

Regular Testing Used to Monitor Beaches

Kent County News

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By Craig O'Donnell

CHESTERTOWN – Should you swim?

Everyone knows the Chesapeake Bay and its tributaries are in trouble, often polluted and sometimes coated with green algae.

But will the water make you sick? According to John Beskid, environmental health director at the Kent County Health Department, “people need to make wise decisions.”

Excessive nitrogen and phosphorus do not directly harm people, but bacteria in the water might.

By testing 15 beaches and public landings for enterococcus bacteria every week, Beskid's department is able to alert the public to any hazard.

Usually, they sample Mondays and results come back Tuesday afternoon. However, Beskid said, if there's a heavy rain, sampling will be put off a day since “after a heavy rain we'd expect to find bacteria” in the samples.

Heavy rain causes two problems: in some communities, there may be a sewage overflow when stormwater pours into the waste treatment plant; and runoff washes bacteria into streams.

“Enterococcus is an indicator,” Beskid said. “It isn't necessarily the organism that will make people sick. If it is present, there may be (other) harmful bacteria in the water.”

High numbers of enterococcus trigger a beach advisory. This means the health department suggests not to swim there until the level falls.

There's no danger to someone in a canoe, kayak, or sailboat who might be splashed with a little water.

“You would do a (beach) closure if you had a known sewage outfall,” he said, making any exposure risky.

Otherwise, when there's an advisory, it might mean moms want to keep children from splashing and wading, he said.

“At the camps, they may not take the campers swimming, but they can

certainly take out their sailboats and canoes,” said Beskid.

The test is cheap and reliable, he said; even so, “the EPA and the Centers for Disease Control are looking to find better test methods.”

For bacteria in brackish or salt water, to be considered “clean” the average level of enterococci must be under 36 colonies per 100 ml of water. More than that triggers an advisory.

Beskid said Kent's health department has put several useful links right on its Web site. The page www.kenthd.org/environmental_health.htm has links to beach information from Earth911 and Maryland Healthy Beaches.

They are at the bottom of the page.

Maryland Healthy Beaches Web site offers some tips:

- Since most exposure is by swallowing water, wade or swim without submerging your head;

- Don't go swimming with an open wound or infection;

- Avoid swimming after a heavy rainfall for 48 hours or until the water clears.

Bacteria levels go up and down all summer, and will peak right after heavy rain.

A high concentration of enterococcus may cause intestinal disease, infections or rashes. The usual route for infection is by swallowing polluted water while swimming, or if germs enter a cut or sore.

Maryland Healthy Beaches says an advisory means swimming or wading is risky. Possible sickness comes from “... ingesting natural water, getting water in the nose, eyes, and ears, or in an open wound. If one has an open wound on the lower legs or feet, it could become infected even from wading.”

So far this year, Kent County has had five beaches fall under an advisory at least once: Kinnaird's Point and Camp Tockwoogh on the bay; Chester River Yacht and Country Club and Cliffs City landing on the Chester; and Gregg Neck on the Sassafras.

In 2005, elevated bacteria advisories at Rock Hall Beach and Bay Country Campground earned Kent the

state's “dirtiest beach” title, while in 2006 Bay Country Campground was again called one of the nation's dirtiest.

Last summer Kinnaird's Point was posted four times. Chester River Yacht and Country Club was posted three times. Bay Shore Campground, Betterton, Tolchester Estates, Kentmore Park and Boy Scout beaches were each posted twice.

So far this year Gregg Neck Beach and CRYCC have been posted three times.

Kent County is not alone. Dirty beach water is everywhere. According to the EPA's 2007 swimming season overview of beaches, “1,170 (32 percent) had at least one advisory or closing.” They watch 3,647 fresh and salt water beaches in 30 states and five territories.

How'd it Get There?

Enterococcus testing does not show where the bacteria came from. It is found in the intestines of mammals – people, dogs, cats, deer, raccoons, muskrat – and birds.

Human-related sources include leaking septic tanks; farmyard manure or manure used for fertilizer; or boat waste from a holding tank. In some cases, what's in the water is not from human waste. Locally, for example, it could come from cattle, horses, deer, geese or ducks.

Beskid said the water isn't considered clean if the bacteria comes from animals instead of humans, since some pathogens affect both. But other germs and viruses in sewage, which could make people ill, aren't necessarily there along with the enterococcus.

He said he expects that there will soon be inexpensive tests that will help give a more accurate picture of bacterial contaminants.

Tuesday, Sassafras River Association Executive Director John Vail said he's unsure why Gregg Neck Beach is dirty. He said Riverkeeper Kascie Herron would be looking into it.

A “point source” is a drainpipe or wastewater plant. Bacteria and nutrients are relatively easy to measure and control when they come from a certain spot.

But at Gregg Neck or Kinnairds Point, with no obvious point source nearby, the question is whether the bacteria comes from leaking septic systems, farms, waterfowl, or wild critters – or a combination.

How much waterborne bacteria comes from wildlife? It depends on land use in each small watershed.

What is clear is that bacteria washes from many different sources into streams and rivers, and from rivers, into the bay itself. Unfortunately, working that out in the lab is still time-consuming and expensive, Beskid said.

In a 1997 article George M. Simmons Jr., a Virginia Tech professor, reported on what are now called “bacterial source tracking” methods. He used DNA fingerprinting on bacteria to uncover the source of high levels of fecal coliform in a particular oyster bed with no houses nearby on Virginia’s Eastern Shore. After elaborate research, it was traced to deer and raccoon dung being washed into the creek.

The Journal of Environmental Quality, in 2002, published a study done in the rural Shenandoah Valley. A small stream called Spout Run passes through Millwood, Va., which has 82 homes on septic. The state estimated half the systems were failing.

The watershed, about 6,600 acres, is mostly wooded or pasture. Nearby and upstream are farms with cows, sheep and horses.

After analyzing the coliform bacteria in water samples, and comparing them to bacteria from local manure, deer and raccoon dung and human waste, researchers found half the bacteria downstream of Millwood were from livestock, 40 percent from wildlife, and 10 percent from human waste.

Much material on the Web about bacteria and clean beaches is technical. The Surfrider Foundation at www.surfrider.org has easy to read recreational water quality information.

The government’s site is www.epa.gov/waterscience/beaches.