
Beware of bacteria

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If you're thinking about swimming at an inland lake in East Central Illinois, you might want to think again.

It's not just that there could be something unpleasant in the water, it's also that what's there might go undetected for weeks.

Since 2010, Illinois Department of Public Health testing has detected abnormally high bacteria levels more than a dozen times in area lakes with swimming beaches. And that's even though the IDPH routinely tests only twice a month, or fewer than a dozen times a year.

Three public beaches at Lake Shelbyville have been the biggest offenders in the area, according to beach water sample records obtained through a Freedom of Information Act request from the state public health department.

Sullivan Beach has exceeded the standard of 235 colony-forming units per 100 milliliters of water seven times since 2010, according to the records. The Dam West Recreation Area at Lake Shelbyville has exceeded the standard five times in that period, and the Wilborn Creek Recreation Area has cleared the standard four times.

The highest level of the bacteria *e coli* recorded at any of the Lake Shelbyville beaches in that period was a 2419.6 count — more than 10 times the standard — last August at Sullivan Beach.

Most other area swimming beaches have had fewer problems, ranging from four violations of the standard at Glasener Beach at Evergreen Lake in McLean County to one each at Moraine

View State Park (McLean County) and the Middle Fork County Park (Champaign County, near Penfield).

But water quality is sampled much less frequently than at a public swimming pool, for example. Records show that the water at Moraine View was tested only four times between May 14 and July 22 this year.

"There's probably not good, exact science as to when you should test. There are a lot of indicators that maybe you should test more often but the general consensus is that if the environment is static — without huge weather events or some other upset in the system — then every two weeks you won't see those e coli levels change drastically," said Justin DeWitt, chief engineer at IDPH's environmental health program. "What we do encourage and stress is that when there are upsets in the environment like a huge rainfall event where you will see a lot of runoff into the beach area, that operators sample more frequently or preemptively close their beach because they know those kinds of inputs will raise the bacteria level."

But IDPH doesn't require such action, he said, only encourages it.

"Something like that comes down to common sense. If you're in a large watershed and your beach is at the bottom of that and you get an inch of rain, you don't need a test to tell you that you shouldn't swim the next day," DeWitt said.

There's also a delay — usually at least two days — in the time between when a sample of lake water is taken and the time the test is completed at one of the three IDPH labs.

"In academia and science across the world people are working very hard to find better ways to deal with testing for bacteria. We'd all love for there to be a pregnancy stick that you could walk out, snap it and get a plus or minus. But that hasn't come

out yet," DeWitt said. "We go to a lot of conferences to learn about the science and what is coming but a lot of the faster processes are also labor intensive and expensive. There's a line in there that we have to meet in terms of how exotic can we get to see if a beach's water is good or bad."

It costs about \$20 to test each sample, plus another \$6 to \$7 in shipping costs, he said.

Finally, e coli is the only pollutant for which IDPH tests.

"It's an indicator. If it's in there that means other bacteria could be there as well," said Melany Arnold, a spokeswoman for IDPH.

But inland lakes water isn't tested for PCBs or more plentiful chemicals like nitrogen and phosphorous, which have been linked to the algae blooms in Lake Erie that recently shut down Toledo's public water supply.

"When the beach is to be licensed there is a sanitary survey looking at the surroundings to determine what was there, the history of the area, and see if there might be concerns about chemicals and so forth. Once it's determined it's not an issue it's pretty much going to remain static," Arnold said.

But harmful algal blooms are becoming a greater problem in Illinois, according to the Illinois EPA. Heavy concentrations during a 2012 drought prompted the IEPA to undertake a survey of 10 lakes and two rivers in the state to determine the extent of the problem.

"Certainly agricultural inputs are a problem everywhere — nitrates, phosphorous, all those agrichemicals, as well as some of the pesticides and herbicides — they exist in the environment and eventually the watershed will carry those to

Lake Erie, Lake Michigan or Lake Shelbyville," DeWitt said. "They'll eventually get there and then it becomes an exposure issue.

"Typically people swimming at a beach, their exposure time period is pretty short and those doses are pretty small. I think that's how the U.S. EPA and the IEPA look at that. It's not acutely harmful. That being said, you don't want to be exposed to high doses of phosphorous or nitrate or whatever."

The stuff is there, he acknowledged.

"But in terms of how it exists environmentally, those doses are really small. If you go swim at Lake Shelbyville, is there phosphate, is there nitrate in that water? Absolutely. Is it a high enough level that it's going to make you sick or impact your health? Likely not."

