

# 2024 Annual Report



## Tennessee Nutrient Reduction Task Force

Improving Water Quality Together



Hatchie National Wildlife Refuge

# Summary

Tennessee's Nutrient Reduction Task Force remains committed to reducing nutrient pollution through a coordinated, stakeholder-driven approach. By engaging experts from academia, local and state governments, federal agencies, non-governmental organizations, and the private sector, the Task Force continues to develop and implement practical strategies for nutrient reduction in Tennessee's waters. The Task Force also tracks statewide progress. Its subcommittees focus on targeted objectives such as data collection, best management practices, and public outreach.

## Key Achievements of 2024

- More than **\$41.7 million** invested in installation of cover crops in the 2024 growing seasons;
- Long-term nutrient concentration and other relevant water quality data in Tennessee's waters compiled in the [Tennessee Nutrient Database](#);
- Frequent water quality monitoring enables at 111 USGS stations - once every two months, during low and high flow conditions;
- Crucial process and effluent nutrient data from wastewater treatment plants compiled into a comprehensive spreadsheet for trends analysis;
- More than \$420,000 invested in optimizing wastewater treatment plants for nutrient removal
- A geodatabase initiated to host urban stormwater control measures data across MS4s
- Quarterly newsletters and Chairs meetings implemented to increase communication frequency between the subcommittee and work groups to foster collaboration.

**30** Total Stakeholder Meetings

**33** Different Stakeholder Groups Engaged



## Purpose of Report

This report is intended to showcase progress of the Task Force and facilitate discussion around actions needed to meet the goals of this Task Force.

# Task Force Partners and Participants





Screenshot of attendees in the virtual Task Force meeting held on January 25, 2025.

# Subcommittees

The Task Force consists of four subcommittees: Communication and Outreach, Goals and Metrics, Data and Monitoring, and Best Management Practices.

The Best Management Practices subcommittee is further organized into four working groups: Agricultural, Municipal, Nature-Based Solutions, and Urban.

# Goals and Metrics

## Participating Agencies

Tennessee Department of Environment and Conservation (TDEC)	University of Tennessee Knoxville
Tennessee Department of Agriculture (TDA)	Tennessee Valley Authority (TVA)
U.S. Department of Agriculture (USDA)	Tennessee Tech University
Cumberland River Compact	Municipalities
Consultants	

The Goals and Metrics subcommittee is re-evaluating the Task Force’s draft goals and metrics to determine which are most relevant and impactful at this stage. One of the subcommittee’s key objective is to standardize data collection required to track the progress of the Task Force, making it easier to showcase information clearly to stakeholders.

