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Foam spill flushes wave of toxic chemicals into troubled Androscoggin River

'We will be dealing with the fallout of this for generations to come,' says Ed Friedman, chairman of Friends of Merrymeeting Bay.

Posted 4:00 AM

Updated 57 mins ago



Penelope Overton Press Herald

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Ed Friedman, the chairman of Friends of Merrymeeting Bay, stands on the edge of the Androscoggin River near Water Street in Brunswick on Friday. He says the spill has “added an almost unfathomable longevity to the river’s pollution problems. We will be dealing with the fallout of this for generations to come.” *Ben McCanna/Staff Photographer*

The Brunswick Executive Airport chemical spill sent thousands of gallons of toxic firefighting foam down the sewer drains bound for the Androscoggin River, which has only recently begun to rewrite its century-long history of industrial pollution.

The pipes carried the spill under the 3,100-acre former naval air station to the sewer plant, where it was treated for some of its nastier contaminants but not the forever chemicals that make aqueous film-forming foam, or AFFF, so dangerous. Its next stop? The Androscoggin.



Treated wastewater, which includes forever chemicals introduced to the sewer system by the Aug. 19 spill at the Brunswick Executive Airport, flows out of an outfall pipe along the Androscoggin River in Brunswick on Friday. The toxic foam spill is a setback for the efforts that have been made to help the river recover from a long history of environmental degradation. *Ben McCanna/Staff Photographer*

Four days after the Aug. 19 spill, the wastewater chugging from a riverbank outfall pipe across from Cow Island clocked in at 11,689 parts per trillion for the six forever chemicals Maine uses to evaluate drinking water safety, according to water quality tests conducted by the Friends of Merrymeeting Bay.

“That was such a shocking number,” said Ed Friedman, a Bowdoinham resident and chairman of Friends of Merrymeeting Bay. “It’s added an almost unfathomable longevity to the river’s pollution problems. We will be dealing with the fallout of this for generations to come.”

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Friedman talked about the invisible threat from the edge of the troubled river that he has come to love. A lone bald eagle lands on a railroad bridge overhead, scanning the river below for just the right fish to eat. This was supposed to be a river on the mend.

The Androscoggin River was destined to power industry, with its 162 miles of vertical drops, rapids, and waterfalls between its New Hampshire origin to where it joins with the Kennebec River in Merrymeeting Bay just below Brunswick. But that also made it vulnerable to overuse, and pollution.

A long history of lumbering, paper mills, agriculture and riverside municipal sewage plants, and landfills added up to make the Androscoggin one of the most polluted rivers in the country. But in the 1950s, both the stench of the river and its repeated fish kills helped turn public opinion toward restoration.

The troubled Androscoggin inspired U.S. Sen. Edmund Muskie, a Rumford Democrat, to champion the federal Clean Water Act. In 2022, on the 50th anniversary of the landmark legislation, [Maine lawmakers voted to upgrade the water quality standard](#) for the lower Androscoggin River from rock-bottom C to B.

That legislation, which Gov. Janet Mills signed, forces regulators to take steps to maintain water quality, a move that over time could have a potentially costly impact on mills, sewage treatment plants and dams. But it couldn't stop an airport sprinkler malfunction from causing Maine's worst toxic foam spill.

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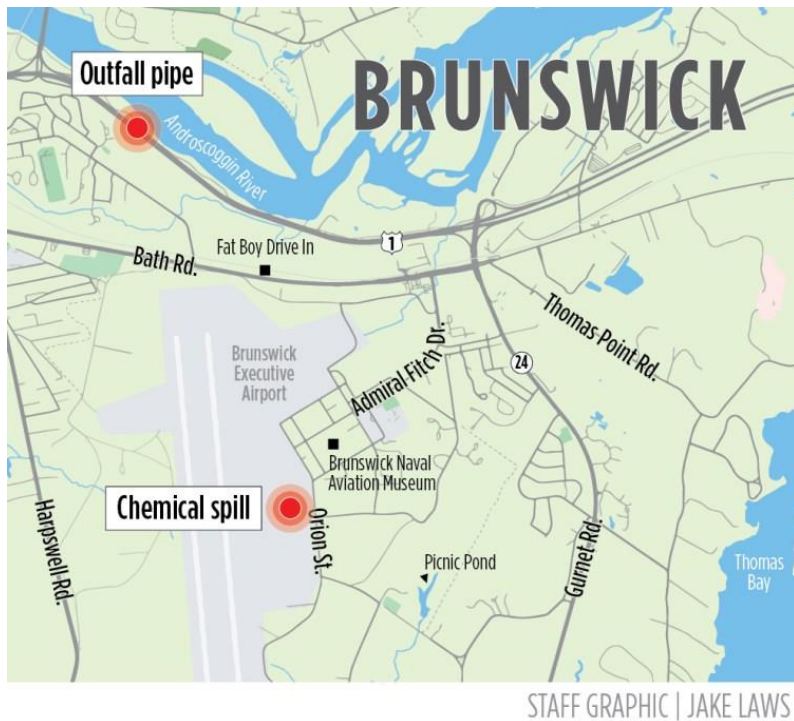
According to the U.S. Environmental Protection Agency, the Brunswick spill – 1,450 gallons of aqueous film-forming foam concentrate mixed with 50,000 gallons of water – is [the sixth-largest U.S. spill](#) in 30 years, behind others in Florida, Alabama, Arizona (which had two larger spills) and Ohio.

