

Sauble groundwater E. coli typical

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By Paul Jankowski

Scientist taking samples at Sauble as part of study on groundwater quality

The levels of E. coli found in groundwater below the sand at Sauble Beach are typical of similar beaches elsewhere on the Great Lakes, according to a scientist studying groundwater quality at sites along lakes Huron and Ontario and Georgian Bay.

Samples last summer of Sauble groundwater showed E. coli levels ranging from zero to approximately 2,424 counts per 100 millilitres of water, according to a paper by Dr. Allan Crowe of the Environment Canada's National Water Research Institute and Dr. Clare Robinson of the University of Western Ontario's civil and environmental engineering department.

Samples were taken at the same locations last week "to determine if the results from last year are the same this year, and hence is there a consistent pattern from year to year," Crowe said in an e-mail Tuesday.

Results won't be available for about three weeks, he said in an earlier interview.

The E. coli numbers found in 2011 "are really no different than what we've seen at other beaches in Georgian Bay, Lake Huron and the Toronto beaches and Hamilton harbour," Crowe said. Colleagues in the United States have found similar results at beaches in Michigan and Wisconsin, he added.

There's "not really" a difference if the groundwater samples come from a pristine or a built-up area, Crowe said. Beaches where no E. coli is found in groundwater are "those with a deep water table, typically more than a metre deep. Beaches where we typically see E. coli, such as Sauble Beach, are ones where the water table is quite shallow and typically less than half a metre deep."

Samples at Sauble were taken from two series of boreholes drilled perpendicular to the lake. One site was "just north of the on-the-beach parking area between Second Street and Mildmay Lane," the other was approximately 150 metres south of Sauble Falls Road, about 2.5 kilometres north of the first site.

E. coli concentrations at 11 of the 13 boreholes at the northern site ranged between zero and four. The other two samples had counts of 31 and 48. At the southern site, samples showed a much wider range with three with E. coli counts less than 10, five between 33 and 79, one at 136, another at 858 and the highest at 2,424, according to the paper by Crowe and Robinson.

That's not unusual, Crowe said. Levels are "highly variable right along the shoreline and that's to within several metres" and also between samples at distances back from the water's edge.

Sauble, with its low and flat beach and shallow water table, is classified as a "wet beach" and studies of other wet beaches have shown that E. coli in the groundwater is caused by "transport of E. coli from surface sources (e. g. gull and geese feces)" and "lake water, which typically contains E. coli, that floods a beach during periods of high wave activity including storms," the paper says.

The difference between the south and north sample sites at Sauble "was not unexpected because

of the difference in the physical environments and the number of people and gulls observed. The southern site has a shallower water table, thus more susceptible to infiltration from surface sources. Also, more gulls were observed at the southern portions of Sauble Beach (corresponding to increased numbers of people) leading to potentially more sources of E. coli on the beach surface," the paper says.

The northern site is also in an "environmentally healthier state . . . with more extensive dunes and a deeper water table"

The E. coli in lake water samples at levels that led to the temporary posting of Sauble Beach as unsafe for swimming in the spring "is not coming from groundwater flow from the beaches, it's coming from other sources," Crowe said.

But the bottom line is "protecting and improving the beach will improve water quality," he said.

Crowe said he has been asked to present his research to South Bruce Peninsula council in September. He is aware of the long debate over a sewage system for Sauble but said that's a matter for the community and council to decide.

But if asked, Crowe said, "if the question is are the septic systems contributing to E. coli in the groundwater below the beach here, my guess would be no. If you're asking are septic systems contributing to E. coli levels in the lake water, I'd say it's possible."