

MAJOR ACCOMPLISHMENTS AND FUTURE DIRECTIONS IN PUBLIC HEALTH MICROBIOLOGY

February 15-18, 2005, Columbus, OH

(Moderators and speakers are affiliated with the USGS unless otherwise noted)

WEDNESDAY, FEBRUARY 16, 2005

GENERAL SESSION

Donna Francy, Dan Hippe, Moderators

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| 9:00 – 9:30 | Welcome and introduction | James Morris
<i>Ohio District, USGS</i> |
| | Opening remarks | Timothy Miller
<i>Office of Water Quality, USGS</i> |
| 9:30 – 10:15 | Interpreting results from emerging and traditional methods for microorganisms | Marylynn Yates
<i>University of California—Riverside</i> |
| 10:15 – 10:45 | Coffee/Tea Break | |
| 10:45 – 11:30 | Advances in quantitative microbial risk assessment for determining water quality and health | Joan Rose
<i>Michigan State University</i> |
| 11:30 – 12:00 | An overview of the EPA's National Homeland Security Research Center's role in enhancing the security of the water sector | Kathleen Nickel
<i>USEPA</i> |
| 12:00 – 1:00 | Lunch (provided) | |
| 1:00 – 1:45 | The microcystin group of cyanotoxins: structure, occurrence, monitoring and management options and the development of human risk assessment models | Wayne Carmichael
<i>Wright State University</i> |
| 1:45 – 2:30 | Identification of sources of fecal contamination in watersheds using rep-PCR DNA fingerprinting | Mike Sadowsky
<i>Univ of Minnesota</i> |
| 2:30 – 3:00 | Refreshment Break | |
| 3:00 – 3:30 | The USEPA BEACH program | Beth LeaMond
<i>USEPA</i> |
| 3:30 – 4:15 | Current topics and future directions for the USGS in public health microbiology | Donna Myers
<i>NAWQA, USGS</i> |
| 4:15 – 4:45 | Panel discussion | |
| 5:30 – 7:00 | POSTER Session (At Ohio District Office with food and beverages) | |

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THURSDAY, FEBRUARY 17, 2005

Submitted papers and invited speakers on the following major accomplishments

8:00 – 9:30 **Recreational water quality**
Richard Whitman, moderator

Invited Speaker Alexandria Boehm, *Stanford University* – A tiered approach for identifying sources of fecal contamination at a recreational beach

- Richard Whitman – Natural variation of *E. coli* within and between beaches: Potential for multibeach nowcast models
- Donna Francy – Identification of proximate sources of fecal contamination to Maumee Bay, Lake Erie, Ohio

9:30 – 10:00 **Coffee/Tea/Snack Break**

10:00 – 10:55 **Recreational water quality continued**

- Stephen Lawrence – BacteriALERT: A cooperative program for recreational monitoring and disseminating of indicator-bacteria data
- Panel discussion

10:55 – 12:00 **Pathogens and indicator studies**
Sheridan Haack, moderator

Invited Speaker Shay Fout, *USEPA* – QA/QC guidance for laboratories performing PCR analyses on environmental samples

- Randall Hunt – Susceptibility of municipal wells in La Crosse, Wisconsin to enteric virus contamination from surface water contributions

12:00 – 1:00 **Lunch (on your own)**

1:00 – 2:40 **Pathogens and indicator studies continued**

- Robert Anders – Water-quality in the Lower Russian River basin, Sonoma County, California: Implications for proposed reduction of flow in the Russian River
- Edward Furlong – Transport of chemical and microbial compounds from known wastewater discharges: Potential for use as indicators of human fecal contamination
- Sheridan Haack – Bacterial pathogens in the environment and the USGS Emerging Contaminants Program: Methods and study designs
- Joseph Duris – Indicators of Shiga-toxin producing *Escherichia coli* (STEC) in river-water fecal coliform cultures

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2:40 – 3:10 **Refreshment Break**

3:10 – 5:00 **Pathogens and indicator studies continued**

- Fu-Chih Hsu, *Scientific Methods, Inc.* – Concentration of pathogenic and indicator microorganisms from large sample volumes using continuous flow centrifugation
- John Lisle – The occurrence of indicator microorganisms in the sediments and Weddell seal feces of McMurdo Sound, Antarctica
- Richard Smith – Effects of structural changes in US animal agriculture on fecal coliform contamination of streams
- Panel discussion

