

Attachment E:

Watershed Organizations in the Southeast Handout

- Lake Lanier Handout - Alternative Nutrient Strategies

Alternative Nutrient Strategies

This brochure provides information on watershed based collaboration for protecting and enhancing water quality and quantity. Examples from the southeastern United States are presented to show possibilities for further cooperation in the Lake Lanier watershed.

Lake Lanier is a vital resource for its immediate neighbors and beyond, including portions of Georgia, Florida, and Alabama. Lake Lanier provides water supply and multiple recreation opportunities including boating and fishing. Protecting the lake is important to all stakeholders, especially now regarding nutrients.

Since the passage of the Clean Water Act in 1972, the water quality and biological health of thousands of waterbodies have been evaluated. State and/or federal environmental agencies set a water use classification for each waterbody, such as fishing, recreation, or drinking water. Water quality criteria are set to support those uses. Field monitoring is conducted to determine if the criteria are being met. If not, the waters are deemed impaired and an improvement plan must be developed to

restore compliance. These plans may be called Total Maximum Daily Loads (TMDLs). The plans may be developed with the use of models and may impose limitations on point sources and/or nonpoint sources.

Since before the lake was created in the 1950s, stakeholders have worked to protect the lake through water conservation, sophisticated wastewater treatment, stormwater management, river cleanup events, and other efforts. As growth continues in the watershed, additional efforts will be necessary to protect Lake Lanier.

Examples of watershed based organizations in the southeast

Reedy River Water Quality Group

Reedy River / Lake Greenwood, Boyds Mill Pond
Implementing a community developed watershed plan

North Georgia Water Resource Partnership

Northwest Georgia
Technical advisors to the Coosa-North Georgia Water Council on water quality, quantity and education issues

Virginia Nutrient Credit Exchange Association

Chesapeake Bay

A nutrient trading association set up to help permit holders cost-effectively comply with a TMDL

Upper Neuse River Compliance Association

Upper Neuse River Basin, Falls Lake
Community driven re-examination of an existing TMDL through modeling and load allocations

Neuse River Compliance Association

Neuse River

A nutrient trading association set up to help permit holders cost-effectively comply with a TMDL

Savannah River/Harbor Discharge Group

Savannah River and Harbor

Two state collaboration resulted in adoption of an alternative TMDL or 5R plan

New ways to improve water quality at work in the Southeast

Several areas in the Southeast have addressed water quality improvement by forming organizations to develop and implement innovative and collaborative strategies.



Savannah Harbor 5R

Eastern and Areas of Coastal Georgia and South Carolina

In 2006, the U.S. EPA issued a TMDL for the Savannah Harbor to address the dissolved oxygen impairment. Four years later, the Georgia Department of Natural Resources Environmental Protection Division (GA EPD) revised the dissolved oxygen criteria, which were subsequently adopted by U.S. EPA. In 2012, GA EPD, U.S. EPA Region IV, the South Carolina Department of Health and Environmental Control, and the Savannah River/Harbor Discharge Group (about 15 dischargers) started working together to develop an alternative restoration plan (known as a 5R) to meet the revised criteria.

The Savannah River/Harbor Discharge Group developed nutrient allocations among the members to meet the pollutant load reductions in an equitable manner. The improvement plan will be implemented in two stages, and a monitoring plan will be developed to track progress and compile additional information to address uncertainties associated with the second stage of the plan.

As a result of this process, GA EPD recategorized this waterbody in their 303(d) list as 5R, and U.S. EPA withdrew the TMDL. The budget for the one year negotiation and modeling scenarios was approximately \$120,000.

