

New Hampshire Lakes PFAS Study May Help Inform Regulatory Standards

By **Natasha A. Corb**

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If you escape for a leisurely weekend of fishing at New Hampshire lakes this summer, you might be able to call yourself a “citizen scientist” if you donate your catch to science. Dartmouth College researchers are collecting fish specimens in order to study per- and poly-fluoroalkyl substances (PFAS) in six lakes in southern New Hampshire.

PFAS consist of a group of over 8,000 chemicals and are known as “forever chemicals” because they rarely react with other chemicals, and are unable to break down naturally. Consequently, they remain in an ecosystem, such as a lake, and continue to move through the food web, which consists of the entirety of an ecosystem's food chains.

Dartmouth researchers are collaborating with the New Hampshire Department of Environmental Services for the study, which is funded in part by the US Geological Survey. Researchers hope to determine how PFAS in lake water and sediment move through the food web into animals higher up in the food chain, such as fish. Scientists will look to see if biomagnification (when a contaminant becomes concentrated at higher levels of the food chain) is a concern for PFAS as it is with mercury.

Because bioaccumulation (the buildup of a contaminant in a single organism over its lifetime) varies in different organisms, regulatory agencies want to know which species have high concentrations of PFAS in order to issue fish consumption advisories. In particular, this study will look at yellow perch, smallmouth and largemouth bass, golden shiners, pumpkinseed, and blue gill sunfish, as well as other fish species.

The Department of Environmental Services has issued [fish consumption advisories](#) due to elevated PFAS levels in five of the six lakes in the study, including Beaver Lake, Canobie Lake, Cobbetts Pond, Horseshoe Pond and Robinson Pond. Arlington Mill Reservoir will also be included in the study, but it has not been previously flagged for elevated PFAS levels in fish. A prior study looked at 14 lakes in heavily populated areas of south central New Hampshire and collected samples of fish tissue, lake water and lake sediment. Yet, despite fish consumption limits, the department does not consider the PFAS concentrations to be high enough to present a risk to swimmers in these lakes.

Efforts to regulate PFAS as a group have been criticized because some PFAS have been studied for toxicity, while others have not. Consequently, some people believe that PFAS regulations should apply to individual chemicals rather than the group as a whole. Research from this study may be used to understand potential health risks associated with PFAS, and to develop federal and state regulatory standards.