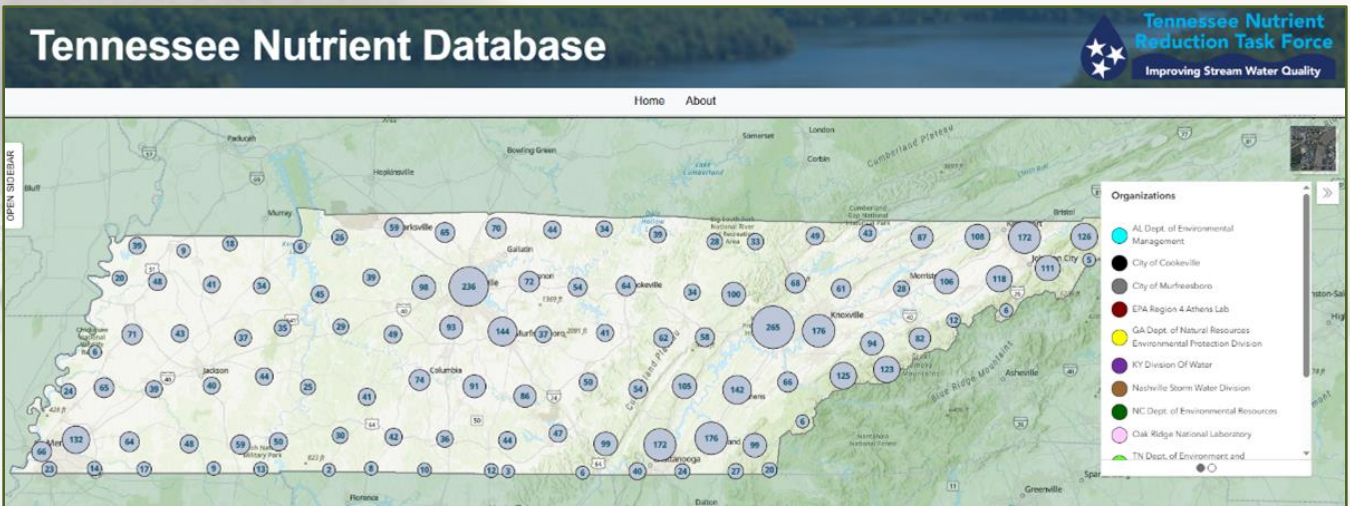
3

Work Group Meetings

# Data and Monitoring

## Participating Agencies

Tennessee Department of Environment and Conservation (TDEC)	University of Tennessee Knoxville
Tennessee Department of Agriculture (TDA)	The Nature Conservancy
Tennessee Association of Utility Districts (TAUD)	Tennessee Tech University
Consultants	U.S. Geological Survey (USGS)
West Tennessee River Basin Authority (WTRBA)	Tennessee Valley Authority (TVA)



The Data and Monitoring work group continued to update the [Tennessee Nutrient Database](#). Additionally, the subcommittee focused on developing future monitoring strategies to understand trends in nutrient loads in Tennessee's rivers and streams.

5  
Work Group Meetings

111  
Water Quality Stations monitored for nutrient concentrations once every two months, during low and high flow conditions

# Communications and Outreach

## Participating Agencies

Tennessee Department of Environment and Conservation (TDEC)	University of Tennessee Knoxville
Tennessee Department of Agriculture (TDA)	The Nature Conservancy
Tennessee Valley Authority (TVA)	Municipalities
Middle Tennessee State University	Consultants

To increase internal communication, we:

- began publishing quarterly newsletters which are distributed to all participating stakeholders and available to view on the website, and
- began organizing quarterly subcommittee chairs meetings to discuss overlapping ideas and goals.



April 24, 2025, Task Force meeting.

2  
Chairs Meetings

10  
Work Group  
Meetings

2  
Newsletters  
Issued

# Work Groups

The Best Management Practices subcommittee is organized into working groups: Agricultural, Municipal, Nature-Based Solutions, and Urban.

# Agricultural Best Management Practices

## Participating Agencies

Tennessee Department of Environment and Conservation (TDEC)	University of Tennessee Extension
Tennessee Department of Agriculture (TDA)	The Nature Conservancy
U.S. Department of Agriculture Natural Resources Conservation Service (NRCS)	Tennessee Tech University
Cumberland River Compact	Tennessee Farm Bureau

