

Bay Journal

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To be safe, surf the Internet before swimming at the beach

Monitoring programs finding dangerous levels of bacteria in Bay and many of its rivers.

- By [Rona Kobell](#) on July 04, 2013



Children cool off on a hot summer day in Broad Creek, a tributary of the Nanticoke River. (Dave Harp)

Almost every weekend in the summer, sailboats crowd into the inlets of the Rhode River, just south of Annapolis. Teens cannonball off their bows, while younger children splash close to the beach. The grills come out, and the atmosphere is festive, like an ongoing sailing party.

Chris Trumbauer never wants to break up the mood. But as the Waterkeeper for the West and Rhode rivers, he questions whether these swimmers should be in the water — especially the day after a heavy rain. Have they covered up any cuts and bruises? Do they wash themselves off when they get out of the water? Are they aware that, on the hottest summer days, the Chesapeake Bay and its rivers resemble a simmering soup of bacteria, and contact with the water can lead to all sorts of infections?

The Chesapeake Bay Program, the EPA and the states are focused on ridding the waters of excess nitrogen, phosphorus and sediment, which come into the Bay and its tributaries from runoff. But bacteria are a huge issue, too, and many scientists and local activists say it's one that

doesn't get enough attention. Many of the bacteria that cause illnesses wash into the rivers from stormwater, septic fields, failing sewage systems and pet waste. But other forms, such as *Vibrio*, occur naturally in the water and only become harmful when the water reaches its highest temperatures — a more common occurrence over the last decade because of climate change.

If anyone asks him if it's safe to swim, Trumbauer recommends swimmers wait at least 48 hours after a rain, and that they swim in open water, away from the areas more susceptible to pollution, like smaller creeks.

"A lot of people are getting minor infections. And they dismiss it, or even worse they accept it as normal," Trumbauer said. "We shouldn't be accepting that situation. These are our public waterways. They belong to all of us, and we should be able to enjoy them without the threat of getting sick."

Over the last decade, the public has enjoyed access to far more information than ever before about whether it's safe to swim. Part of that is due to the Beach Act, which Congress passed in 2000. It extended federal pollution protections to coastal waters and provided funding for states to set up their own monitoring programs for pathogens. Counties and states routinely close public beaches when counts exceed certain standards. The Beach Act also provided historical data, so that swimmers could see over time how often certain beaches were closed and what times of year to avoid them.

After the Beach Act was passed, most county health departments stepped up their monitoring of popular beaches, testing once a week or maybe twice a month for bacteria. But often, that's not enough, and it doesn't tell people whether it's safe to swim this afternoon.

"You're telling people the conditions, and they're making decisions for today, based on yesterday's water," said Jon Divine, a senior attorney in the water division of the Natural Resources Defense Council. For 23 years, the organization has been producing an annual report, *Testing the Waters*, which analyzes EPA and state data for more than 200 popular U.S. beaches, several of them in the Chesapeake watershed.

To get beyond yesterday's news for beach health, Divine said, many communities are using models to predict how much rain typically falls and what happens to a particular beach when it does. This way, communities can predict how often a beach might be closed — though other events, like algae blooms, are not always predictable.

Technology has allowed communities to go even further. The Waterkeeper Alliance recently introduced the Swim Guide, a free app, and a website at www.theswimguide.org, which provides up-to-date information on many beaches. It even has a button where users can e-mail the Riverkeeper to report pollution.

Dave Burden, the Virginia Coastkeeper, said he pulls that app up when people inquire about the water's safety. He also directs swimmers to the state's shellfish sanitation maps because the standard for closing an area of the river to harvest is much more stringent than it is for swimming.

Burden said Virginia's Chesapeake beaches tend to be cleaner than those in Maryland because nearby development is usually less dense so there is less runoff. And, their proximity to the ocean means they are better flushed by the tides. Nonetheless, he's ever vigilant to make sure they stay that way.

"We're really fortunate down here, we have one of the cleanest corners of the Bay," he said. "A lot of my job is preventative. We're trying to keep a lot of bad things from happening."

