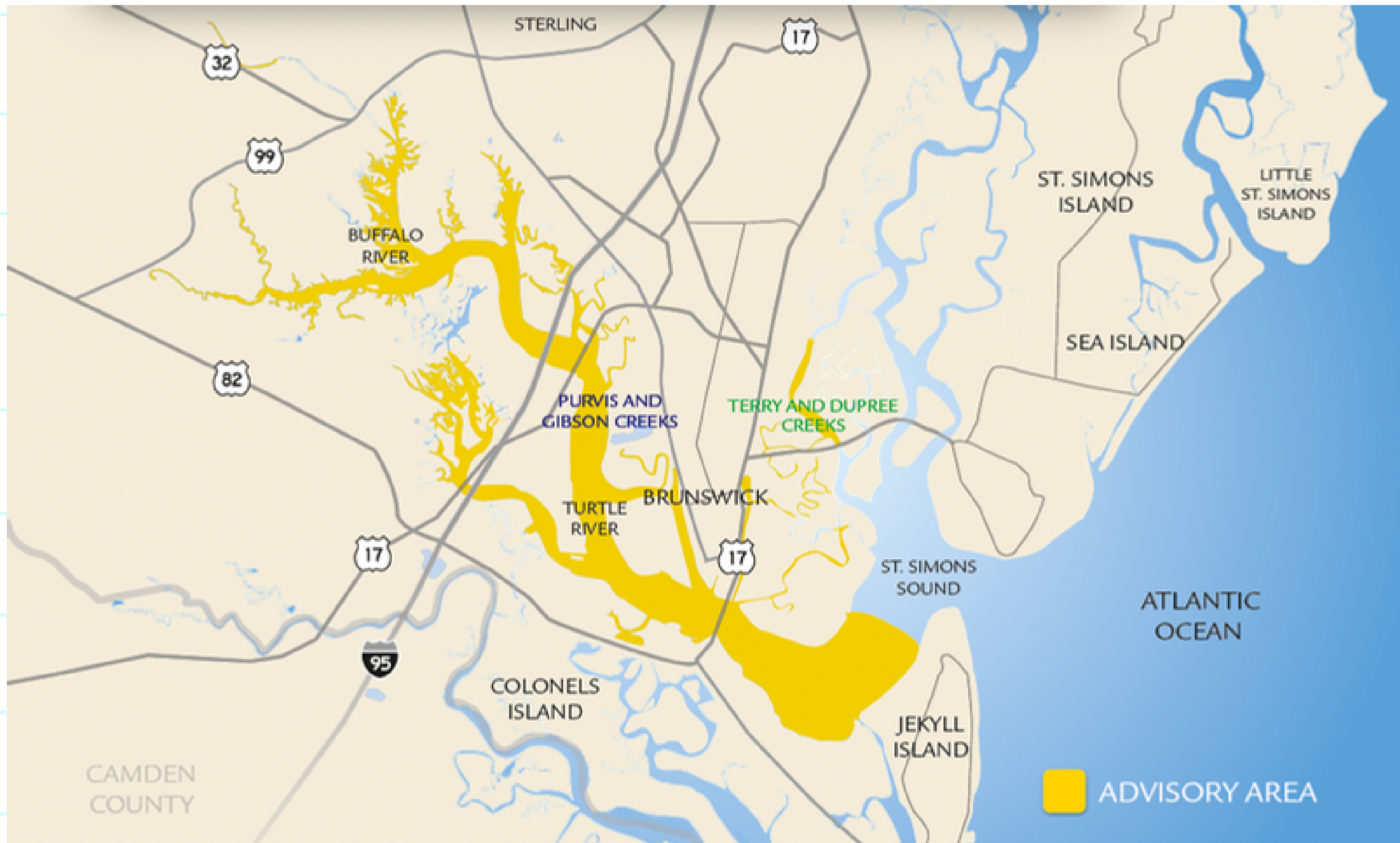


Atlantic Croaker*



Sheepshead

**Purvis and Gibson Creeks and the adjoining area of Turtle River: Eat Shrimp only once per month; Do not eat Atlantic Croaker or Spot or Striped Mullet; Terry and Dupree Creeks: Do not eat Spot; Buffalo River: Do not eat Striped Mullet.*



Source: GEC

Cooking Methods to Reduce Risk

GOOD

Broiling
Baking
Grilling

POOR

Pan frying

OKAY

Deep-fat frying
(do not reuse oil)

Women and Small Children

Children under seven and women who are pregnant, nursing, or may become pregnant should:

- **not eat mullet from advisory areas**
- **limit meals of fish and blue crabs to one per month from advisory areas**

Don't stop eating fish and seafood. They provide one of the best sources of protein and Omega-3 fatty acids. Get seafood from other sources than advisory areas.

Resources

The resources listed below work on issues related to health and/or environmental pollution in Glynn County.

Emory University

Phone: 404-727-0250

Email: BrunswickExposure@emory.edu

One Hundred Miles

Website: <https://onehundredmiles.org/>

Phone: (912) 264-4111

Email:

Glynn County Health Department

Phone: (912) 264-3961

Website: <https://bit.ly/3NkOIFv>

Environmental Justice Advisory Board

Website: environmentaljusticeadvisoryboard.org

Phone: (912) 398-9923

Email: ejab.brunswick@gmail.com

Coastal Community Health

Website: <https://coastalchs.org/>

Phone: 912-275-8028

Email:

EcoAction

Phone: 470-963-0389

Email: info@eco-act.org

Glynn Environmental Coalition

Website: <https://www.glynnenvironmental.org/>

Phone: (912) 466-0934

Email: GEC@glynnenvironmental.org

UGA Marine Extension and Sea Grant

Website: www.gacoast.uga.edu/

Phone: 912-264-7268

Email: klaustina@uga.edu

Rebuilding Together of Glynn County

Phone: 912-398-9923

Website: rebuildglynncounty.org

Coastal Equity and Resilience Hub

Website: cearhub.org

Sources

Agency for Toxic Substances and Disease Registry.

Environmental Protection Agency.

Glynn Environmental Coalition