Lambton Shores Beach Monitoring System

By Liz Katynski – Copyright 2008 – www.lizwords.com

Is the beach safe for swimming or is the bacteria count in the water too high? Currently a water sample must be sent to the lab and the results are not in for two to three days. At that time, if a decision to close the beach is made, it is based on data that is a few days old.

All that could change with the creation of a model that would predict the presence of harmful bacteria in the water. Eramosa Engineering Inc. designed the water sampling system the Municipality of Lambton Shores is using to collect water quality and environmental data to use in the development of this model.

"The project has the potential to provide real-time information to the public as to the possible presence of harmful bacteria in the swimming water, in addition to the manual water sampling program by the local health unit," says Tim Sutherns, president, Eramosa Engineering.

The municipality is funding the project, with the aim to increase tourism. The idea is that because people will not be told a few days in advance that the beach will be closed, there will be fewer cancellations of plans to visit. Instead, they will head down for the day and learn about any unsafe conditions as they happen. So, hopefully, the beach will remain open as much as possible.

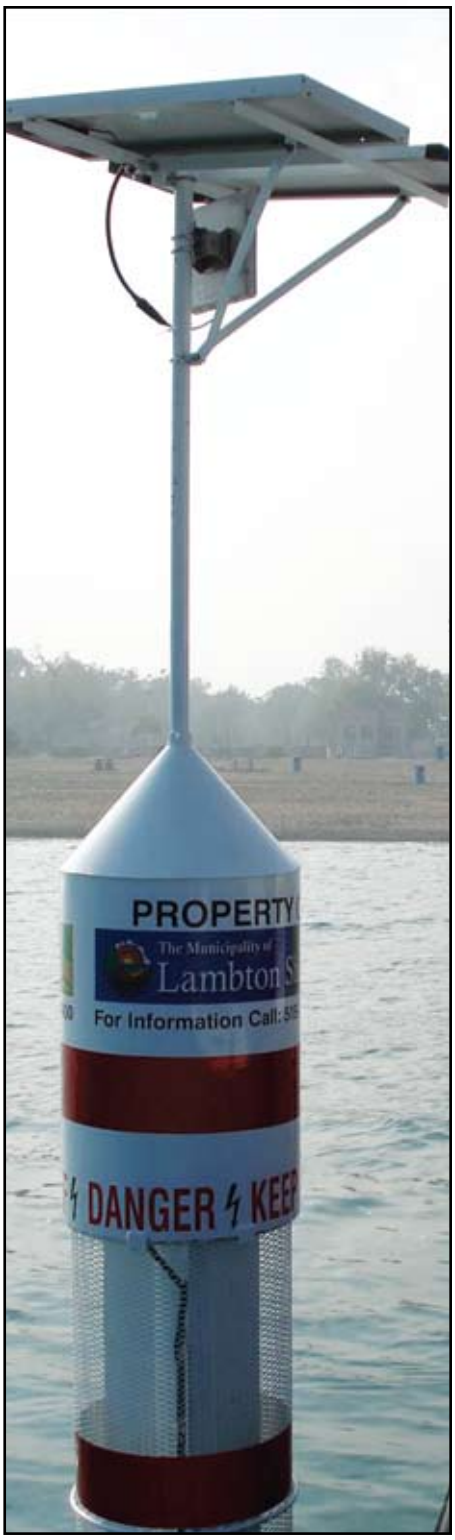
The monitoring device is on a buoy anchored in the water. It is battery and solar powered with a modem to report its findings. Its instruments are in the water, collecting relevant data to be combined with environmental factors like wind speed and precipitation. "We were involved in the design and build. We got it going and set it up for compilation. Now the municipality uses it," says Sutherns.

The system collected data last summer while bacteria counts were also being monitored and will collect data for another few summers before the data will be used to develop the predictive model. "If the model is fairly accurate, there could be an application of this to other areas," says Sutherns. "It could be used by industry with wastewater plants a few kilometers out in the lake. Predictive modeling could be a very useful concept."

Eramosa Engineering designed the sampling system, solar power, wireless communication, programming and data collection. The municipality completed the structural and mechanical aspects of the project. Phase one was the data implementation and data collection. Phase two will be the model development and validation. Sutherns noted that it was a challenge to choose the right technology, including low power instrumentation, solar technology and wireless communication, to allow wireless collection of data.

"We also make the assumption that we picked the right water quality parameters to give us the bacteria count. We think we have it, but we may have to fine-tune it."

Eramosa Engineering is a specialized consulting firm providing electrical instrumentation and control, SCADA and IT engineering solutions for water and wastewater applications.



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