5

Work Group Meetings

>\$41.7M

Invested on Cover Crops

218,454

Acres Impacted by Cover Crops

31

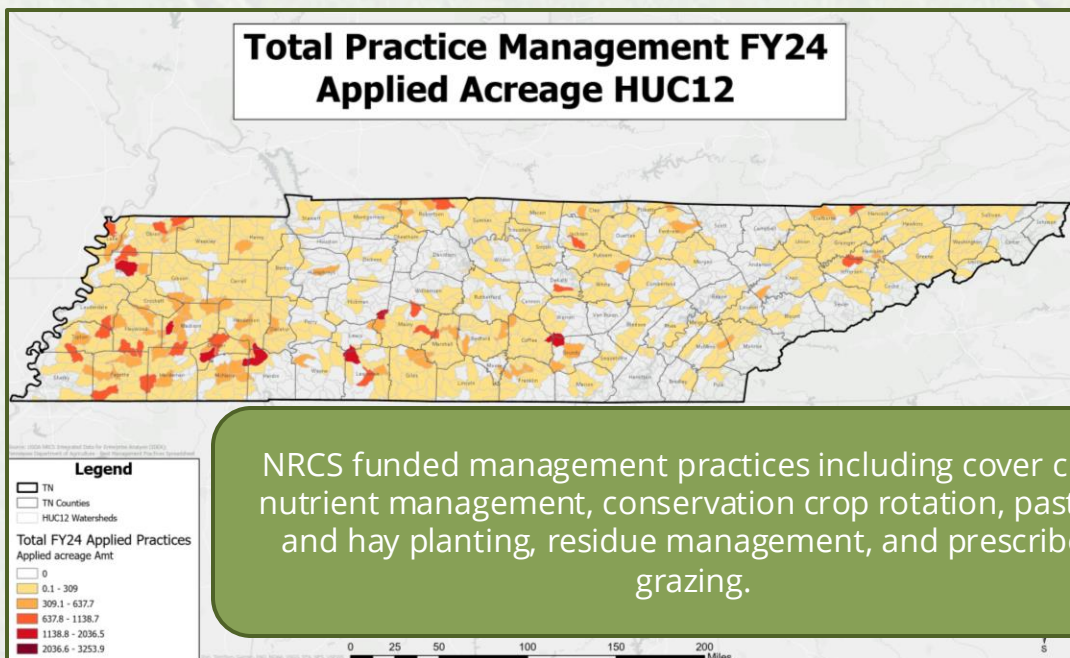
Education and Outreach Events

89,133

Acres Impacted through TDA Funding

1

CAFO Permit Issued



NRCS funded management practices including cover crop, nutrient management, conservation crop rotation, pasture and hay planting, residue management, and prescribed grazing.

# Municipal Wastewater Treatment

Participating Agencies	
Tennessee Department of Environment and Conservation (TDEC)	University of Tennessee Knoxville
Tennessee Association of Utility Districts (TAUD)	Municipalities
Consultants	Tennessee Tech University

6

Work Group Meetings

52

Permits Issued by TDEC

3

Plant Optimizations Completed

\$420 K

Invested towards Plant Optimization

7

Education and Outreach Events

Continual Improvements to "Tennessee Wastewater Universe"

## Tennessee Plant Optimization Program (TNPOP) Highlights at a Participating Facility

Over a 16-month period:

- Nitrogen concentrations decreased from 10 mg/L to 3 – 6 mg/L/
- Phosphorus concentrations decreased from around 1.0 mg/L to 0.5 mg/L.
- Electricity use reduced by 15%.



Through TNPOP, recommendations like turning off aeration systems (as seen above) are used to help facilities optimize their processes.

# Nature-Based Solutions

## Participating Agencies

Tennessee Department of Environment and Conservation (TDEC)	University of Tennessee Extension
West Tennessee River Basin Authority (WTRBA)	The Nature Conservancy
U.S. Department of Agriculture Natural Resources Conservation Service (NRCS)	Tennessee Tech University
Cumberland River Compact	Tennessee Wildlife Resources Agency (TWRA)
Tennessee Department of Agriculture (TDA) Forestry	Southeastern Partnership for Forests and Water
University of Tennessee Knoxville	Murray State
Vanderbilt University	Oak Ridge National Laboratory (ORNL)

6

Work Group Meetings

## On-going efforts include:

- Developing guiding definition for Nature-Based Solutions
- Generating and gathering nature-based solutions spatial database for Tennessee
- Developing research “wish list” to address gaps in knowledge
- Reviewing metrics to determine how to account for vast amount of work being done by all partners

# Urban Stormwater Best Management Practices

## Participating Agencies

Tennessee Department of Environment and Conservation (TDEC)	University of Tennessee Extension
Tennessee Association of Utility Districts (TAUD)	Consultants
Cumberland River Compact	Tennessee Tech University

