News from the Great Lakes Research Consortium

Press Release: **MAY 14, 2018**

Great Lakes Research Consortium Awards Funding to 5 Projects

Syracuse, NY. The Great Lakes Research Consortium of 18 colleges and universities in New York has awarded $111,331.00 in grant funding for five projects that will address critical issues associated with pharmaceuticals, pollution, and septic leaching; harmful algal bloom, and climate-related coastal resiliency. Research sites are located along Lake Erie, the Niagara River, Sodus Bay and the Wayne County shoreline, Owasco Lake, and Skaneateles Lake.

Funding for the Great Lakes Research Consortium grants is provided through the New York State Department of Environmental Conservation and the New York State Environmental Protection Fund Ocean and Great Lakes Ecosystem Conservation Act program.

The institutions receiving the 2018 Great Lakes Research Consortium grants are the University at Buffalo, the State University of New York College of Environmental Science and Forestry, and the Environmental Finance Center at Syracuse University as follows:

Niagara River Project: First to Address Antidepressant Removal from Public Waters.
University at Buffalo, and SUNY Buffalo State, Buffalo, NY: **$25,000**

Project: Assessing Innovative Advanced Wastewater Treatments in Removing Antidepressant Drugs Based on Chemical Analysis and Fish Physiological Responses

Keypoints: First test of advanced oxidative processes (AOP) for removing antidepressants in wastewater; data shows antidepressant bioaccumulation in the brains of 11 fish species; fish toxicity testing and chemical analyses will determine effectiveness of AOP in removing pharmaceuticals and their ecological effects from wastewater effluents

Principal Researchers and Partners: Dr. Diana S. Aga, Dr. Ning Dai, University at Buffalo; Dr. Alicia Perez-Fuentetaja, SUNY Buffalo State; and Erie County and New York Sea Grant

Enhancing Response to Contamination Driving Lake Erie Beach Closures
University at Buffalo, Buffalo, NY: **$25,000**

Project: Using Culture-Based, Molecular and Modeling Approaches to Identify Point and Non-Point Sources of Fecal Pollution and Improve Water Quality Predictions at eastern Lake Erie Beaches

Keypoints: Evaluation of microbial source tracking markers for more accurately identifying sources of microbial pollution that lead to public beach closures; results will inform local officials about human health risks and opportunities for remediation; testing

will be conducted alongside traditional culture-based methods for enumeration of fecal indicator bacteria: *E. coli* and *Enterococcus* spp. This work also supports development and refinement of water quality predictive models to inform beach closures and better protect public health.

Principal Researchers and Partners: Dr. Lauren M. Sassoubre and Dr. Zhenduo Zhu; and Dr. Christopher S. Lowry, New York State Office of Parks, Recreation and Historic Preservation, and Erie County Department of Health

First Accurate Means of Assessing Nitrogen Leaching from Shoreline Septic on Sodus Bay

State University of New York College of Environmental Science and Forestry, Syracuse, NY: **$20,611**

Project: Use of Nitrogen Isotopes as an Indicator of Septic Pollution to Sodus Bay

Keypoints: Proof-of-concept trials at 12 locations along Sodus Bay involve testing aquatic weeds for natural biochemical signature indicating nitrogen accumulation; water testing will measure caffeine levels as septic output indicator; metrics developed are expected to apply to any waters, particularly those with aging septic systems along shore

Principal Researcher and Partners: Dr. Mark A. Teece; and Save Our Sodus, Wayne County Soil and Water Conservation District, and New York State Department of Environmental Conservation

Electron Beam Irradiation Trials to Reduce Harmful Algae: Owasco and Skaneateles Lakes

State University of New York College of Environmental Science and Forestry, Syracuse, NY: **$25,000**

Project: Degradation of Microcystin in Drinking Water Using Electron Beam Irradiation (EBI)

Keypoints: New approach for reducing microcystins associated with blue-green algae that threatens quality and safety of public drinking water, an ongoing problem due to warming weather trends; could replace current, expensive activated carbon wastewater treatment; will evaluate how dissolved organic matter in water may shield microcystins from EBI and how EBI impacts treated effluent

Principal Researcher and Partners: Dr. Mark S. Driscoll, Chemistry Department and director of UV/EB Technical Center at ESF; and National Institute of Standards and Technology, O'Brien and Gere, and IBA Industrial.

Empowering Great Lakes Community-Level Resiliency Planning

Environmental Finance Center at Syracuse University, Syracuse, NY: **$15,720**

Project: Participatory Models for Identifying Barriers to Climate Adaptation and Resiliency in the Great Lakes Basin of New York

Keypoints: Community-based participatory process helps elected officials, planners and other municipal staff understand best management options for policy making, smart growth, adaptive reuse, green infrastructure, and other means for addressing risk of

flooding, erosion, loss of ecological integrity and associated economic impacts. Three workshops planned.

Principal Researcher and Partners: Khristopher Dodson; and State University of New York College of Environmental Science and Forestry, New York Sea Grant, Genesee/Finger Lakes Regional Planning Council, New York State Water Resources Institute

For details on the value and work of each project, and information on how GLRC funds grants for student research, student travel to conferences and workshops, and student internships, visit the Great Lakes Research Consortium website at www.esf.edu/glrc.

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