FRIDAY, FEBRUARY 18, 2005

Submitted papers and invited speakers on the following major accomplishments

8:00 – 8:45 **Pathogens and indicator studies continued**

- Steven Corsi – Sources and variability of *Cryptosporidium* in the Milwaukee River Watershed: An application of automatic sampling for pathogens
- Panel discussion

8:45 – 10:15 **Tracking sources of fecal contamination and antibiotic resistance in the environment**

Don Stoeckel, moderator

Invited Speaker Gerard Stelma, Jr., *USEPA* – EPA Guidance Manual on Source Identification

- Sheridan Haack – Environmental antibiotic resistance and the USGS Emerging Contaminants Program: Methods and study designs
- Lisa Fogarty – Antibiotic resistance of public health concern in bacteria isolated from environmental samples

10:15 – 10:45 **Coffee/Tea/Snack Break**

10:45 – 11:35 **Tracking sources of fecal contamination and antibiotic resistance in the environment continued**

- James Farmer – Comparison of carbon utilization profiles, antibiotic resistance patterns, and pulsed-field gel electrophoresis as methods for bacterial source tracking by discriminant analysis and tenfold cross-validation
- Panel discussion

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11:35 – 12:00 **Ground-water and drinking-water assessments**

Rod Sheets, moderator

- David Metge – Field and laboratory investigations into the transport potential of *Cryptosporidium parvum* oocysts in karstic limestone of the Biscayne Aquifer at a municipal well field (Northwest Well Field, Miami, FL): Impact on oocyst log unit removal estimations

12:00 – 1:00 **Lunch (on your own)**

1:00 – 2:45 **Ground-water and drinking-water assessments continued**

- Jason Vogel – Riverbank filtration of *Cryptosporidium*, *Giardia*, and other microbial indicators, Platte River, Nebraska
- James Sinclair, *USEPA* – Preliminary occurrence study of algal toxins in source and finished waters
- Donna Francy – Environmental factors and chemical and microbiological constituents related to the presence of viruses in ground water from small public water supplies in southeastern Michigan
- Panel discussion

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POSTER Session (At Ohio District Office with food and beverages)

February 16 at 5:30pm

- Miya Barr – The Good, Bad and Ugly: Methods and Techniques Used in Source Tracking Studies in Missouri
- Rebecca Bushon – Laboratory support for microbiological monitoring projects in the U.S. Geological Survey
- Rebecca Bushon – Rapid method for the determination of fecal-indicator bacteria concentrations in recreational water
- Muruleedhara Byappanahalli – Persistence and growth potential of *Escherichia coli* in temperate forest soils of a Great Lakes coastal watershed
- Tom Byl – Modification of a numerical model to incorporate sediment flux of fecal bacteria in a river
- Steven Corsi – Enteric pathogen, fecal indicator and real-time environmental data at inland beaches in Madison, Wisconsin: Monitoring and predictive modeling
- Lisa Fogarty – Evaluation of *Bacteriodes-Prevotella* communities for use in fecal source tracking studies
- Donna Francy – Source-tracking tools for understanding fecal contamination and predicting water quality at two Lake Erie Beaches
- Sheridan Haack – The Great Lakes Beach Association: Communication beach science and management
- Trisha Johnson, *University of Tennessee* – Evaluation of real-time RT-PCR for detection of enterovirus and hepatitis A virus in East Tennessee ground water
- Chris Kephart – Use of rep-PCR to detect off-site transport of fecal bacteria in small, on-site septic systems through Ohio Soils
- Meredith Nevers – Fixed and random factors affecting *E. coli* results at southern Lake Michigan beaches
- Dawn Shively – Widespread occurrence and growth of *E. coli* and enterococci in green algae (*Cladophora* spp.) on beach sands and in swimming waters of Lake Michigan
- Don Stoeckel – Comparison of seven protocols for library-dependent, *Escherichia coli*-based microbial source tracking
- Pam Struffolino – The role of suspended sediment in *E. coli* transport
- Richard Whitman – Solar and temporal effects on *Escherichia coli* concentration at a Great Lakes swimming beach
- Shaun Wicklein – Monitoring water-quality effects of septic tank effluent for two streams in Duval County, Florida