

E. coli research could prevent unnecessary beach closings

June 22 2017

New research may give health officials more accurate tools when deciding whether to close beaches.

One of the longstanding methods officials use for those decisions is the measurement of E. coli bacteria levels. Higher levels can lead to [beach](#) closings because it's a warning sign of recent fecal pollution, which may carry harmful bacteria, viruses or protozoa.

But researchers have discovered that E. coli – short for Escherichia coli – may survive and proliferate in beach sand independent of pollution events. These "naturalized" E. coli populations falsely inflate measurement levels, resulting in beach closings due to pollution that's not actually present.

The research was performed by Natalie Rumball at the University of Wisconsin-Milwaukee's School of Freshwater Sciences. It was funded by Wisconsin Sea Grant. The work was presented June 4, 2017, at the American Society for Microbiology's annual meeting.

E. coli itself is not a [public health risk](#). In fact, it's found in the guts of almost all warm-blooded animals and birds. And it was long thought the bacteria couldn't survive for very long outside of that environment. So, because some E. coli leaves your body with every toilet flush, it was thought to be an excellent indicator of pollution from sewage.

But these newly discovered naturalized populations of E. coli, which can

live outside the host and are adapted to beach sand, are changing the narrative. What allows them to survive? To answer that question, researchers explored physiological and genetic differences between *E. coli* populations found in the sand and those sourced from human and gull waste.

So far, observations indicate the naturalized [sand](#) *E. coli* are hardier and more capable of growing in cold temperatures and basic pH environments, such as Lake Michigan. Now the goal is to find out why by identifying the genetic basis for this hardiness.

"We have excellent capabilities to sequence bacterial genomes in a matter of days," Rumball said. "Doing so will help us develop molecular tools that identify the portion of *E. coli* levels due to naturalized *E. coli* populations versus the portion stemming from [pollution](#). Such knowledge will be useful in preventing unnecessary beach closings."

Provided by University of Wisconsin - Milwaukee

Citation: *E. coli* research could prevent unnecessary beach closings (2017, June 22) retrieved 26 April 2024 from <https://medicalxpress.com/news/2017-06-coli-unnecessary-beach.html>

| |
|--|
| <p>This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.</p> |
|--|