

## **Per- and Polyfluoroalkyl Substances (PFAS) in Fish**

### **What is PFAS?**

PFAS, or per- and polyfluoroalkyl substances, are a group of man-made chemicals that include PFOA, PFOS, GenX and other chemicals. The manufacture of PFAS started in the 1950s, and they are commonly found in products that resist stains, oil, grease, water and heat. Such products include non-stick cookware, food packaging, textiles, moisture-resistant paper coatings and fire-fighting foam. PFAS has also been used in the electronics, automotive, aerospace and automotive industries as well. PFAS chemicals can be found in the air, soil and water after release or from the use and disposal of products containing PFAS. They breakdown slowly in the environment.

The main sources of exposure to PFAS are contaminated food and drinking water. People can also be exposed to PFAS through the use and disposal of consumer products that contain PFAS. Individuals who work at facilities that produce PFAS or use PFAS in the manufacture of goods may be exposed through certain occupational settings or contaminated air.

### **PFAS and Health**

Research is ongoing into the health effects of PFAS. Right now there are many unknowns. Exposure to PFAS or having PFAS in your body does not mean you will have health problems related to PFAS. Some studies have found the following effects linked to PFAS:

- Increased cholesterol levels
- Increased chance of cancer, especially kidney and testicular cancers
- Increased chance of thyroid disease
- Increased chance of high blood pressure in pregnant women
- Decreased chance of a woman getting pregnant
- Changed immune response

Talk to your doctor if you have concerns about your health. It is always good to get regular check-ups.

### **PFAS in Fish**

PFOS, or perfluorooctane sulfonate, is the specific PFAS that accumulates to levels of concern in fish. It hasn't been manufactured in the United States since 2002, but it is manufactured internationally and can be found in imported goods. Fish in some Indiana waterbodies have levels of PFOS that require reducing their consumption. PFOS is stored in the meat of the fish, so preparation and cooking does not reduce the amount of contaminant that you get from eating it. To reduce your PFOS intake, follow the advice of the Indiana Fish Consumption Advisory.

Fish are a good source of lean protein and contain essential vitamins and minerals. Fish should be a part of a varied, healthy diet and should be eaten in moderation and not avoided. Pregnant women and women who may become pregnant should eat fish because it promotes eye and brain development in babies.

The Indiana guidelines for setting fish consumption advisories for PFOS are based on the 2016 U.S. EPA Drinking Water Health Advisory reference dose. Some waterbodies have fish advisories that are driven by PFOS, but mercury and polychlorinated biphenyls (PCBs) are the primary drivers of fish consumption advisories for Indiana waterbodies. PFOS testing for fish in Indiana waterbodies is an on-going effort.

**Resources:**

Indiana Fish Consumption Advisory: <https://www.in.gov/isdh/23650.htm>

EPA Technical Fact Sheet- Perfluorooctane Sulfonate (PFOS) and Perfluorooctanoic Acid (PFOA): [https://www.epa.gov/sites/production/files/2017-12/documents/ffrrofactsheet\\_contaminants\\_pfos\\_pfoa\\_11-20-17\\_508\\_0.pdf](https://www.epa.gov/sites/production/files/2017-12/documents/ffrrofactsheet_contaminants_pfos_pfoa_11-20-17_508_0.pdf)

ATSDR Perfluoroalkyls-ToxFAQs: <https://www.atsdr.cdc.gov/toxfaqs/tfacts200.pdf>

PFAS Exposure and Your Health:

[https://www.michigan.gov/documents/pfasresponse/2019-4-23\\_PFAS\\_Exposure\\_and\\_Your\\_Health\\_-\\_APPROVED\\_WEB\\_653460\\_7.pdf](https://www.michigan.gov/documents/pfasresponse/2019-4-23_PFAS_Exposure_and_Your_Health_-_APPROVED_WEB_653460_7.pdf)

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