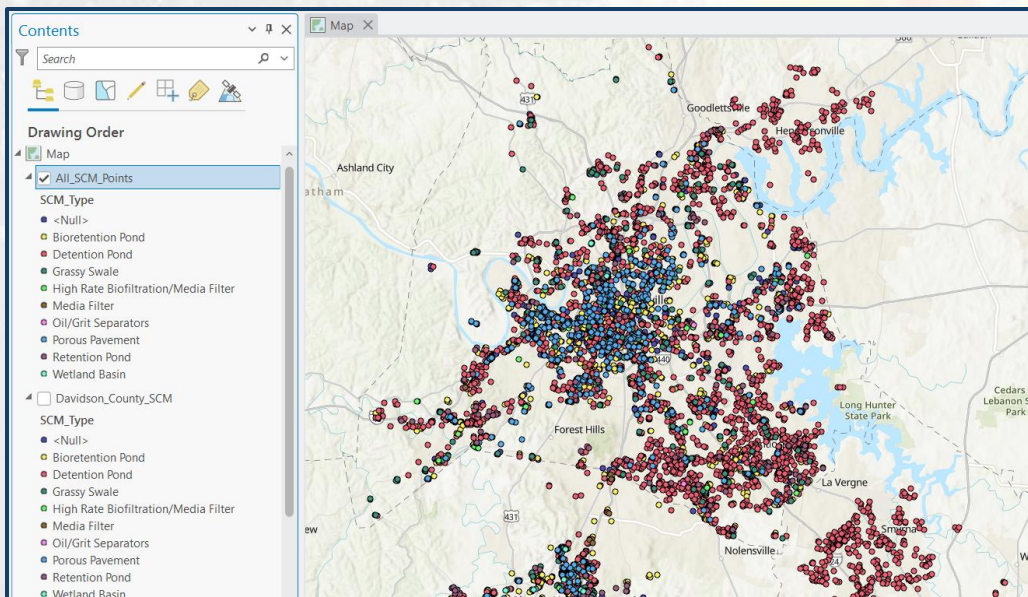
5  
Work Group Meetings

2  
Chapters of the TN Erosion Prevention and Sediment Control Handbook Updated

Continual work on the Tennessee [Urban Waters Report Card](#)

## Tennessee's Urban Stormwater Control Measures (SCM) Geodatabase Initiated

A geodatabase was initiated to compile SCM data from Municipal Separate Storm Sewer Systems (MS4s), providing a spatial and visual representation of both the total number of SCMs and the distribution of each type across Tennessee.



# Related Work

TDEC's Division of Natural Areas: [Story Map 2024](#) featuring partners and projects  
Description:

U.S. Fish and Wildlife Services' [Southeast Conservation Blueprint Explorer](#)  
Description:

TDEC: [Harmful Algal Blooms](#)  
Description:

Tennessee Floodplain Network  
Description:

Tennessee [Watershed Planning Coordination](#)  
Description:

# Success Stories

## Watershed Plans

### **TDEC and TDA Funded**

- Murphree Creek 051302040202 (HARPETH RIVER)
- Upper West Harpeth River 051302040201 (HARPETH RIVER)

### **NRCS Funded**

- Holston River-Bradley Creek/Hard Creek
- Holston River - Richland Creek
- Lewis Creek
- Watts Bar

# Supporting Information

# General Nutrients

## Stakeholders

- City of Chattanooga
- City of Cookeville
- City of Franklin
- City of Murfreesboro
- City of Nashville
- Cumberland River Compact
- Engineering and Consulting Firms
- Hamilton County
- Industry
- Kentucky Energy and Environment Cabinet
- Knoxville Utilities Board
- Middle Tennessee State University (**MTSU**)
- Murray State University
- Oak Ridge National Laboratory (**ORNL**)
- Tennessee Association of Utility Districts (**TAUD**)
- Tennessee Chamber of Commerce
- Tennessee Department of Agriculture (**TDA**)
- Tennessee Department of Agriculture – Forestry
- Tennessee Department of Environment and Conservation (**TDEC**)
- Tennessee Department of Transportation (**TDOT**)
- Tennessee Farm Bureau
- Tennessee Soybean Association
- Tennessee Stormwater Association (**TNSA**)
- Tennessee Tech University (**TTU**)

