

Toxic chemicals found in virtually every South Carolina river tested. Action needed, critics say

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Virtually every river, creek and lake tested recently by South Carolina regulators was found to contain "forever chemicals," materials once used

by industry that today are being linked to a variety of toxic effects on people.

The S.C. Department of Health and Environmental Control released data this week showing the results of a testing program the agency launched to see how widespread forever [chemical contamination](#) is in rivers and other bodies of [water](#) across the state.

DHEC's tests, conducted on about 90 waterbodies near suspected sources of forever [chemical](#) pollution, showed contamination in some of the state's most visible rivers, including the Congaree in Columbia, the Waccamaw near Myrtle Beach, the Reedy in Greenville, the Ashley near Charleston, and the Pee Dee near Society Hill. The agency also found the pollution in multiple smaller streams, such as Gills Creek and Six-Mile Creek in the Columbia area.

Not all of the [pollution levels](#) were excessive, but some of the recorded contamination was above federal health advisory limits for certain types of the forever chemicals, known formally as per- and polyfluoroalkyl substances or PFAS.

Test results show that many rivers, streams and lakes exceeded the new health advisory limit of near zero for two of the most common types of PFAS chemicals, known as PFOA and PFOS.

The highest levels of PFOA showed up at Big Generostee Creek in the Savannah River Basin near Anderson. The creek had a reading of 170 parts per trillion for PFOA. That's roughly 170 times higher than the current health advisory limit, but also more than twice as high as the old health limit of 70 parts per trillion.

Lake Conestee, an Upstate lake just south of Greenville, had the highest recorded level of PFOS at 135 parts per trillion, according to DHEC's

test results.

DHEC also included total amounts for all forever chemicals tested in each river basin.

The Pocatigo River, near Manning in eastern South Carolina, had by far the highest total accumulation of PFAS, with a reading of 7,663 parts per trillion, records show. A map of locations where forever chemicals were found is accessible on DHEC's website.

Regular exposure to forever chemicals, which often comes through drinking [polluted water](#) or eating contaminated food, is suspected of causing certain forms of cancer and developmental disabilities in children.

Scientific studies have described the increased risk to men of prostate or testicular cancer from exposure to PFAS. Exposure to these forever chemicals also can cause decreased fertility in women, according to the Environmental Protection Agency.

But the chemicals have been largely unregulated by government agencies, some of which say they are only now learning about the dangers of PFAS and looking for ways to deal with the pollution. The EPA says there are thousands of types of PFAS, and like their nickname indicates, they do not break down easily in the environment.

What DHEC found in South Carolina is in some ways no surprise as increasing evidence suggests these chemicals are ubiquitous in the environment. But the department wanted to verify the distribution of PFAS in the Palmetto State's waters.

"It's a nationwide, if not a worldwide, issue so the responsible thing to do was to start tracking in as many places as possible," DHEC spokesman

Ron Aiken said, noting that the agency is working with the Legislature on ways to control PFAS pollution. "You have to know the scale of the problem."

Tackling the problem with tighter rules can't come soon enough for some environmental groups. They have been vocal in their call for cleaning up PFAS pollution and stopping it from continuing to get into the environment.

Rivers contaminated with PFAS can threaten the health of fish and other aquatic life but, more importantly, can taint drinking [water sources](#) that previous testing has shown already are dealing with trace amounts of contamination.

"We've got to regulate this," said Debra Buffkin, director of the Winyah Rivers Alliance, an organization that works to protect rivers in eastern South Carolina. "We have got to find out where it is coming into our rivers from. We're going to have to hold someone accountable if someone is emitting these PFAS."

A DHEC report on looking for PFAS in rivers said it would examine areas believed to have PFAS pollution, but the department said in an email this week that it "hasn't determined what the specific sources are at this time."

Forever chemicals are a class of compounds used to repel water on clothing, fight fires at military bases, coat frying pans so food won't stick, and prevent stains on carpeting. They were developed in the 1940s and used by an array of industries, including textile plants.

In South Carolina, sludge from an abandoned textile mill is the suspected source of drinking water contamination in Darlington County. The sludge was used as fertilizer on farm fields. In Sumter County, PFAS

pollution from Shaw Air Force Base is suspected of polluting private wells in nearby trailer parks.

Drinking water threat

Critics say they are glad DHEC, the state's environmental protection agency, has documented the extent of the PFAS contamination, but the department is moving too tentatively when bolder action is needed.