BASE HAS HISTORY OF SPILLS

But the U.S. Navy has a long record of environmental violations at the former naval air force station that is now Brunswick Landing, where the Brunswick Executive Airport is located, Friedman said. Some foam has spilled before, he said, but never as much as on Aug. 19.

A month before the spill, a sample taken from the same outfall pipe had tested at 15.2 parts per trillion, or ppt, for the six forever chemicals. That was unusually low, Friedman noted. Most tests from that outfall pipe have come back between 50 and 200 ppt, depending on rainfall among other factors.

Maine has no surface water limits on forever chemicals. Three years ago, Maine set an interim drinking water standard: 20 ppt for six forever chemicals. But state regulators have been quick to note that river water – especially sewer outfall discharge – is not meant to be potable, so the 20 ppt shouldn't apply.



A follow-up sample collected on Aug. 30 came back at 2,681 ppt, indicating AFFF was still present but in decreasing concentrations, Friedman said. The original AFFF concentrate – before it was combined with water to make foam – had 4.3 billion ppt of the six drinking-water forever chemicals that Maine monitors.

On Friday night, the Maine Department of Environmental Protection released the test results from water samples it had collected from the middle of the Androscooggin River above and below the sewer discharge pipe, which it says is standard practice when conducting surface water toxicology tests.

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Those results, collected on Sept. 5, found the same level of the six forever chemicals above the Brunswick sewer pipe as below it – concentrations ranging from 4.6-5.1 ppt above the discharge and concentrations ranging from 3.9-6.5 ppt at three locations below the outfall.

At first glance, the state results appear to contradict the earlier findings, but not so, said Friedman.

“The DEP water results don’t surprise me because of our own experience in sampling big water,” he said. “Aside from the fact tidal action will move suspended particles, various particles will drop out into the sediment and finally what’s left in the water will be diluted very quickly.”

TESTING FISH A KEY

That is why fish tissue testing is so important to get a true picture of ecosystem impact, Friedman added. The Maine Department of Environmental Protection began sampling fish in the Androscooggin last week, collecting fish above and below the discharge pipe for forever chemical testing.



An outfall pipe dumps water into the Androscoggin River in Brunswick on Sept. 20. *Ben McCanna/Staff Photographer*

Researchers in Maine are trying to understand how perfluoroalkyl and polyfluoroalkyl substances, the scientific names for the large class of manmade chemicals known as forever chemicals, or PFAS, are affecting [fish, birds, and mammals](#), including humans.

One particular chemical – PFOS – can build up in fish over time even in very low concentrations in water.

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The state Center for Disease Control and Prevention already cautions people against eating more than 12 meals a year of any fish species from the Androscoggin River due to high concentrations of PCBs, dioxins and DDT. It had been [considering lowering those limits](#) because of PFAS even before the spill.

Even trace amounts of some PFAS are considered a public health risk, according to federal regulators. High exposure over a long time can cause cancer. Exposure during critical life stages, such as in early childhood, can also cause life-changing harm.

Aqueous film-forming foam is used by firefighters to fight high-intensity fuel fires at military bases, fuel depots, civilian airports, fire departments and industrial plants that use a lot of chemicals, such as paper mills. The foam forms a film or blanket over the fire, depriving it of the oxygen it needs to burn.

Firefighting foam is the most common source of forever chemical contamination in the U.S., according to the EPA, but PFAS has shown up in trace amounts almost everywhere, from Arctic polar bears to Maine dairy farmers.

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