

Evolving Nutrient Management Strategies and Potential Applications in Georgia

Douglas S. Baughman

Affiliation: Principal Technologist and Senior Scientist, CH2M HILL, 1000 Abernathy Rd NE #1600, Atlanta GA 30328

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Abstract. The focus on nutrient management issues has continued to increase across the country as more and more states have identified water bodies as not meeting their designated use due to nutrient impairments. High profile harmful algal blooms like the 2014 incident off Toledo, OH on Lake Erie, evidence of a large “dead zone” in Green Bay, WI, and the continued challenges in meeting the restoration goals for the Chesapeake Bay have further heightened the awareness of the public and water resource managers that more effective nutrient management is badly needed. Traditional regulatory strategies of focusing on the point source dischargers has proven to be only partially successful in meeting nutrient reduction goals. Federal and State water quality management agencies have known for years that non-point source pollutant runoff has been the dominate source of nutrient loadings. However, regulation of non-point sources has proven much more difficult than point sources. Regulators in other states are developing innovative frameworks to encourage collaboration between point and nonpoint sources to benefit each other and to achieve watershed goals. Watershed based permitting and water quality credit trading programs have been recommended by the US Environmental Protection Agency as approaches to help point source dischargers find more cost effect strategies for overall nutrient load reductions in impaired watersheds. Unfortunately, these methods have been used infrequently and in some cases have not led to the improvements in water quality that were anticipated. Water quality credit trading has been discussed in Georgia for several years but has not been broadly implemented despite being recommended in several of the regional water plans in 2012. Other regions of the country have moved forward with new strategies to provide point source discharges with additional tools for meeting nutrient load reductions and to provide flexibility for achieving additional nonpoint source

load reductions from both agricultural and urban land uses. This paper provides two innovative approaches to nutrient compliance: one includes a wastewater utility partnering with agricultural communities and the other includes a municipality implementing urban retrofits. For wastewater and agricultural collaboration, the paper provides a summary of Wisconsin’s Adaptive Management strategy being tested in a TMDL tributary watershed to Lake Michigan in the bay of Green Bay, WI. For innovative urban retrofits, the paper provides a summary of the Chesapeake Bay program to achieve urban nonpoint source nutrient loadings reductions. These innovative nutrient and sediment reduction options include stream restoration, shoreline restoration, and improvements to leaking sanitary sewers. Observations on these programs and their potential application in Georgia will be provided.