Title: Nitrogen transformation and microbial characterization in Removing Biofilters (NRBs) for onsite wastewater treatment on Long Island

Authors: Xinwei Mao[1]*, Stuart Waugh[2], Roy Price[2], Frank Russo[3], Christopher Gobler[2,3], Harold Walker[1,3]

1. Department of Civil Engineering, Stony Brook University
2. School of Marine and Atmospheric Science, Stony Brook University
3. New York State Center for Clean Water Technology

* presenting author

Abstract

Nitrogen Removing Biofilters (NRBs) are potentially a cost-effective replacement for the conventional onsite wastewater treatment systems (i.e. cesspools, leaching pools) that are a leading cause of water quality degradation throughout Suffolk county, resulting in contamination of shallow groundwater and drinking water supplies. NRBs are a form of non-proprietary innovative alternative onsite treatment with various configurations that have demonstrated in the pilot phase an ability to consistently achieve high percentages of total nitrogen removal, organic contaminants removal, as well as highly efficient attenuation of pathogens, pharmaceuticals and other personal care products. This presentation will provide the seasonal nitrogen removal performance of the field-scale NRBs and a few ongoing projects emphasizing recent efforts by the New York State Center for Clean Water Technology (CCWT) to further develop these technologies. The presentation will focus on new results elucidating the nitrogen transformations and the microbial characterization within selected NRBs. The presentation will also discuss the performance of these systems in terms of both traditional water quality parameters and contaminants of emerging concern.