# General Nutrients

## Stakeholders (continued)

- Tennessee Valley Authority (**TVA**)
- Tennessee Wildlife Resources Agency (**TWRA**)
- The Nature Conservancy
- U.S. Department of Agriculture – Natural Resources Conservation Service (**NRCS**)
- U.S. Geological Survey – Lower Mission – Gulf Water Science Center
- University of Tennessee (**UT**)
- University of Tennessee Extension Services
- Vanderbilt University
- West Tennessee River Basin Authority (**WTRBA**)

## In-Person Meetings

April 2, October 29

[Tennessee Nutrient Database](#)

## Presentations

[West TN Water Resources Symposium](#): “Tennessee Nutrient Task Force” in April

[TN Sustainability Conference](#): “Tennessee Nutrient Task Force” in August

General Public (garden club) in November 2024

# Subcommittees

## Goals and Metrics

### Meeting Dates

May 10, August 16, November 8

## Data and Monitoring

### Meeting Dates

February 14, March 25, May 8, August 14, November 15

### Presentations

EPA's Nonpoint Source Technical Exchange Forum:

[Wetlands: Assessment, Prioritization and Research](#)

USGS's [National Water Dashboard](#)

## Communications and Outreach

### Meeting Dates

January 5, February 2, March 1, April 5, May 3, August 2, September 6, October 4, November 1, December 6

# Work Groups

## Agricultural BMPs

### Meeting Dates

January 9, March 22, May 24, September 27, November 22

### Outreach and Workshops

The Nature Conservancy hosted two outreach events in August in Jackson and Orinda. Topics included cover crop trends in TN and sustainable aviation fuel, overcoming challenges transitioning to regenerative agriculture, and autonomous cover crop planting technology.

The Cumberland River Compact hosted the following:

- 05/10/2024 - CRC hosted a Grazing School at the James E. Ward Ag Center, 945 E Baddour Pkwy, Lebanon, TN 37087, and at Neal Perry's farm in Lebanon (Wilson County), where 35 farmers learned about rotational grazing techniques and benefits and protecting waterways from animal impacts. Farmers indicated in post-workshop feedback that they are applying conservation grazing BMPs to a total of 400 acres.
- 10/02/2024 - CRC hosted a Grazing School at Kelley Farms in Decaturville (Decatur County), where 62 participants learned about rotational grazing techniques and benefits and protecting waterways from animal impacts. Farmers indicated in post-workshop feedback that they are applying conservation grazing BMPs to a total of 8,364 acres.
- 10/28/2024 - CRC presented at Westmoreland High School "Ag in the Classroom," in Westmoreland (Sumner County), where 20 students learned about agricultural practices that impact waterways and BMPs to mitigate them. All students are enrolled in Future Farmers of America.

### Conferences and Presentations

American Forage and Grassland Council – presentation “Grasslands, Climate, and Science: Where It All Begins: Soil as the Foundation” on January 8, 2024. 55 attendees

Virtual Presentation for UT Extension Agents – “Nitrogen Management in No-Till Dryland Corn in TN: 4R Nutrient Stewardship” on January 11, 2024.

TN Consultant’s Meeting – “Soil Fertility Updates: Corn and Soybeans” on January 26, 2024. 25 attendees

# Work Groups

## Agricultural BMPs (continued)

### Conferences and Presentations

Middle TN Grain Conference – “Agronomics of Cover Crops” on January 30, 2024. 35 attendees

Gibson County Grain and Cotton Growers Educational Meeting – “2023 Crop Fertility Research Updates” on February 12, 2024. 82 attendees.

Lauderdale County Extension Meeting – “2023 Crop Fertility Research Updates” on March 4, 2024. 25 attendees.