Websites:

http://epd.georgia.gov/sites/epd.georgia.gov/files/related_files/site_page/Public%20Notice%20Savannah%20Harbor%205R.pdf

http://epd.georgia.gov/sites/epd.georgia.gov/files/related_files/site_page/SavannahHarbor5R_Restoration_Plan_11_10_2015.pdf



North Georgia Regional Water Resources Partnership

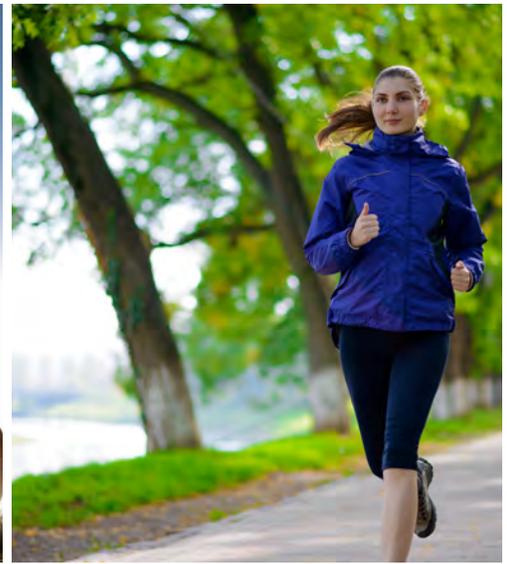
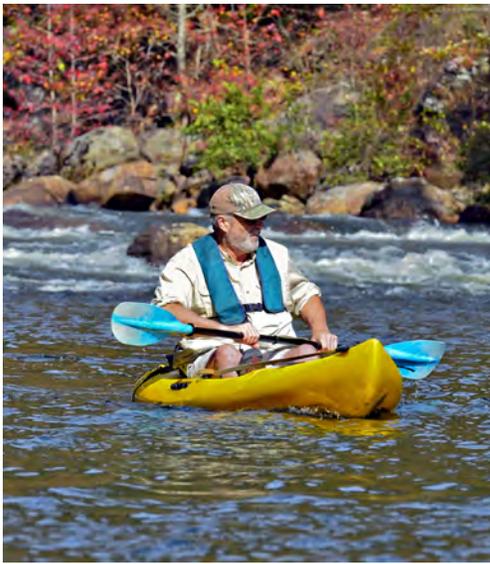
Northwest Georgia

In 1998, the Coosa Valley and North Georgia Regional Development Centers (RDCs) began developing a regional partnership to plan for water issues in North Georgia. Regional leaders recognized the importance of watershed planning, believing this would be best accomplished through local initiatives rather than state mandates. The Partnership includes water withdrawal and discharge permit holders and interested entities not holding water permits.

New total phosphorous permits limits associated with the Lake Weiss TMDL promoted the Partnership to explore alternative strategies such as nutrient trading. Other studies include regional water supply redundancy planning, targeted nutrient reduction strategies, and Watershed Protection Plans. The Partnership also hosts an educational seminar each spring on regional water related issues, and is designated as Technical Advisory Group to Coosa-North Georgia Water Council.

The annual budget is approximately \$100,000 per year funded by member dues and state grants. Full and associate memberships are available, full membership includes voting privileges. The RDCs provide accounting and meeting facilitation services.

Website: <http://www.nwgrc.org/>



Neuse River Compliance Association

Eastern North Carolina

In 1997, the Neuse Nutrient Strategy (similar to a TMDL) was adopted to allocate nitrogen loading to the Neuse River. The Neuse River Compliance Association (NRCA) was formed in 2002 as a point-to-point trading association in response to the Neuse Nutrient Strategy. The NRCA is composed of 23 public and private NPDES dischargers in the Lower Neuse River Basin with permitted nitrogen limits. The NRCA operates under a combined discharge permit that includes the cumulative nitrogen allocation for all of its members.

Based on the most recent annual report submitted in 2017, the NRCA discharged 593,145 pounds of total nitrogen to the Neuse Estuary, approximately 50 percent of the permit limit of 1,190,831 pounds of nitrogen. The investment required to date to achieve these improvements has been more than \$400 million.

