

Newer PFAS compound detected for first time in Arctic seawater

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Aboard an icebreaker ship, researchers collected water samples flowing into and out of the Arctic Ocean and analyzed them for PFAS. Credit: Hanna Joerss

Per- and polyfluoroalkyl substances (PFAS), found in many household products and food packages, have raised concerns because of their

persistence and possible toxicity to people and wildlife. Because the compounds don't break down naturally, they have become environmental contaminants. Now, researchers reporting in *Environmental Science & Technology* have studied the transport of 29 PFAS into and out of the Arctic Ocean, detecting a newer compound for the first time in Arctic seawater.

After studies indicated that two PFAS—PFOA and PFOS—can cause cancer, a compromised immune response and other health problems in lab animals, the two compounds were voluntarily phased out by industry. However, these legacy compounds are still widely detected in the environment. Intended as a safer replacement for PFOA, HFPO-DA (sold under the trade name GenX) is now thought to pose similar health and persistence concerns. Hanna Joerss and colleagues wanted to investigate the long-range, oceanic transport of legacy and replacement PFAS to the Arctic Ocean—a remote body of water connected to the Atlantic Ocean by the Fram Strait, which is located between Svalbard and Greenland.

Aboard an icebreaker research ship, the team collected [water samples](#) along two Fram Strait currents entering and exiting the Arctic Ocean and along a path from Europe's North Sea to the Arctic Ocean. Using [mass spectrometry](#), the researchers detected 11 PFAS in the [ocean water](#), including PFOA, HFPO-DA and other long- and short-chain PFAS. This was the first time that HFPO-DA had been detected in seawater from a remote region, indicating that the compound can be transported long distances. Higher levels of PFAS were detected in the water exiting the Arctic Ocean compared with the water entering the Arctic from the North Atlantic. The PFAS composition in the outgoing water suggested that more of these compounds arose from atmospheric sources than from ocean circulation.

More information: "Transport of Legacy Perfluoroalkyl Substances

and the Replacement Compound HFPO-DA through the Atlantic Gateway to the Arctic Ocean—Is the Arctic a Sink or a Source?" *Environmental Science & Technology* (2020).

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