

SE&T Colloquium Series-Fall 2015

Speaker	Dr. Tami Sivy Department of Chemistry
Title	<i>Who let the microbes out? Canine sniffing and rapid bacterial testing in the search for fecal contamination in the Saginaw Bay Watershed</i>
Abstract	<p>Current testing methods to measure microbial contamination have relied on an 18-24 hour incubation period in order to determine levels of fecal indicator bacteria, usually E. coli. These bacteria have shown a strong correlation with contact-associated illnesses, but the long analysis time could result in human contact with harmful pathogens. During the summer of 2015, our lab continued to adapt the rapid bacterial testing method known as EPA Method C: Escherichia coli in Water by TaqMan Quantitative Polymerase Chain Reaction (qPCR). Our testing of the Saginaw Bay Watershed expanded, with 13 sites in Huron County, seven sites in Iosco County, and three sites in Bay County, with variable numbers of sampling events at each site. The qPCR method has proven to be rapid, with results in as little as 3-4 hours of sampling, and potential caveats to using the method as a means for determining beach closures are being resolved. Meanwhile, our objectives have expanded to use a qPCR method to identify the source(s) of microbial contamination in order for remediation to be undertaken. To this end, we have used qPCR primers and probes that differentiate between Bacteroides originating from human or bovine, with tests being run with samples from Isabella County, as well as those from sites listed above. The sites in Isabella County were those that dogs had identified as being positive for human feces through the process of canine sniffing, so we used our molecular biology methods to verify whether these results were correct. The results thus far are very promising, with clear quantifications for the presence of Bacteroides from human and/or cow. The method will continue to be refined and future research will be expanded to pursue avian-specific detection.</p>
Date	Tuesday, November 3
Time	4:10-5:00pm
Place	Pioneer 240
	Refreshments will be served at 4:00pm.