The NRCA has been very successful in their collaborative approach to permit compliance. The association uses a combination of plant upgrades, water reuse, and system optimization to reduce nitrogen loading to the Neuse River. The result is a consistently lower nitrogen load than would have been possible if the systems operated under separate permits. This approach has not only been a success for water quality, but has also minimized the burden on the smallest communities bearing the highest relative financial responsibility. NRCA coordinates trades, conducts monitoring, provides training, and prepares annual reports. NRCA established By-Laws, is governed by a Board of Directors, and has a paid Executive Director. The operating budget for NRCA is approximately \$80,000 per year funded by member dues.

Website: <https://lnba.net>



Upper Neuse River Basin Association

Central North Carolina

The Upper Neuse River Basin Association (UNRBA) was formed in 1996 to address concerns about the water quality of Falls Lake. The group's focus shifted in 2010 with the adoption of the Falls Lake Nutrient Management Strategy (FLNMS), which is similar to a TMDL. The Strategy requires nitrogen reductions of 40 percent and phosphorus reductions of 77 percent from wastewater treatment plants, agriculture, and existing development. These are the most stringent nutrient reduction requirements in North Carolina. The FLNMS was developed by the state environmental agency on a very tight schedule with limited data and uncertain models, and implementation is estimated to cost over \$1 billion.

The FLNMS includes language to allow reexamination of modeling and load allocations. The UNRBA began planning for this reexamination in 2012 and committed to a four-year monitoring program to collect additional data in the lake and watershed. The UNRBA will complete its fourth year of monitoring in 2018 and is currently developing watershed and lake models. The improved models will be used to compare the effects of alternative nutrient management strategies on the water quality in Falls Lake. A cost-benefit analysis will also be conducted to identify the most efficient strategies. Depending on the results of the reexamination, regulatory options may be considered including variances, development of site specific criteria, or use attainability analyses. The annual budget for the UNRBA is approximately \$1 million per year paid by member dues.

Website: <https://www.unrba.org>



// Instead of the state government creating a regulatory plan to clean up the Reedy River system, our group fosters an approach that employs local government and citizen engagement to reduce excess levels of nutrients in our waters. This approach means that the local watershed stakeholders, who enjoy the Reedy River every day and understand the local environment, are creating and implementing water quality improvement plans for the watershed. //

—Reedy River Water Quality Group



Reedy River Water Quality Group

Central South Carolina

The Reedy River Arm of Lake Greenwood and Boyds Mill Pond were identified as impaired due to total phosphorus and algal growth and placed on the South Carolina Department of Health and Environment Control (SCDHEC) list of impaired waters. To address these water quality impairments, the Reedy River Water Quality Group (RRWQG)—comprised of 30 members including local governments, utilities, conservation groups, homeowner groups, local citizens, environmental regulators, businesses, and industries—developed a watershed implementation plan.

In 2016, as a result of these collaborative efforts, SCDHEC removed these two waters from the draft list of impaired waters. The RRWQG continues to implement nutrient reducing measures in the watershed, monitor water quality, and educate the public about good stewardship practices. The group is identifying and evaluating best management practices, including stream restoration and public education about failing septic systems, to improve water quality. The group is currently enhancing the watershed model and the lake model to support nutrient management decisions. An Executive Committee helps facilitate all committees and overall funding and projects. The RRWQG manages projects and activities through the in-kind contributions of its members.

Website: <http://cleanreedy.org>



Virginia Nutrient Credit Exchange Association

Eastern Virginia

The Virginia Nutrient Credit Exchange (the Exchange) Association is a voluntary association of 73 owners of 105 treatment facilities providing wastewater treatment in the Chesapeake Bay. The Exchange was established in 2005 to coordinate and facilitate nutrient credit trading among its members to help improve water quality efficiently and cost-effectively. Today, the Exchange is considered the largest and most successful water quality trading program in the United States.

