**PROJECT TITLE: Enhanced online tool to track Minnesota lake trends**

Dr. Christopher Filstrup, Natural Resources Research Institute (NRRI), University of Minnesota Duluth (UMD)

Dr. Filstrup is a Research Associate and Director of the Central Analytical Laboratory at NRRI at UMD. For the past two decades, he has been conducting and specializing in research involving large-scale water quality analyses, biogeochemical nutrient cycling, phytoplankton ecology (harmful algal blooms), and freshwater resources management. He has published 26 peer-reviewed articles that have been cited over 750 times, as well as 9 technical reports for previously funded projects. Chris has secured approximately $1.76 million in funding for research projects that he led during his previous appointment at Iowa State University (ISU). While in this post, he also managed several federally-sponsored projects (National Science Foundation) for the ISU Limnology Lab. He is currently collaborating as senior personnel on a National Science Foundation Macrosystems Biology Project investigating water quality relationships across the continental United States.

**EDUCATION**

Ph.D. (2009). Biology – Department of Biology, Baylor University.

B.Sc. (1998). Biology – College of Natural Sciences, University of Texas at Austin.

**SELECTED PUBLICATIONS**

**Filstrup, CT**, T Wagner, SK Oliver, CA Stow, KE Webster, EH Stanley, & JA Downing. 2018. Evidence for regional nitrogen stress on chlorophyll *a* in lakes across large landscape and climate gradients. *Limnology and Oceanography* 63: S324-S339.

**Filstrup, CT**, & JA Downing. 2017. Relationship of chlorophyll to phosphorus and nitrogen in nutrient-rich lakes. *Inland Waters* 7:385-400.

**Filstrup, CT**, H Hillebrand, AJ Heathcote, WS Harpole, & JA Downing. 2014. Cyanobacteria dominance influences resource use efficiency and community turnover in phytoplankton and zooplankton communities. *Ecology Letters* 17:464-474.

**Filstrup, CT**, T Wagner, PA Soranno, EH Stanley, CA Stow, KE Webster, & JA Downing. 2014. Regional variability among nonlinear chlorophyll-phosphorus relationships in lakes. *Limnology and Oceanography* 59:1691-1703.

In addition to Chris, our multi-disciplinary research team consists of Will Bartsch (Senior Research Scientist, NRRI; specializing in GIS tool development and statistical analysis), Dr. Rich Axler (Emeritus, NRRI; specializing in limnology and water quality management), Elaine Ruzycki (Senior Research Scientist, NRRI; specializing in water quality data management and quality assurance), Norm Will (IT Specialist, NRRI; specializing in data visualization and user-interface development), Cynthia Hagley (Extension Educator, MN Sea Grant; specializing in environmental education and discussion facilitation), and Dr. Lucinda Johnson (NRRI Associate Director / Initiative Director for Water, NRRI; specializing in stressors of aquatic communities and climate change impacts).

**ORGANIZATION DESCRIPTION**

**The Natural Resources Research Institute** is a University of Minnesota Duluth applied research organization. NRRI's mission is to deliver research solutions to balance Minnesota's economy, resources and environment for resilient communities. NRRI has the technical capabilities and experience necessary to develop interactive, online natural resources mapping applications. It has a fully-equipped Geographic Information Systems (GIS) Laboratory with ArcGIS software licenses (Environmental Systems Research Institute, Redlands, CA) and the data servers, databases, and software required for this project.