



Dr. Thaddeus K. Graczyk
Associate Professor
Center for Water and Health
Johns Hopkins Bloomberg
School of Public Health

"You have this delay in getting answers about water quality, and by the time you get your answer, the conditions in the water have totally changed. We need to find better indicators of pollution."

BEACH CLOSURES AND *CRYPTOSPORIDIUM*

During summer months, beach closures and no-swimming advisories are relatively common, with most triggered by high fecal bacteria levels in the water. In the Chesapeake Bay watershed, Pennsylvania had 22 closures at 17 beaches or swimming areas in the summer of 2008; Maryland had 44 no-swimming advisories or closures at 31 beaches and waterfront areas; and Virginia had 10 no swimming advisories at 6 beaches and parks.³⁹ Many local and state health departments warn people not to swim in the water for 48 hours after every heavy rainfall. How often people become ill with diarrhea from accidentally gulping fecal pathogens while swimming at the beach is unclear, because the disease is often not reported.⁴⁰

Local health departments routinely test public beaches for *E. coli* and *Enterococci* bacteria, as potential indicators of whether disease-causing organisms might be present.⁴¹ But a scientist at the Johns Hopkins Bloomberg School of Public Health questions the adequacy of these beach-monitoring programs. Dr. Thaddeus K. Graczyk, Associate Professor at the school's Center for Water and Health, believes current water testing procedures miss the true prevalence of pathogens like *Cryptosporidium* because local health departments do not test for *Cryptosporidium* or other protozoans. Illnesses caused by *Cryptosporidium* are not typically fatal, but can be for people with weakened immune systems because of cancer, AIDS, or other diseases.⁴² Moreover, water-quality tests at public beaches are typically performed during the week, when fewer people are likely to be at the beach or in the water, and sediments laden with pathogens are not being stirred up.⁴³ The protozoan pathogens often come from sewage, or pet, farm animal, or wildlife feces that are washed by rain or are directly deposited into waterways. Sampling that Dr. Graczyk performed in 2006 at a beach at the Gunpowder Falls State Park on the Gunpowder River (a Bay tributary) found *Cryptosporidium* at levels that could cause infection, in 32 percent of 60 total samples, including 70 percent of weekend samples and none of the weekday samples.⁴⁴ He tested both during the week and on weekends and found the beaches were open on days when the levels *Cryptosporidium* were high enough to make people sick because the health department did not test for the pathogen. Another problem, Dr. Graczyk has concluded, is that the bacterial sampling of swimming areas now performed by local health departments uses tests that take two days or longer to show results. So by the time health officials know there is a problem and want people out of the water, it is too late.

Officials at the Maryland Department of the Environment disagree with Dr. Graczyk's study and conclusions, and say current testing procedures for beaches are effective in protecting the public.⁴⁵

Kathy Brohawn, chief of the beaches and shellfish program at the Maryland Department of the Environment, said that testing for *Cryptosporidium* would be impractical and expensive, because it is only one of several pathogens that can be present in fecal matter. She said a more efficient method of checking for fecal contaminations in general is to perform a simple test for *E. coli* or *Enterococci* bacteria. These tests, performed by local health departments, follow guidelines set up by the U.S. Environmental Protection Agency, and use a conservative estimate of risk. In addition to sampling for bacteria, all local health departments in Maryland are required at least once per season to conduct shoreline surveys around beaches to look for potential sources of contamination, such as pet waste or leaky septic tanks.