

Water Quality Research Program

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Water Research**





Water Quality Research Program

Recent Accomplishments

- **Support for Criteria Development**
 - Report on relative densities of genetic fecal indicator markers in wastewaters to evaluate their potential applicability for recreational water criteria, and updated Virtual Beach Model for use with environmental data and statistical techniques to predict beach concentrations of fecal indicators.
 - Reports on dosimetry methods for incorporating concentration and time variability into water quality criteria, and methods for assessing multiple risks for wildlife populations.
- **Watershed Management**
 - Developed benthic macroinvertebrate indicators of pesticides in stream water and sediment for linking pesticide exposures to causes of impairment in freshwater.
 - WASP7 (OW BASINS model) updated with eutrophication and mercury modules, extended application to headwater watersheds and improved application to estuaries.
 - ORD supported development of Watershed Central: an OW web-site for watershed information and management tools that became public in 2009.
- **Source Control and Management**
 - Reports on the state of the practice of aging infrastructure assessment and rehabilitation practices for use by utilities and others, including in effectively utilizing stimulus monies.
 - Manual on Design Concepts for Urban Watershed Wet-Weather Flow Management and Control for use in more effectively reduce CSO and other urban stormwater water quality problems.



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2010 – 2014 Strategic Directions

- **Support for Criteria Development**
 - Refining aquatic life/aquatic dependent wildlife methodologies, updating chemical occurrence and effects data, and evaluating biological condition gradients to better assess nutrient impacts.
 - Continue research to support recreational water criteria revisions.
- **Watershed Management**
 - Continuing efforts on assessing aquatic conditions and causes of impairment, and initiating work to better target where to focus efforts and how to measure the results of management strategies within the selected watersheds.
 - Continued development of tools for formulating and implementing effective watershed management strategies, with particular emphasis placed on how to restore the hydrology of urban watersheds, including the use of low impact development (green BMP) techniques.
- **Source Control and Management**
 - Major directions continue for improving the condition of water infrastructure and managing wet weather flows in both urban and agricultural settings.



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Examples of Anticipated Products

- **Support for Criteria Development**
 - Development, and ground-truthing, of analytical tools for measuring select emerging contaminants in various environmental compartments.
- **Watershed Management**
 - Reports on the use of metagenomics analyses and other indicators for determining the source of human and animal sources in watersheds.
 - Improved methodologies for projecting the effectiveness of BMPs in managing water quality on a watershed basis, including through the use of TMDLs.
 - Guidance on the effective design and implementation of riparian buffers.
- **Source Control and Management**
 - Results of full-scale condition assessment and rehabilitation demonstration projects, and demonstrations for the use of green infrastructure for urban stormwater control.
 - Results of field studies of animal production to characterize and control pathogen surface water loadings and nutrient (and EDCs) ground water impacts.