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Source of fecal matter studied

MMSD will spend \$450,000 to find storm sewer bacteria origins

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The Milwaukee Metropolitan Sewerage District will spend up to \$450,000 in the next two years to expand its investigation into the sources of human fecal bacteria found in municipal storm sewers discharging to local Lake Michigan beaches and the Milwaukee, Menomonee and Kinnickinnic rivers.

While storm water is known to contain high levels of bacteria from birds, pets and other animals that is rinsed off parking lots, lawns and streets, it should not contain bacteria from human feces, said Chris Magruder, the district's community environmental liaison.

The ongoing study will help municipalities within the district's service area identify storm sewer discharges containing human fecal bacteria that could come only from sanitary sewers, Magruder said.

The sewerage district will then work with communities to find leaking sanitary sewers, improper connections between sanitary and storm sewers, unknown overflow locations or other sources.

"If we can point them in the right direction, I think the communities will correct the problems," he said.

One other possible source would be a leaking, privately owned sanitary pipe between a home or business and the municipal sewer beneath the street.

The sewerage commission Monday approved hiring the University of Wisconsin-Milwaukee's Great Lakes WATER Institute to complete the investigation begun one year ago. It is one of the few research laboratories in the United States with the capability to test for the genetic marker specific to human *Bacteroides*, the bacteria that make up about half of a person's feces.

In 2006, WATER Institute scientists intensively studied storm water discharges along the Menomonee and Kinnickinnic rivers and their tributary streams. At Honey Creek, *Bacteroides* from human feces were found in 95% of water samples collected last July and August from the storm sewer at N. 79th St. and Mount Vernon Ave. in Milwaukee and 90% of the samples taken from a storm sewer at N. 80th St. and W. Wisconsin Ave. in Wauwatosa.

Bacteroides were found on dry days and rainy days. There were no sewer overflows reported during the testing period.

This year, researchers will check storm sewers discharging to the Milwaukee River, Lincoln Creek and lakeshore beaches, said Sandra McLellan, an associate scientist at the Wisconsin Aquatic Technology and Environmental Research Institute.

McLellan also expects to further advance Bacteroides testing procedures so that her co-workers can estimate the amount of fecal bacteria in storm water coming from humans.

"Right now, we can say the storm water levels are high, but we want to know how much of that is human," she said. Such information will help health officials determine whether people who visit beaches or use the rivers for recreation face a health risk from the contamination of storm water by viruses and other pathogens in human feces, according to McLellan.

Preliminary testing already found human viruses in the Milwaukee River on nine rainy days last year when no sewer overflows were reported, she said.

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