In 2001, Virginia's major wastewater facilities had exceeded the Chesapeake Bay TDML for both nitrogen and phosphorus. By achieving load reductions through a voluntary, nutrient trading program, participants are able to cost-effectively reduce nutrient loading to the Bay. This program has resulted in 100 percent compliance with permitting requirements for its members each year since the exchange became operational. Services are provided by volunteers as well as contracted professional services and include a Board of Directors, compliance planning and reporting, legal support, accounting, and communications. The Exchange does not publish an annual budget.

Website: <http://www.theexchangeassociation.org>

Attachment F:

Example Guidance Document Outline

- Nutrient Trading Guidance Document Outline

Georgia Nutrient Trading Guidance Outline

Draft

1. Introduction (background, legal authority, public outreach input to process)
 - 1.1 NPDES Permit Requirements (can be met through trading, help meet TMDLs)
 - 1.2 Limitations for Nutrient Trading (can't have localized problems, baseline effluent)
 - 1.3 Pollutant Parameters Eligible for Nutrient Trading (phosphorus and nitrogen)
 - 1.4 Nutrient Trading Applicability (how it works, partners, types of trades)
2. Nutrient Trading Elements
 - 2.1 Geographic Area for Trading (within defined watershed/basin)
 - 2.1.1 TMDL Basins
 - 2.1.2 Non-TMDL Basins
 - 2.2 Baseline for Existing Wastewater Treatment Systems
 - 2.3 Baseline for NPS and MS4 Systems
 - 2.3.1 Permitted Urban Stormwater Pollutant Reduction Credit Threshold (if MS4 systems as credit seller)
 - 2.3.2 NPS Pollution Reduction Credit (nonpoint minimum standards or TMDL defined limits)
 - 2.4 Nutrient Credit Schedule
 - 2.4.1 Past Management Practices (not allowed)
 - 2.4.2 Annual Credit Use
 - 2.4.3 Permanent Credit Use
 - 2.4.4 Trade Duration
 - 2.5 Quantifying Pollutant Load Reduction for Management Practices
 - 2.5.1 Agriculture BMPs (ex. Chesapeake Bay, NRCS, Coosa Basin Study spreadsheet model)
 - 2.5.2 Urban BMPs (ex. GA Stormwater Management Manual)
 - 2.5.3 Permanent BMPs (land conversion, septic tank disconnection)
 - 2.5.4 New BMPs

2.6 Trade Ratios

- 2.6.1 Delivery Factor (location in the watershed, define model/process)
- 2.6.2 Equivalency Factor (different forms of nutrient)
- 2.6.3 Uncertainty Factor (account for climatic or other BMP uncertainties)
- 2.6.4 Minimum Trade Ratio (at least 1:1.1 or 10% more than point source)
- 2.6.5 Priority Watershed Ratio

3. Implementing Nutrient Trading

3.1 Initial Development and Implementation

- 3.1.1 Existing WQBEL
- 3.1.2 Pre-application Meeting with GAEPD
- 3.1.3 Nutrient Trading Program
 - 3.1.3.1 Nutrient Trading Program Application and Approval (how to complete, background info. needed, approval process)
 - 3.1.3.2 Trade Location and Figure
 - 3.1.3.3 Trade Description (parameters, type of trade, BMP description)
 - 3.1.3.4 Credit Calculation (method of calculation, effluent limit, compliance limit, credits applied, ex. Calculation)
 - 3.1.3.5 Trade Ratios (description, application)
 - 3.1.3.6 Tracking and Verification (tracking BMPs and for litter export final location)
 - 3.1.3.7 Inspection
 - 3.1.3.8 Reporting
 - 3.1.3.9 O&M Plan
 - 3.1.3.10 Trade Agreement (between credit generator and permittee, 3rd party banker?)

3.2 NPDES Individual and Watershed Permits

Glossary

References

Appendix A: Federal and State Legal Authority

Appendix B: Nutrient Trading Program Checklist

Appendix C: Agriculture Best Management Practices Removal Efficiency

Appendix D: Urban Best Management Practices Removal Efficiency

Appendix E: Annual Report Form

Appendix F: Trade Agreement Form

