

When Green Goes Bad: An interdisciplinary approach to better understand cyanobacteria, nutrients, and lakes

Jeff Hollister, Betty Kreakie, Bryan Milstead

Thursday, May 15, 2014

Overview:

The current connotation within the environmental protection arena is that “Green is Good.” While that is very often true, in the case of lakes and ponds when they suddenly go green, it is most likely the result of an algae bloom. These blooms increasingly contain many harmful species. The impacts of harmful algal blooms are wide and profound. From acute adverse human health impacts (e.g. respiratory and gastrointestinal problems) to known deaths of animals (e.g., elk herds and family pets), blooms like these are becoming a more frequent occurrence and are having larger and larger impacts. To better understand how these blooms impact human health, identify the toxicity of cyanotoxins, predict the probability of bloom occurrence and share this information broadly, researchers within the USEPA’s Office of Research and Development have been working on a research project focused on cyanobacteria since 2012. In today’s webinar we will provide an overview of the full breadth of this research, and also go into details on the ecological modelling of cyanobacterial blooms in US Lakes and explain how this project has embraced the concept of Open Science to improve the dissemination of research results, methods, and data.

Bios:

Jeffrey W. Hollister:

I am a landscape ecologist with expertise in the spatial component of ecology and environmental sciences. I hold a Bachelor’s degree in Biology from Baker University, a Master’s Degree in Resource Ecology from Duke University, and a Ph. D. in Environmental Science from the University of Rhode Island. Since, May of 2006, I have worked as a Research Ecologist with the US EPA’s Atlantic Ecology Division in Narragansett, RI. My past experience is in applications of geospatial technologies (such as geographic information systems, spatial statistics, and remote sensing) to environmental research and broad scale environmental monitoring, modeling and assessment. Currently, my research focus is on how nutrients drive risk of cyanobacterial blooms in lakes and ponds. A unifying theme to my research is using Open Science (Open Access, Open Source, and Open Data) to benefit environmental science.

Betty J. Kreakie:

Betty Kreakie is a research ecologist for the US Environmental Protection Agency’s Office of Research and Development in Narragansett, Rhode Island. Betty earned a master of environmental management from Duke University and a PhD in integrative biology from the University of Texas. Her work focuses on the development of spatially-explicit landscape level models that predict how biological populations and communities will respond to anthropogenic influences such as nutrient and contaminant inputs, climate change, and habitat conversion. In all aspects of her work, Dr. Kreakie is committed to the use of spatial modeling to improve land management decisions and enhance the sustainable stewardship of natural resources.

W. Bryan Milstead:

Bryan Milstead is a post-doctoral research ecologist with the U.S. Environmental Protection Agency stationed at the Atlantic Ecology Division in Narragansett RI. He received his doctorate from Northern Illinois University

in 2000 for work on the small mammal population dynamics in Chile. He also holds a Masters Degree (1983) from the University of Oklahoma in aquatic ecology. Bryan joined the U.S. EPA in 2008. Previously he worked for the U.S. National Park Service as an Inventory Monitoring Specialist and for the Charles Darwin Foundation for the Galapagos Islands as head of the vertebrate ecology programs. His current work focuses on understanding how nutrient over-enrichment affects the aesthetic quality and risk of cyanobacteria blooms in lakes.