

EPA Objectives and Status on Recreational Criteria Activities

**ISSC Executive Board
Manchester, NH
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Bill Kramer

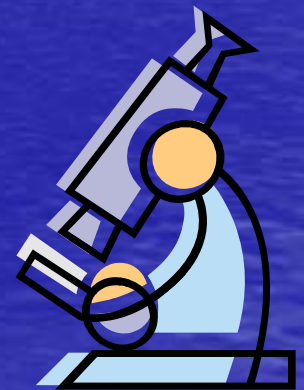
EPA Advisor to the ISSC
Office of Science and Technology/Office of Water
US EPA

EPA's Objective

- New recreational water criteria for all waters by 2012
 - Including freshwater rivers, streams and lakes
- Why?
 - 2012 is Consent Decree deadline
 - BEACH Act requires new criteria for coastal rec waters
 - Incorporate new science—over 20 long years since 1986 criteria; CWA requires updates “from time to time”
 - Improve scientific foundation and implementation based on what we’ve learned over the past 20 plus years
 - Ease implementation for BEACH Act states: no double standards
 - Makes providing protection for downstream rec waters easier

EPA's Major Research Areas per Critical Path Science Plan

- Epidemiology Studies and Quantitative Microbial Risk Assessment (QMRA)
- Site Characterization: Sanitary Surveys
- Indicators/Methods Development and Validation
- Modeling
- Addressing Application to:
 - > Coastal (marine) waters
 - > Great Lakes
 - > Inland Waters- rivers, streams, lakes



EPA Epi Studies So Far



- 2002-2004 Freshwater National Epidemiological and Environmental Assessment of Recreational (NEEAR) Water Studies at four Great Lakes Beaches
 - Indicators/Methods studied: Enterococci (qPCR and culture), *Bacteroides* (qPCR), chemical indicators
- 2005 Marine NEEAR Study in Biloxi, MS (interrupted study)
 - Indicators/Methods studied: Enterococci (qPCR and culture), *Bacteroides* (qPCR), chemical indicators
- 2007 Marine NEEAR Studies in Goddard, RI and Fairhope, AL
 - Indicators/Methods studied: Enterococci (qPCR and culture), *Bacteroides*, total and human-specific (qPCR), *E.coli* (qPCR), *Clostridium* spp. (qPCR), coliphage (antibody assay)
- Avalon Marine Epi Study 2007/2008—cooperative project with SCWWRP

EPA-Supported Epi Studies

- 2007 and 2008 SCCWRP Studies at Avalon Beach, CA
 - Impacted by mixed sources of fecal contamination including bird droppings, urban runoff, and leaking sanitary sewers (human source)
- 2008 SCCWRP Continuation Study at Doheny Beach, CA
 - Predominately a non-human source (birds and runoff)
- Technical support for future epi studies with SCCWRP and University of PR

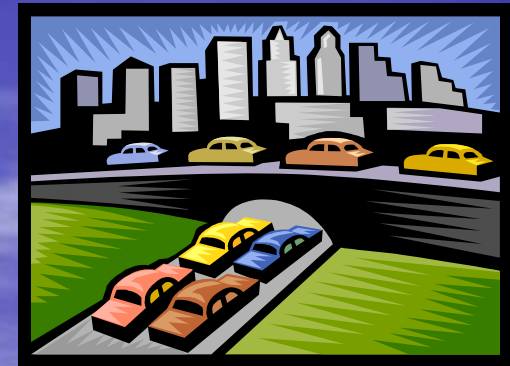


EPA Epi Studies Planned for 2009

- “Urban runoff” impacted marine waters in a temperate region – Surfside Beach, SC
- POTW-impacted marine waters in a tropical region - Boquerón Beach, PR



Urban Runoff Epi Study



- Site Selection Criteria

- Source predominantly from urban runoff (no POTWs, no CSOs, no SSOs)
- Minimum enterococci standard exceedance rate of 15%
- Subject to at least one rain event/month
- Swimming season > 90 days
- Attendance > 300 beachgoers per weekend day
- Beach located in a county with pop density > 100/sq mi
- Available raw monitoring data for fecal coliform or enterococci for 2006 & 2007
- Urban coverage for the beach watershed > 70%

Tropical Epi Study



Site Selection Criteria

- Officially designated recreational area near large population center
- Large attendance (300 - 400 swimmers/day)
- Broad age range (children, teenagers, and adults)
- Generally meets applicable water quality standards with a range of concentrations
- Contaminated by identified human source of pollution
- Swimming season > 90 days
- Located in a tropical region as defined in the Consent Decree

Site Selection Process

Urban runoff

- Narrowed list of potential beaches from **178** to **5** through a categorical process of elimination
- Collected site characterization data - Fall/Winter 2008
- Considered logistic and other site-specific aspects to prioritize sites

Tropical

- Evaluated potential locations in Puerto Rico, Hawaii, Guam and South Florida
- Focused efforts on finding a treated wastewater-impacted beach
 - Allows for comparison of health risks in tropical climate vs. temperate climate

Re-analyzing 2002-2004 Epi Water Quality Samples

- Re-analyze NEEAR Water Study archived samples
 - *E. coli* by qPCR
 - Revised *Bacteroides* by qPCR



Agricultural Animal QMRA

- Conduct QMRA to estimate illness at a freshwater location primarily impacted by agricultural animal sources (e.g., bovine, swine, poultry)
- Data collection – Summer 2009
- QMRA – Fall 2009



EPA Inland Waters Efforts



- Literature review to determine
 - Fate and behavior of pathogens and indicators
 - Microbial ecology and persistence
 - Indicator performance

Note: EPA/OW synchronized water skiing team---->



- Analyze samples from EPA's National Rivers & Streams Survey for additional indicators by molecular methods
 - 2,200 sample locations
- Perform additional research if feasible based upon input from WERF's Inland Waters Experts Workshop



Schedule & Timing



- All research must be complete by December 15, 2010
- New/revised criteria must be finalized by October 15, 2012



Policy/Criteria Development

- Meeting October 2012 deadline means beginning now internal EPA discussions of likely policy and science policy options
- Also means, as promised, that EPA will engage stakeholders as we move forward
 - Today's Beach Conference is part of this effort.
 - Next stakeholders meeting in September 2009

BEACH Conference Discussions

- The ongoing research relating to recreational criteria is transforming how we view beach monitoring, notification, and assessments.
- Keep this research in mind as you imagine how your beach program might look and function, in the not-too-distant future.
- Now is the time to share your viewpoints with your peers and EPA.

For More Information

- EPA's Rec Criteria and Beach Web Pages
 - www.epa.gov/waterscience/criteria/recreation
 - Experts Scientific Workshop Report and Executive Summary
 - Critical Path Science Plan
 - Criteria Development Plan & Schedule
 - www.epa.gov/beaches
 - BEACH Act text
 - Grants information
 - Beach Guidance Document
 - Local beach information
 - www.epa.gov/waterscience/criteria/humanhealth/microbial/#wqs
 - BEACH Act rule
 - Technical fact sheets
- LISA CHRIST
 - 202-566-8354 or christ.lisa@epa.gov