The department has not advocated for a statewide drinking water limit on PFAS pollution, is allowing some wastewater discharge permits without specific limits on forever chemicals, and, so far, has failed to advance regulations to keep forever chemicals out of waste sludge used as fertilizer on crops, critics say.

The S.C. General Assembly also failed to approve legislation setting a state drinking water limit in 2022.

"You have to control this stuff at the source," said Carl Brzorad, an attorney with the Southern Environmental Law Center. "It's just about everywhere, but DHEC will throw its hands up. The solution is making the industries who are responsible to disclose this and treat it."

An Upstate mill, for instance, is working on a major expansion, but a new wastewater discharge permit did not include specific limits on PFAS pollution, even though there is evidence PFAS could flow out of the pipes and into the Enoree River, he said.

The discharges will occur above two municipal drinking water plants in Clinton and Whitmire that Brzorad said might eventually have to clean up their drinking water if PFAS pollution flows in from upstream.

A similar situation holds true near Myrtle Beach, where a new permit to

spread sludge from a wastewater plant as fertilizer could send PFAS into a river upstream from a major drinking water source for the Grand Strand, said Ben Cunningham, a lawyer with the S.C. Environmental Law Project.

Drinking water issues are of note because DHEC has previously found low levels in more than three dozen drinking water systems that get water from rivers or lakes.

The question, drinking water officials say, is whether the amounts found in public water are high enough to be dangerous. The federal health advisory limit of near zero for two of the most common PFAS chemicals suggests that it is, clean water advocates say.

In 2022, the EPA tightened a health advisory limit on certain PFAS in drinking water and is now working to set a concrete standard on how much is safe in drinking water.

"We recognize that this is a challenging and important issue for everyone," DHEC said in a statement earlier this year. "DHEC will remain engaged with the EPA, other federal partners, fellow state agencies, our state legislators and stakeholders, and the South Carolinians we serve."

On Tuesday, the EPA issued a memorandum to states that it says is intended to help them protect the environment against PFAS.

The federal agency says states should use the federal wastewater discharge permit program to track down those who are releasing PFAS into water, then put limits on the sources of PFAS discharges.

"EPA is following through on its commitment to empower states and communities across the nation to address known or suspected discharges

of PFAS," EPA assistant administrator for water Radhika Fox said in a news release Tuesday.

"Today's action builds upon successful and innovative efforts already used by several states to safeguard communities by using our Clean Water Act permitting program to identify and reduce sources of PFAS pollution before they enter our waters."

Bill Stangler, the riverkeeper for the lower Saluda, Congaree and Broad rivers near Columbia, said the EPA's guidance "is telling states to buckle down on these permits, which is exactly what we've been saying to DHEC for several months now."

Some numbers eye-popping

According to DHEC data, the department checked about 90 rivers, lakes and streams for more than two dozen types of PFAS compounds.

The agency found that anywhere from 46% to 57% of the chemicals DHEC tested for had shown up in rivers, streams and lakes that were examined.

At least some compounds were found in every one of the waterways tested, except one small stream in the Savannah River basin. The most common in streams and rivers were PFOS and PFOA.

Others that showed up in some rivers included PFBS and Gen X, a chemical that has caused contamination in part of coastal North Carolina at levels higher than what has been found in South Carolina.

The EPA recently set permanent health limits on those two compounds, in addition to new non-final limits for PFOS and PFOA. The PFOS and PFOA limits had previously been 70 parts per trillion, but are now near

zero.

Total amounts of all forever chemicals also were included, by river basin, in the DHEC data.

Aside from the Pocatigo River's reading of 7,663 parts per trillion, the highest total amounts of forever chemicals, by river basin, were:

- Big Generostee Creek, near Anderson, in the Savannah basin: 754 parts per trillion
- Chinquapin Creek, along the Lexington-Aiken county border, in the Edisto basin: 382 parts per trillion
- Lake Conestee, south of Greenville, in the Saluda basin: 328 parts per trillion
- Fishing Creek, in Chester County, in the Catawba basin: 306 parts per trillion
- Buffalo Creek, near Union, in the Broad River basin: 264 parts per trillion
- Log Branch, between Allendale and the Savannah River Site nuclear weapons complex, in the Salkehatchie basin: 133 parts per trillion
- Ashley River, at North Charleston, in the Santee basin: 77 parts per trillion

The DHEC data's release follows findings in an October report by the national Waterkeepers's Alliance that PFAS pollution is widespread in the United States.

The waterkeepers found that more than 80% of the 114 waterways they tested across the country had at least one type of forever chemical in the water.

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