

At least 13% of wastewater treated by Southern Ontario septic systems ends up in streams

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The presence of artificial sweeteners has revealed that at least 13 percent of septic system wastewater from rural Southern Ontario homes eventually makes its way into local streams.

In a recent study, researchers at the University of Waterloo used the presence of artificial sweeteners excreted from humans to identify the wastewater content in streams across rural Southern Ontario.

"Artificial sweeteners are one of the best tracers of wastewater in the environment because they don't completely break down in the body or in wastewater treatment systems," said John Spoelstra, an adjunct professor of Earth and Environmental Sciences at Waterloo. "They are prevalent in many common consumer products, so we find them in every wastewater sample we look at.

"In many cases, residual artificial sweeteners are the most reliable indicator of the waters' septic system origin once released into the environment."

This research, done in coordination with Environment and Climate Change Canada, found that 91 percent of the stream samples tested contained artificial sweeteners. The amount of artificial sweeteners present allowed researchers to calculate that approximately 13 percent of the septic wastewater generated in Southern Ontario is eventually

transported to streams through groundwater.

"High levels of sweeteners indicate an elevated presence of wastewater in the stream," said Spoelstra. "Therefore, in some [cases](#), more testing may be warranted to ensure that harmful [wastewater](#) contaminants, such as pathogens and pharmaceuticals, are not present.

"The prevalence of artificial sweeteners in streams around rural Southern Ontario is a reminder that our water use is a cycle, and what we put into our [environment](#) doesn't just disappear."

The study Septic systems contribute [artificial sweeteners](#) to streams through groundwater was recently published in the *Journal of Hydrology X* by Spoelstra, Sherry Schiff and Susan Brown.

More information: John Spoelstra et al, Septic systems contribute artificial sweeteners to streams through groundwater, *Journal of Hydrology X* (2020). [DOI: 10.1016/j.hydroa.2020.100050](https://doi.org/10.1016/j.hydroa.2020.100050)

Provided by University of Waterloo

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