In the Patuxent River, Riverkeeper Fred Tutman said his group departed from the normal Chesapeake Bay report card — which typically looks at nitrogen, phosphorus, dissolved oxygen and water clarity — because he wanted to be able to focus on bacteria and pathogens. The University of Maryland Center for Environmental Science has been putting out the Patuxent report card since 2006. The report card checks for overall water quality and ecosystem health, but it doesn't check bacteria. The river has typically scored poorly — in 2011, it received an F. But, Tutman argued, that grade doesn't tell residents about whether it's safe for them to swim. And the Calvert County Health Department's testing of the county's few public beaches doesn't give them much information, either.

"When people ask us if it's safe to swim, I don't think we have the information to answer them," Tutman said. "People want to know about swimmability, fish-ability, drinkability. The quality of the water is more than the sum of their statistics."

In Anne Arundel County, Trumbauer and several community associations in the Severn River rely on Sally Hornor to tell them if it's safe to swim. Hornor, a biology professor at Anne Arundel Community College, has been testing the beaches along the Severn River for more than two decades. She often has enough information to make predictions on which beaches might close when.

Hornor's program, Operation Clearwater, tests water weekly for dozens of county beaches.

In 2010, after she had a decade of complete monitoring, Hornor conducted an analysis to see if she could determine a trend. She saw bacteria counts down significantly. Concerned that weather could play a role, she stripped out the rainfall from the data. Bacteria counts were still down across the board.

Part of that stems from a campaign to encourage dog walkers to clean up after their pets and stations near the beach in which to dump bags of pet waste. Part of it has to do with new septic tank laws that require upgrades.

But a big part of it, Hornor said, is stormwater. Community beaches are taking it upon themselves to slow down runoff with vegetation and step pool conveyance systems, which catch a lot of the runoff before it enters the river.

"A lot of communities near where I sample have put in stormwater retrofits," Hornor said. "I think it has really made a difference."

Divine said he sees those same trends nationwide.

"I do feel like there is a real trend at the individual beach or community level investing in these smart stormwater techniques to prevent stormwater pollution," he said. "We can see discernible changes in the contamination."

For the communities that rely on Hornor, the stakes couldn't be higher. Unlike many Chesapeake rivers known for commercial crabbing and fishing, the Severn and other Anne Arundel rivers are known for excellent swimming. Many communities along the Magothy and the Severn, while not cheap, are still somewhat affordable — not all of the waterfront cottages have been converted to mansions. Instead of homes on the water, many neighborhoods are "water-privileged" — they all share a community beach, often with kayaks and canoes for sharing.

The Severn also has a swimming league, where a dozen communities swim competitively in the river. Among the most enthusiastic swimmers are those in Sherwood Forest, where many children attend camp and swim in the river daily.

Billy Moulden, a Prince George's County science teacher, runs the Sherwood Forest Camp every summer. He's responsible for making sure the 350 campers are safe swimming in the river. In the past, river swimming has occasionally been cancelled because of harmful algae blooms or too many jellyfish. But not lately.

"Quite frankly, this year is probably the cleanest in 20 years," Moulden said. "A count of 105 (for fecal enterococci bacteria) closes a beach. We're running at 1. Our highest counts are about 30...our turbidity had been a bit higher than usual, but that's because we've just had so many storms."

Moulden said Sherwood Forest turned to Hornor because "we had a need to know...when you're managing other people's children, that's a performance point."

Not only did the county not test often enough, Moulden said, but it didn't test in the area where the community had the most need — in the center swim lane.

Common problems from swimming include skin and ear infections or diarrhea. Often, they're not severe enough to see a doctor, or the people who suffer from them don't make the connection to swimming.

But once or twice a year, someone in the Bay watershed falls terribly ill because of contact with the water. And in some instances, the county health departments have been slow to alert the public.

In 2010, a part-time waterman cut his leg on a dock while crabbing and then went in the water to retrieve his boat. The next day, the wound became infected. He nearly died. He spent one month in the hospital, and endured six surgeries and intense physical therapy before he could walk again.

