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Cuyahoga Valley  
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## Cuyahoga Valley National Park News Release

For Immediate Release - Friday, July 2, 2004  
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### Microbiological quality of Cuyahoga River is focus of two USGS studies

**Brecksville, Ohio** - Scientists from the U.S. Geological Survey (USGS), in partnership with the National Park Service, are testing a rapid method for estimating bacteria levels in the Cuyahoga River that flows through Cuyahoga Valley National Park (CVNP) in northeastern Ohio. If the method works, results could be provided within one hour of sample collection, and National Park officials could alert water enthusiasts about bacteria levels in the water.

Current methods to determine bacteria levels take 24 hours to obtain results; therefore, advisories posted for recreational waters are based on yesterday's bacteria levels. Because water quality can change greatly during those 24 hours, a more rapid method is needed to better protect public health.

"Not only will this new method benefit recreational users of the park, it has the potential for being used nationwide in all types of recreational waters, including beaches," said Rebecca Bushon, USGS research hydrologist for this study.

The rapid method, developed by researchers at the University of Michigan, uses magnetic beads that are coated with antibodies for specific bacteria. The bacteria, which are attached to the beads, are separated from the rest of the water sample with a magnet. Bacteria levels are then measured indirectly based on the concentration of an organic molecule contained within the bacterial cell. Results from the rapid method are compared to results obtained using the current 24-hour method.


Two fecal-indicator bacteria are being analyzed for in this study—*Escherichia coli* (*E. coli*) and enterococci, both of which are recommended by the U.S. Environmental Protection Agency for monitoring freshwater recreational waters. These bacteria are found in the intestines and feces of warmblooded animals. These indicator organisms do not necessarily cause disease, but they indicate the possible presence of disease-causing organisms (pathogens). When the bacteria levels exceed the standard set by the state, the water is considered unsafe for recreational use because of the risk of illness.

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The study will continue for two years, then results will be published in a USGS scientific report. If successful, the rapid bacterial analysis would allow park officials to make decisions using current information, not yesterday's information, and disseminate the results to the public. "We're very optimistic about this new study. We've been working on developing a model to predict bacteria levels in the Cuyahoga River for many years", said John P. Debo, Jr., Cuyahoga Valley National Park Superintendent.

In a recently completed study, USGS scientists, in partnership with the National Park Service, examined the occurrence and distribution of microbiological pathogens that contaminated the Cuyahoga River within the Cuyahoga Valley National Park. The pathogens *Salmonella*, enterovirus, hepatitis A virus, and *Giardia* were detected during the study. *Cryptosporidium* was the only pathogen that was analyzed for but not detected.

Results of the study showed that although pathogens were detected in samples that did not exceed State standards for *E. coli*, pathogens were more likely to be found in samples in which standards were exceeded. These results demonstrated that *E. coli* is a useful indicator of human-health risk in the study area; however, there is still a risk to human health even when waters are considered safe according to standards.

The report from this study, "Microbiological Water Quality in Relation to Water-Contact Recreation, Cuyahoga River, Cuyahoga Valley National Park, Ohio, 2000 and 2002" is available on the web at <http://pubs.water.usgs.gov/wri034333/>. The report provides detailed methods, results, and water-quality data.

The USGS serves the nation by providing reliable scientific information to describe and understand the Earth; minimize loss of life and property from natural disasters; manage water, biological, energy, and mineral resources; and enhance and protect our quality of life.

CVNP protects 33,000 acres along the Cuyahoga River between Cleveland and Akron, Ohio. Managed by the National Park Service, CVNP combines cultural, historical, recreational, and natural activities in one setting. For more information call (216) 524-1497 or (800) 445-9667 or visit [www.nps.gov/cuva/](http://www.nps.gov/cuva/) or [www.dayinthevalley.com](http://www.dayinthevalley.com).

This news release can be viewed online at <http://oh.water.usgs.gov/microbiol.html>

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