

PFOS in Recreationally Caught Freshwater Fish

Questions and Answers

What are PFAS?

PFAS refers to a family of chemicals known as per- and polyfluoroalkyl substances. PFAS have been used for a long time in many household and industrial products. These chemicals have been used to make products repel water and resist stains and grease. PFAS have been used in carpets, fabric, clothing, food packaging, pots and pans, and personal care products. PFAS are also key ingredients in some fire-fighting foams. Some PFAS chemicals are no longer used in manufacturing. Some of these chemicals can persist for a very long time once released into the environment and can also remain in our bodies long after our exposure has ended.

Why is PFAS in freshwater fish?

PFAS found in freshwater fish are typically connected to sites that are associated with historical use of PFAS-containing products. These sites include areas with historical use of firefighting foams, landfills, industrial sites that used or processed PFAS, and fields with a history of land-spreading wastewater treatment sludge or other waste products used for fertilizer that contained PFAS. PFAS may have either entered surface waters directly or been transported into ponds and other surface waters during heavy rains or by leaching into ground water. Fish that live in contaminated waterbodies accumulate PFAS in their tissues. The PFAS called perfluorooctane sulfonic acid (PFOS) is the most commonly, and sometimes the only, PFAS detected in fish.

How are PFAS fish consumption advisories established?

Fish consumption advisories are recommendations from the Maine Center for Disease Control and Prevention (Maine CDC) on the amount of fish from a specific waterbody that is safe to consume (e.g., the number of fish meals per week, month, or year). The recommendation is informed by the measured concentration of a specific PFAS (e.g., PFOS) in a sample of fish obtained from a specific waterbody. Generally speaking, the greater the contamination in fish, the less you should consume. Fish consumption advisories apply to the consumption of all fish in a waterbody unless more specific advice is provided.

The Maine CDC follows U.S. Environmental Protection Agency (EPA) guidance to develop fish consumption advisories. The Maine CDC develops chemical-specific fish tissue action levels (FTALs) as a guide to determine the need to develop fish consumption advisories. FTALs are a concentration of a contaminant, in this case PFOS or other PFAS, in fish tissue below which there should be minimal risk of health effects at a fish consumption rate (e.g. number of meals per week, month, or year). Measured concentrations of PFOS in fish tissue are compared to the FTALs and when fish tissue concentrations exceed a FTAL, the development of a fish consumption advisory is considered.

For more information on how Maine CDC developed the PFOS fish consumption advisory, visit the [2024 PFOS Science Brief](#).

Why are PFAS advisories being issued now?

Every fishing season the Maine Department of Environmental Protection (DEP), in collaboration with the Maine CDC and the Maine Department of Inland Fisheries and Wildlife (MDIFW), collects fish from selected waterbodies throughout the state. Waterbodies may be selected because of newly identified potential sources of PFAS contamination (e.g., nearby land with high levels of PFAS in soil, contaminated groundwater that may enter surface waters, known discharges into surface waters) or to expand upon existing fish data to help better inform the boundaries for an existing advisory. The advisories issued this year reflect the latest fish data obtained by the DEP from several waterbodies in areas of the state where there has been growing concern about environmental PFAS contamination.

Should I be concerned about eating fish from other waterbodies throughout the state?

The Maine CDC, in collaboration with Maine DEP and the MDIFW, is evaluating fish tissue data from several waterbodies to determine if additional waterbody-specific fish consumption advisories are needed. State agencies are developing sampling plans for the upcoming summer to collect fish from these and new waterbodies to continue to investigate the presence of PFAS in fish from inland waters.

The existing statewide fish consumption advisory due to the presence of [mercury in fish, along with other water body specific advisories](#), will provide a measure of protection against exposure to PFOS that may be present in fish in untested water bodies while we learn more. The statewide mercury consumption advisory is:

Pregnant and nursing women, women who may get pregnant, and children under age 8 SHOULD NOT EAT any freshwater fish from Maine's inland waters. The exception: It is safe for these groups to consume one meal per month of brook trout OR landlocked salmon.

All other adults and children older than 8 CAN EAT two freshwater fish meals per month. For brook trout and landlocked salmon, the limit is one meal per week.

Preliminary sampling of rivers, lakes, and ponds with no known sources of PFAS contamination all had PFOS concentrations below levels that would require consumption advice more restrictive than the existing statewide fish consumption advisory due to the presence of mercury in fish. Fish caught from these waterbodies are considered safe for consumption, provided that consumers are following the existing consumption guidance.

Is there a way of cleaning or cooking fish to get rid of PFAS?

No. You cannot get rid of PFOS by cooking, cleaning, or removing certain parts of the fish. Maine CDC's fish consumption advisories are based on measured levels of PFOS in the muscle tissue (fillet) of fish, typically skinless filets.

Should I be concerned if I have eaten fish from one of the advisory areas?

Eating fish from one of the advisory areas doesn't necessarily mean that you or your family will become ill. Your risk of any health effects will depend on how much fish you have eaten and how often you eat fish caught from these areas.

If you have questions about your PFOS exposure from eating fish or potential health effects, please

contact one of our toxicologists at 866-292-3474 (toll-free in Maine), 207-287-4311, or Maine Relay 711.

Is it safe to still go fishing if I don't eat the fish?

Yes, unless other site-specific guidance has been issued (e.g., waterbodies on the former Naval Air Station in Brunswick), fishing in waterbodies with a consumption advisory is a safe activity as long as you follow the consumption advice.

Can I safely swim, wade, or boat in waterbodies that have PFAS fish consumption advisories?

Yes, unless other site-specific guidance has been issued (e.g., waterbodies on the former Naval Air Station in Brunswick), potential exposure to PFAS associated with swimming, wading, and boating would be much less than exposure from drinking water or eating fish containing PFAS. These recreational activities are considered safe because they would not result in significant exposure to PFAS and because very little PFAS are absorbed through the skin.

What are the health effects of PFAS?

Scientists are still learning about the possible health effects from exposure to PFAS. Most people have low amounts of these chemicals in their blood because they were used for several decades in many household and industrial products. Regularly eating fish with PFAS can result in higher levels of these chemicals in the blood.

According to a 2022 report from the [National Academy of Sciences, Engineering, and Medicine](#), the following health effects have been identified as having strong evidence for an association with PFAS exposure:

- increased the risk of kidney cancer;
- decreased infant and fetal growth;
- decreased how well an individual responds to vaccinations;
- increased cholesterol levels;

Contact one of our toxicologists if you are concerned about PFAS and your health at 866-292-3474 (toll-free in Maine), 207-287-4311, or Maine Relay 711. If you are a member of the media, please contact Department of Health and Human Services Press Secretary Lindsay Hammes at lindsay.hammes@maine.gov.