Virtual Presentation for TDEC Permit Writers – “Evaluating soils and soil amendments for land application” on March 6, 2024. 25 attendees

Virtual Presentation for TDEC Permit Writers – “Understanding the Basics of Soils and Soil Fertility” on March 6, 2024. 25 attendees

Virtual Presentation for UT Extension Agents – “2024 Engineering Elements: Validation of Soil-Test -Based Phosphorus and Potassium Fertilizer recommendations for Soybean” on May 1, 2024

Cotton Scout School – “Cotton Soil Fertility” on May 21, 2024.

Wolf River Conservancy virtual meeting – “Farming for the future: regenerative agriculture”. 25 attendees

NECC, NCERA, and SERA Joint Meeting – “Validation of P and K Fertilizer Recommendation for Soybean in TN” on June 5, 2024. 20 attendees

“Tobacco Beef and More: Nitrogen Fertilization in Corn” on June 27, 2024. 90 attendees

Soybean Scout School – “Soybean soil fertility” on July 15, 2024. 56 attendees

Soybean Scout School – “Soybean soil fertility” on July 16, 2024. 45 attendees

Soybean Scout School – “Soybean soil fertility” on July 17, 2024. 50 attendees

Tennessee Agricultural Production Association Annual Summer Meeting – “Evaluation of phosphorus and potassium recommendations for cotton in Tennessee” on July 23, 2024. 40 attendees

Milan No Till – “Validation of P and K Fertilizer Recommendations for Soybean”, “Nitrogen Application Timings in No-Till Dryland Corn Production Systems”, and “Enhanced Efficiency Nitrogen Fertilizers as Tool to Control Nitrogen Loss in Row Crop Production” on July 25, 2024. 30 attendees.

# Work Groups

## Agricultural BMPs (continued)

### Conferences and Presentations

Plant Health 2024 FIELD TRIP – “West TN AgResearch Stations Field Crops Tour: Soil Fertility Program” on July 27, 2024. 30 attendees

Meeting in Uruguay – “Crop Production, No-Till, Cover Cropping in Tennessee: Current and Future Trends” on July 30, 2024. 20 attendees

2024 Corn, Cotton, and Soybean ANR Agent Inservice – “Nutrient Management in Corn” on August 12, 2024.

“Fertilizer Recommendation Support Tool Meeting: P and K response in corn and soybean using DAP and TSP” on August 12, 2024. 40 attendees

Virtual NRCS Training – “University of Tennessee Soil Research Update” on August 29, 2024. 75 attendees

West TN AgResearch and Education Center Cotton Tour – “Nitrogen and Potassium Update” on September 11, 2024. 80 attendees.

“Belize- UTK Collaboration: Soil and Nutrient Management” on September 12, 2024.

Carter County Cattleman's Association Annual Meeting – “Fertilizers, Soil Amendments, Manures, and More” on November 2, 2024. 75 attendees

### Publications

USDA-NRCS’s [Tennessee At-A-Glance](#), January 2025

Permits issued by TDEC can be found on the Division of Water Resources’ [Data Viewer](#).

# Work Groups

## Municipal Wastewater BMPs

### Meeting Dates

January 19, March 15, May 17, July 19, September 20, November 15

Permits issued by TDEC can be found on the Division of Water Resources' [Dataviewer](#).

[Tennessee Plant Optimization Program completions](#): Centerville (TN002493), Wartburg (TN0028622), and Dyer (TN0021563).

### Education and Outreach Events

3 hosted by TAUD and 4 hosted by TDEC

## Nature-Based Solutions

### Meeting Dates

January 8, March 11, May 12, July 8, September 9, November 18

## Urban Stormwater BMPs

### Meeting Dates

February 20, May 21, August 20, November 19

Tennessee Erosion Prevention and Sediment Control Handbook: [Chapters 1 and 2](#)

[Tennessee Urban Waters Report Card](#)

[Stormwater Control Geodatabase](#): Preliminary choropleth maps on next page