On the other hand, the swimming beach at the Middle Fork park in Champaign County has had remarkably low e coli counts this summer — nothing greater than 107.

"We've had no problems this year. This pond really takes care of itself," said Matt Kuntz, the site superintendent at the forest preserve near Penfield.

He said he could recall only two occasions in his 10 years at Middle Fork when the beach had to be closed; both were after heavy rains when there was greater runoff from the beach and surrounding property.

"Some people see the goose population here (he estimated there are 20 to 30 geese at the three ponds in the park) and think it's dirty," Kuntz said, "but our numbers are good."

He thinks there are two main reasons his lake and beach have been so clean this year ("I think we'd be a great case study," he said): tight controls on campers and other visitors feeding the

geese, and the lack of farm chemical runoff into the ponds.

"We really enforce a ban on people feeding the geese bread or anything like that. I've been told that as long as they're eating grass the goose waste isn't going to be a big problem," Kuntz said.

Also, the watershed around the Middle Fork is "free from farm runoff."

"The 150 acres around us is pure prairie," he said. "I think that's one reason we escape the problems with runoff."

A recent study of Illinois' inland lakes, conducted for the IEPA, found that of the lakes assessed, 47 percent were categorized as "good" for supporting primary contact, such as swimming.

Major causes of impairment, the EPA said, were bacteria, total suspended solids, agriculture chemicals, recreational pollution sources such as boating, and even mercury and PCBs.

In East Central Illinois, the main issues were crop production, runoff from surrounding lands, and aquatic algae.

The environmental concerns are enough to make someone like Stacy James, a water resources scientist at the Champaign-based Prairie Rivers Network, to caution against swimming in any of Illinois' inland lakes.

"I would give a lot of thought to swimming in one of our lakes, and that's because you never know when someone upstream might have applied a chemical and was there a rain and did it wash off? Or you never know if someone just pulled off and released the contents of their tank that contained some sort of chemical," said James, who acknowledged that she is "overly sensitive" about pollution issues. "So I don't choose to swim in our waterways. That doesn't mean they're not safe for swimming but I just choose not to do it."

Cindy Skrukud, the clean water advocate for the Illinois chapter of the Sierra Club, said she wished the state could afford to undertake more frequent monitoring "but they just don't have the resources to do it for every beach every day.

"I want people to be able to enjoy the waters of the state, to get out there paddling and swimming. I can only caution them to check the IEPA website for the lakes they'd be swimming in and not to get in after a big storm."

IDPH officials expressed similar concerns.

"As we always say, don't drink the water because you don't really know," said Arnold.

Added DeWitt, "If we felt like the odds were not in the favor of the swimmer, I think that generally as the public health body we would say 'enough of that.'

"But it's a form of recreation that has value. Some people value swimming in lakes and ponds and streams versus the pool. You just have to understand that there is some risk that goes along with that. As long as your eyes are wide open I think it's a valuable form of recreation. But we're always cautioning people to be aware of what you're doing and understand the risks."

Warning signs

The National Resources Defense Council suggests that whenever possible, swim at beaches that your own research shows has the cleanest water, are carefully monitored and have strict closure and advisory procedures.

In Illinois, beaches like the one on Clinton Lake at Mascoutin State Recreation Area are tested for water quality just twice a month.

A water quality monitoring system is available online at app.idph.state.il.us/envhealth/ilbeaches/public/Default.aspx (<http://app.idph.state.il.us/envhealth/ilbeaches/public/Default.aspx>).

But there are flaws with the system. For instance, it incorrectly lists the Mascoutin facility under the "private beaches" category although it is a public beach at a state recreation area.

And if you are looking for the results of water quality testing for the current year — such as recent e coli levels — those are not available on the website.

The website does list beaches that recently have been closed, or for which there is a contamination advisory.

If beaches are not monitored regularly you are advised to:

- Choose beaches on open waters and away from urban areas.
- Keep your head out of the water
- Avoid swimming for at least 24 hours after it rains and for 72 hours after heavy rains
- Look for pipes along the beach that drain storm water runoff from streets, and don't swim near them. Avoid swimming in beach water that is cloudy or smells bad.
- "If the water is cloudy after a rain or sediment has been kicked up, you might want to think twice about it," said Illinois Department of public Health spokeswoman Melany Arnold.

The Centers for Disease Control and Prevention suggests:

- Don't swallow the water you are in or on.
- Don't swim with open cuts, abrasions or wounds. Breaks in the skin can let harmful germs into your body.

— Don't swim if you have diarrhea.

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