

Division of Water: PFAS testing of fish

Frequently Asked Questions

1) What is PFAS?

ANSWER: Per- and polyfluoroalkyl substances, often referred to as PFAS, are a large group of manufactured chemicals that have been widely used for decades to make water resistant, stain resistant, or non-stick products. They have been used in such products as non-stick cookware, stain-resistant carpets, and water-resistant outdoor clothing. They are incorporated into industrial processes and have also been used in foam for fighting fires. The strong chemical bonds in PFAS make them resistant to breaking down; consequently, they can persist in the environment for a very long time and even build up in people, fish, and wildlife.

2) Does the state Department for Environmental Protection (DEP) regulate them?

ANSWER: These are unregulated compounds in Kentucky. The state DEP follows the guidance of the U.S. Environmental Protection Agency (EPA), which issues health advisories for some PFAS but does not have a water or fish tissue regulatory standard. The EPA's interim health advisories in *drinking water* for the most common PFAS found in fish are 0.004 parts per trillion (ppt) for PFOS and 0.02 ppt for PFOA. The EPA is developing drinking water regulations and evaluating water quality criteria for PFAS. Additional details of the agency's overall strategy regarding PFAS can be found in the [PFAS Strategic Roadmap](#) (2021).

3) What are the known health effects of PFAS?

ANSWER: Studies have shown that higher levels of PFAS exposure over time are associated with a wide range of human health effects, such as lower birth weights, decreased fertility, reduced response to vaccines, higher cholesterol, thyroid disease, liver damage, and some cancers.

4) Why did the state test fish?

ANSWER: The DEP undertook the sampling as the latest part of its multi-year effort to understand and communicate to the public the extent of PFAS contamination in the state's environment. The DEP began testing state waters for PFAS in 2019 by sampling drinking water from 81 community public drinking water treatment plants across the state. Results from that study are summarized in this [report](#), available on the Division of Water's [PFAS webpage](#). In 2020, DEP collected and analyzed water samples from 40 surface water locations statewide. Results from that [study](#) are also available.

5) Where did the fish tissue come from?

ANSWER: The DEP caught and sampled fish from Gunpowder Creek in Boone County, South Elkhorn Creek in Woodford County, and West Hickman Creek in Jessamine County, in late 2021 and early 2022 on fish tissue previously collected from 13 lakes: Boltz Lake,

Lake Carnico, Cave Run Lake, Cedar Creek Lake, Elmer Davis Lake, Fagan Branch Lake, Guist Creek Lake, Herrington Lake, Liberty City Lake, Sand Creek Lake, Shanty Hollow Lake, South Lake as well as W FK Drakes Reservoir.

6) What did the fish tissue testing show?

ANSWER: The testing showed levels of PFOS that ranged between 4.60 and 49.7 parts per billion (ppb). Sixteen other PFAS were detected at concentrations of 18 ppb or less.

7) Is it still safe to eat fish that are caught from Kentucky waters?

ANSWER: Fish are an important nutritional food source of lean protein, vitamins and minerals, and omega-3 fatty acids and are important for child development, heart health, and a well-balanced diet. So, the public should consider a variety of sources, including locally caught fish, store-bought fish, and fish available at dining establishments.

Fish in some areas of the state may have higher levels of some contaminants such as polychlorinated biphenyls (PCBs), mercury, or PFOS that could pose some health risks. Fish consumption guidance, including recommended consumption thresholds for mercury and PCBs is available on both the [Department of Fish and Wildlife Resources](#) and [Division of Water's](#) web pages.

Staff from the Departments for Environmental Protection (DEP), Fish and Wildlife Resources, and Public Health (DPH) are currently reviewing the latest information provided by the US EPA on June 15, 2022 on exposure levels and health effects for certain PFAS, including PFOS. Staff are actively engaged in communicating with the US EPA, as well as public health and environmental protection staff across the nation on appropriate approaches for incorporating the latest available scientific information into recommendations on fish consumption relating to PFAS.

To lower potential health risks associated with PFAS, the DEP and the departments of Fish and Wildlife Resources, and Public Health recommend that citizens follow existing statewide fish consumption guidance for mercury and other site-specific advisories. These are intended to help citizens make informed choices and balance the health benefits of consuming fish with potential health risks.

Current guidance recommends that the general population eat no more than one meal per month of predatory fish and no more than one meal per week of panfish and bottom feeder fish. Currently, statewide guidance for sensitive populations, such as women of childbearing age, young children, pregnant or nursing women, and women who plan to become pregnant, recommends eating no more than six meals per year of predatory fish and no more than one meal per month of panfish and bottom feeder fish.

Recent information from the EPA indicates that infants and young children may be particularly sensitive to some health effects associated with PFAS related compounds. At

this time, it is recommended that sensitive populations exercise additional caution when making choices on the frequency and quantity of fish consumed from state waters.

8) What fish were tested?

ANSWER: Fish species collected and tested included largemouth bass and smallmouth bass, rock bass, rainbow trout, bluegill, green sunfish, and longear sunfish. The full report can be found [here](#).

9) Are there ways to prepare fish to reduce PFAS levels prior to consumption?

Unfortunately, due to the chemical properties of PFAS and how they accumulate in fish, they cannot be removed through cleaning, cooking, or avoiding fatty tissues or organs.

10) Are some fish species safer to consume than others?

Some PFAS such as PFOS can build up in fish tissue over time. Although research is ongoing, some studies suggest that fish species commonly referred to as panfish (bluegill, crappie, and other sunfish), as well as black bass tend to have higher levels of some PFAS.

11) Will the state test other fish and water bodies?

ANSWER: The initial fish testing focused on streams that were suspected to have higher PFAS levels. The DEP continues to investigate the occurrence of PFAS across the state. Monitoring of PFAS in fish continues in 2022 to better understand the levels of PFAS present in our many rivers, lakes, and streams. These results will continue to be reviewed by the DEP, Department for Public Health and the Department of Fish and Wildlife Resources. The Division of Water maintains PFAS information for Kentucky waters on its [PFAS web page](#). Although fish contaminant data for PFAS are limited at present, more information will be added as additional waterbodies are sampled.

12) If PFAS is in fish, could it be in other wild and domestic or game animals?

ANSWER: PFAS is spread most through air and water. If wild or domestic animals live in a compromised aquatic environment or eat grass where the soil has concentrations of PFAS, then studies show it will likely bioaccumulate in them.