Tutman learned of the situation and contacted the Calvert County Health Department, but it didn't put out a warning until weeks later, after the state put out its own warning and the press got involved.

Similarly, Hornor alerted community members to a man whose leg became infected after swimming in the Magothy River, but the Anne Arundel County and state health departments did not respond with warnings of their own.

Both of these individuals contracted vibrio, a harmful bacteria more prevalent in warmer waters. That's why Hornor and Moulden recommend staying out of the water on the hottest days, when the water temperature is 80 degrees or higher.

"I have people in my community who say to me, 'oh, when you're out in the water, I feel like it must be safe.' Late August on, though, I don't even go in," Hornor said. "It's using common sense. If you're not feeling well, it's probably not a good idea to go swimming. But if you're healthy, and the weather is good, enjoy the water. It's beautiful."

Follow these recommendations from water-quality experts for a safer swim

Is it safe to swim in the river or Bay today? Generally, if you're in overall good health, it's probably fine. But water-quality experts recommend taking a pause and following these tips:

- Don't swim if it has rained significantly within the last 48 to 72 hours.
- Don't swim if the water temperature is higher than 80 degrees. That's the temperature at which some bacteria that can cause serious illness begin to thrive. If a thermometer isn't handy, just touch the water. If it's that warm, according to Operation Clearwater's Sally Hornor, it won't be refreshing to swim in anyway. Water temperatures typically reach more than 80 degrees in mid-August.
- Don't swim near stormwater outfall pipes.
- Don't swim in an area that is not monitored. In addition to bacteria, unmonitored areas have a higher risk of problems like tick infestations, glass and trash, sharp rocks and untreated sewage nearby.
- Do not swim if your immune system is compromised in some way. Those who are getting over an infection, elderly or have an immune disorder, should consider staying out of the water.
- People with cuts or sores shouldn't swim.
- If the water body has a river association, check its website. See the list of swimming resources on page 10 to make sure a beach is safe.
- Make a concoction of 50 percent rubbing alcohol and 50 percent vinegar. After a swim, take a dropper and put about two drops of the solution into both ears, and any companion's ears. This process is especially important for children, as ear infections are among the most common ailment reported after swimming.
- Those who find any swelling or unusual bumps after a swim, or don't feel well, should call a doctor immediately. Infections can go from no big deal to very serious in a short period of time. Infections from *Vibrio*, a family of bacteria found in the Bay and its

rivers, are rare, but they can be fatal if not treated quickly. Be sure the doctor reports the incident to the county health department so others will be alerted.

Routine rain can raise bacteria counts in waterways

Beaches don't need to weather a storm like Hurricane Sandy or Tropical Storm Isabel to wind up with high bacteria counts. In June, after routine spring rains, several of the beaches sampled in Anne Arundel County registered record levels of bacteria.

The EPA's standard for safe water levels is no more than 104 colonies of bacteria per 100 milliliters of water. On June 20, tests from the South River showed that all of the beaches except one exceeded the standard. One was more than 15 times the standard.

Of the 12 beaches sampled in the Severn under the Operation Clearwater program, half exceeded the standard, though most not by much.

The West and Rhode rivers had record high counts. Bacteria counts at West River Center, where there is a Methodist summer camp, were 18,316. The reading marks the first time since 2009 that a site in the river was higher than 10,000, according to river officials. Of the other 14 sites in the West and Rhode rivers, all but one failed their bacteria tests. Most other sites exceeded 1,000.

Four beaches on the Coastal Bays had spiked counts, too, and the Coastkeeper warned swimmers to stay out of the water for a few days.

While bacteria contamination is a localized event and the problem may be gone in a couple of days, it's smart to stay informed if one swims in a river. Many Riverkeepers, including the West/Rhode Riverkeeper and the Assateague Coastkeeper, have active Facebook pages. Friend them on the social network site, and they'll do you the favor of sending an alert when the counts spike to unsafe levels.