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## PFAS: "Forever Chemicals" that seem to be everywhere

Imagine a chemical so tough it doesn't break down in nature, can travel through air and water, and ends up in our blood, food, and even rain. These are PFAS—short for per- and polyfluoroalkyl substances—a group of over 5,000 man-made chemicals used in everything from non-stick pans to waterproof clothing.

## Why Should You Care About PFAS?

The toughness makes them really good for their uses, but really bad for the environment because they just don't go away. After their introduction into products after the end of WWII, they have been building up in the environment. As one type of PFAS is discontinued, other versions may come into use. When this happens, changes in the concentrations of those discontinued decrease and the replacements increase. PFAS have been found in:

- Drinking water
- Rain and snow
- Food packaging
- Makeup and personal care products
- Household dust
- Firefighting foams
- Soil and wastewater

## Health Risks of PFAS

Studies show that over 200 million Americans may be drinking water with PFAS levels above safe limits (See: Population-Wide Exposure to Per- and Polyfluoroalkyl Substances from Drinking Water in the United States | Environmental Science & Technology Letters). And nearly all of us have some PFAS in our blood. Detecting PFAS in our bodies is the first step to determine if PFAS are a problem for humans. Then there needs to be a link to health problems due to PFAS exposure. This is challenging and expensive research to conduct. Health risks are determined by each type of PFAS and the possible

health problem. The science in this area continues to grow. So far research links PFAS exposure to serious health problems:

- Certain cancers (kidney, prostate, testicular, breast)

- Hormone disruption such as thyroid disease

- High cholesterol

- Immune system effects (like reduced vaccine response and ulcerative colitis)

-Liver enzyme alterations

- Developmental issues in infants and children

See: Guidance on PFAS Exposure, Testing, and Clinical Follow-Up | The National Academies Press

**How Do PFAS Get Into the Environment?**

PFAS can enter the environment through:

- Industrial discharges

- Air emissions from factories that use or manufacture PFAS

- Wastewater and stormwater runoff

- Biosolids (fertilizer from treated sewage)

- Everyday products that shed PFAS into dust or water

**What's Being Done About It?**

Because of the health risks at very low levels of exposure and widespread presence of these compounds, the U.S. Environmental Protection Agency (EPA) set new drinking water standards for six PFAS chemicals. They were finalized in 2024 with four newer PFAS under reconsideration with the administration change in 2025. There are Effluent Limitations Guidelines (ELGs) for PFAS under the Clean Water Act (CWA). The EPA is actively working to limit PFAS discharges from various industrial categories. In fact, EPA has a PFAS Strategic Roadmap, so expect more efforts to curb PFAS entering the environment. See: Key EPA Actions to Address PFAS | US EPA

**PFAS Levels in Lake Erie**

### 1. In Surface Water

An Indiana University study evaluated PFAS levels in the Great Lakes and also how the PFAS get into the lakes in the first place. Precipitation is a large contributor of PFAS to Lake Superior but less important in Lake Erie and Lake Ontario. In flow from the other Great Lakes is the largest source of PFAS into Lake Erie and Lake Ontario. Also, the median concentrations of PFAS generally get bigger as water travels from Lake Superior (1.3 ng/L) to Lake Michigan (8.3 ng/L to Lake Huron (5.3 ng/L) to Lake Erie (7.3 ng/L) to Lake Ontario (11 ng/L). The PFAS detected at the highest concentrations in lake water and precipitation were PFBA and PFPeA, smaller PFAS that are not regulated.

See: Forever Chemicals Are Raining Down on the Great Lakes - Eos

### 2. In Fish Lake Erie

The Environmental Working Group collects data from EPA and other sources creating a map of measured levels in fish. There are a number of measurements from fish in Lake Erie. **PFAS levels range from 7 to 75 parts per billion (ppb)** in fish from Lake Erie. The high value is one of the highest levels recorded among freshwater fish.

See: Interactive map: 'Forever chemicals' in freshwater fish

Some states, like Michigan, are incorporating PFAS into their Eat Safe Fish Guide. For Lake Erie, it recommends no more than 6 servings per year for Walleye with PFOS being a chemical of concern. While research is still emerging on how PFAS get into our bodies, diet is thought to be a primary way PFAS ends up in us.

See: SE_EAT_SAFE_FISH_GUIDE_-_SOUTHEAST_MI_WEB.pdf

### Can We Remove PFAS?

Current technologies can **remove** PFAS from water, but they don't destroy them—they just move the problem elsewhere. Scientists are working on **destruction technologies**, like using ultrasound, which shows promise in breaking PFAS down into harmless components. However, with PFAS so widespread in our waters, it is not practical to actively remove PFAS from Lake Erie.

### What Can You Do?

**Be aware** of products labeled "waterproof" or "stain-resistant"—they may contain PFAS.

-Check your local water quality reports to learn levels locally.

- **Support policies** that limit PFAS use and fund cleanup efforts.

## Other Resources

Environmental Protection Agency. (2025). Per- and Polyfluoroalkyl Substances (PFAS) | US EPA. Retrieved from [EPA] https://www.epa.gov/sdwa/and-polyfluoroalkyl-substances-pfas

Feeding the Waste Cycle: How PFAS 'Disposal' Perpetuates Contamination | Environmental Working Group https://www.ewg.org/news-insights/news/feeding-waste-cycle-how-pfas-disposal-perpetuates-contamination