



South Haven beach E. coli plan calls for sniffing out faulty septic systems, other pollution sources

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SOUTH HAVEN, MI -- No one is happy when a favorite beach closes on a hot summer day because its waters are so foul they aren't safe for swimming. Ask Brian Dissette, city manager in South Haven, where that's **happened five times since 2010** on South Haven's popular Lake Michigan beaches.

If only solving the problem were as easy as blaming contamination from a big farm, an overflowing sewer or septic system, or a flock of wild geese -- problems upstream that wash down to beaches from time to time.

A recent report from the Southwest Michigan Planning Commission has concluded what officials like Dissette have long suspected: Bacterial contamination of waters in the region's Black River, Pine Creek and Mill Creek watersheds is a complex, watershed-wide issue, not confined to one source or one area of the watershed.

The intent of the study by Fishbeck Thompson Carr and Huber, "**Final Report and Implementation Plan for the E. coli Monitoring Study of the Black River, Pine Creek and Mill Creek in Berrien and Van Buren Counties, Michigan,**" was to develop a monitoring program that would help identify sources of E. coli bacteria within the watersheds and suggest steps that can reduce the overall levels of bacteria and avoid beach closures.

Testing of rivers and streams in the watersheds that empty into Lake Michigan showed hot spots where bacterial counts at some times were 50 times greater than the water quality standard for E. coli bacteria.

"We found there's no pointing a finger at anybody, it's pointing a finger at everybody, said Marcy Colclough, senior planner at the Southwest Michigan Planning Commission.

One source is farms that use animal manure and septage -- human wastes from municipal systems-- as natural fertilizer, which much be carefully managed depending on soil types and proximity to water.

Also, failing septic fields and municipal systems are becoming a much bigger issue as homes age, according to Colclough.

"City sewer infrastructures are old, there's lots of leaking, and it's expensive" to fix those problems, she said.

"I was impressed with the city of South Haven," Colclough said. "It did testing and found problems with their own sanitary system, and replaced it right away."

Public health threats

Pathogens -- microorganisms such as bacteria and viruses that can be found in lakes and streams -- can make swimmers sick. The severity of illness depends on the amount of exposure and the type of pathogen a swimmer encounters.

Escherichia coli (E. coli) bacteria **live in the digestive systems of humans** and warm-blooded animals, according to the Michigan Department of Environmental Quality. Most E. coli strains don't cause disease, but they can indicate the presence of other disease-causing pathogens, so county health departments sample water at beaches during the summer, count the E. coli bacteria and compare the counts to state-established standards.

If the number of bacteria exceed the limits set for safe swimming the beach is closed until future samples show the levels have dropped to within safe limits.

Possible sources

The report sampled areas upstream in wet and dry conditions and at different spots in the watershed, looking for indications of fertilizer runoff from farm fields, leaking septic tanks, illicit sewer hookups or other likely sources of pollution.

One sampling from the Black River matched "human-specific material," but the source is unknown -- possibly a nearby mobile home site, neighborhood or campground.

Cattle manure also carries bacteria that can cause human disease, and study samples showed its presence as well. Again, the sources are not clear.

South Haven's Disette said he wasn't surprised by the findings of the Southwest

Recommendations

Human wastes

- Identify and repair/replace failing or improperly installed or functioning septic systems, lagoon systems and sanitary pumping stations (areas of focus are specified)
- In new developments, require or encourage low-impact rain gardens, porous parking, green parking lots, infiltration basins, rainwater harvesting to slow down, spread out and infiltrate storm water water.
- In already developed areas, install systems to settle and filter out pollutants before waters are discharged

Restore and protect wetlands

- Plant native vegetation at outlets of small tributaries
- Change beach grooming to promote drying out of sand

Farming Practices

- Adjust manure spreading plans to avoid fields adjacent to

Michigan Planning Commission report. "We have actively searched for a single point of pollution, and consistently found what appears to be a widespread problem," he said.

or connected to surface waters in early spring to prevent runoff after heavy rains

- Utilize drainage tile to control flow and hold runoff

Regulatory

A costly problem

A recent study by Michigan State University cited in the report estimated that Lake Michigan beaches attract between 13 million and 26 million visitors per year, with an estimated economic impact of at least \$1 billion to \$2 billion annually.

- Adopt a county-wide, time-of-sale inspection ordinance for septic systems

- Adopt a local ordinance requiring hook-up to sanitary systems if available within a feasible distance

- Adopt and enforce a local illicit discharge ordinance that prohibits septic systems from connecting directly to surface water

In 2010 and 2013, South Haven beaches were closed five times, costing the city more than \$15,000 in lost parking revenue alone, according to Dissette.

"Unfortunately for South Haven, it appears that a lot of the problem comes from beyond the city limits," the city manager said. "As a result, local officials must partner with the health department, township officials, county officials and MDEQ officials if we are to see improvements to the water quality."

What's next

City officials in South Haven, who received the report in April, will develop a formal plan for implementation of its suggestions, Dissette said.

Some things that can help, such as new beach grooming equipment or upgrading sewage systems upstream, take money. But simple changes in behavior, that cost nothing, can help, too, Colclough said.

"For instance, the Village of Paw Paw has a big problem with people feeding geese-- not as harmful as other sources, but it can be problematic," Colclough said, because the birds gather at the parks and foul the water.

Likewise, getting people to pick up after their pets would help eliminate that source of contamination in storm sewers, she said.

"I anticipate that there will not be a quick fix. I anticipate that seeking a solution is likely to take years," Dissette said.

While it zeroes in on the sources upstream, the city will continue to work with the health department to

monitor water quality, he said.

The goal of the implementation plan is to provide direction and a timeline to reduce E. coli.

Beach monitoring funds at risk

The last few presidential budgets have proposed cutting funding for beach monitoring entirely, and even though funding has thus far survived in the federal budgets, a portion of funding was redirected last year in the state budget process, said Brad Wurfel, spokesman for the Michigan Department of Environmental Quality.

Wurfel said each local health department gets a funding block from the state, a portion of which, historically, has been dedicated to help support beach monitoring in the jurisdictions that have beach monitoring programs.

This year, though, some of that money is going instead to fund work on a new system of providing real-time beach monitoring, using eDNA technology, similar to that which is used to detect Asian carp and other invasive species, according to Wurfel. Funding for that work comes from the same grant, so some beach monitoring programs won't get funds this year; the state reserved funding for the beaches with chronic problems.

"This redirection of some funds will create a better monitoring system to protect public health," Wurfel said. "Over the next couple of years, we look forward to perfecting a testing protocol and mobilizing it around the state."

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