



Department of
**Environment &
Conservation**

Division of Water Resources Wastewater and Collection Systems Update



Rule Updates

Rules

- RULE CHAPTER 0400-40-02 Regulations for Plans, Submittal, and Approval; Control of Construction; Control of Operation
 - On hold has not gone to the Board
- RULE CHAPTER 0400-40-03 General Water Quality Criteria
 - Filed With the Secretary of State's Office - effective March 17
- RULE CHAPTER 0400-40-04 Use Classifications For Surface Waters
 - Filed With the Secretary of State's Office - effective March 17
- RULE CHAPTER 0400-40-05 Permits, Effluent Limitations and Standards
 - Filed With the Secretary of State's Office - effective March 19
- RULE CHAPTER 0400-40-10 General National Pollutant
 - Filed With the Secretary of State's Office - effective March 19

0400-40-02.03(3)

- Removing the following restrictions:

For small domestic wastewater plants, the following restrictions apply:

(a) Activated sludge plants for design flows of 30,000 to 100,000 gallons per day will only be approved if all other treatment schemes have been demonstrated to be impractical due to non-economic considerations including but not limited to available space.

(b) No activated sludge plants will be approved for design flows less than 30,000 gallons per day.

- Other options
 - Attached growth* (Recirculating sand filter, Bioclere™, AdvanTex®,...)
 - Connect to public sewer
 - Regionalization
- Public Hearing September 6, 2023, comments against, we are reviewing them before taking further action

*TDEC does not recommend any particular brand. These are given as examples.

The owner and engineer should make their own decisions on the applicability of a treatment type to their unique situation.

Pump and Haul (Rule 0400-40-06)

- Input from the utilities on rule making
- Agreement from utility to take the hauled waste
- Time frame, amount, reporting, record keeping
- TDEC will not force utilities to accept waste

RULE CHAPTER 0400-40-03

- Fish and Aquatic Life
 - Chloride (New) Acute 860000 µg/L Chronic 230000 µg/L
- Recreation
 - Nitrosodiethylamine Chronic 2.4 µg/L to 12.4 µg/L
- e. Coli
 - 126 CFU/100 ml geometric mean
 - 410 CFU/100 ml daily maximum

(f) → Coliform - The concentration of the E. coli group shall not exceed 126 cfu per 100 ml, as a geometric mean based on a minimum of five samples collected from a given sampling site over a period of not more than 30 consecutive days with individual samples being collected at intervals of not less than 12 hours. For the purposes of determining the geometric mean, individual samples having an E. coli concentration of less than 1 cfu per 100 ml shall be considered as having a concentration of 1 cfu per 100 ml. ¶

¶

Additionally, the concentration of the E. coli group in any individual sample ~~taken from a lake, reservoir, state scenic river, Exceptional Tennessee Water or Outstanding National Resource Water (ONRW) (0400-40-03-06)~~ shall not exceed ~~487-410~~ cfu per 100 ml ~~more often than in 10% of samples during any 30-day interval.~~ The concentration of the E. coli group in any individual sample taken from any other waterbody shall not exceed ~~941~~ cfu per 100 ml. ¶

¶



Collection Systems

Inconsistent Reporting of Overflows

- Moratorium Permit Conditions - how effective?
- Between October 31, 2021, and October 31, 2023
 - A total of 174 systems reported at least 1 event
 - That is 69% of the universe.
 - 65 systems have reported less than 5 events during this time frame
 - 80 system have not reported ANY event

The Division's Approach

- The current approach is to focus on the Number of Collection System Events Reported
- The Division will begin to look at
 - Number, volume and type of events reported
 - Influent BOD/CBOD
 - Peak Flows to Low Flow Ratios
 - Average Flows to Design Flow Ratios
- Organizing the data to a commonality e.g. population or miles of collection system for comparability

Collection System Metric Survey

The Division of Water Resources is currently working to identify metrics useful in identifying systems with chronic I&I related issues. When this is identified earlier, corrective actions may be easier and less expensive to implement. The Division currently utilizes the metric of ">5 overflows or releases at a location in 12 months" which requires the permittee to establish a self-imposed moratorium to identify I&I in collection systems.

The goal of this survey is to include Operators and other Utility personnel in the process of determining methods and trigger points for assessing I&I and its adverse impacts. Not all of the details have been worked out for each proposal. Please use question 10 to give us suggestions or additional feedback on any of the metrics below.

1. Establish a requirement that systems must address capacity issues when influent flows surpass 80% design capacity. Capacity issues can be addressed by taking steps to reduce flows or by increasing plant capacity which ever is appropriate to the situation as determined by an alternatives analysis.

- In favor
- No opinion
- Opposed

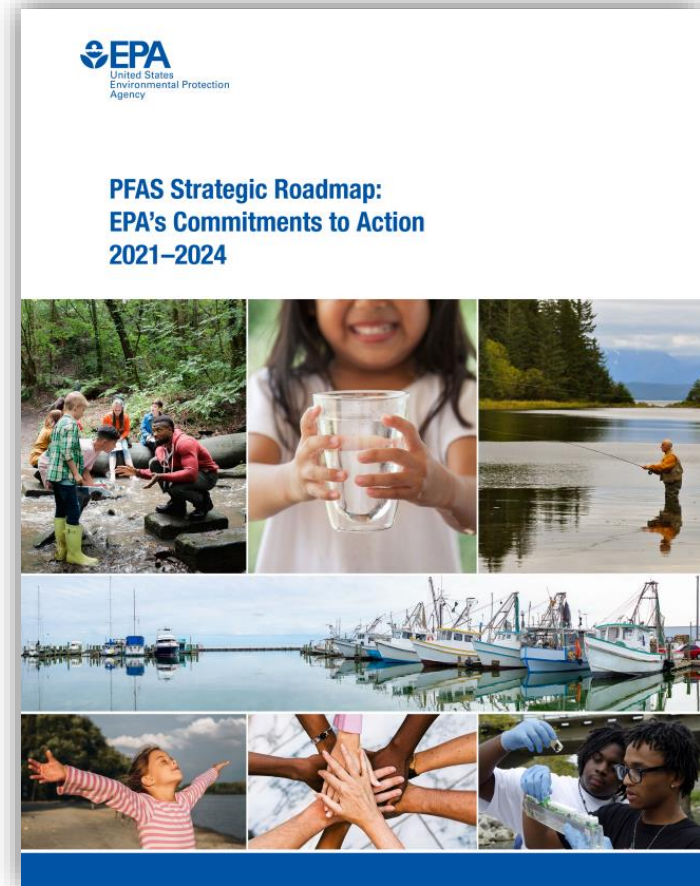


PFAS Update

EPA PFAS Strategic Roadmap

EPA's PFAS Strategic Roadmap -

- Released October 2021
- Establishes a whole-of-agency approach to addressing PFAS
- Sets timelines by which EPA plans to take specific actions to address this emerging contaminates
 - New Testing Methods
 - [Method 1633](#)
 - [Method 1621](#)
 - Updated ELG rulemaking/studies
 - New NPDES & Pretreatment Program Guidance
 - December 6 Memo
 - New Draft WQC



<https://www.epa.gov/pfas>

Division Approach

- Sampling
 - The southeast only has a few labs capable of running the PFAS methods.
 - Estimated cost ranges from \$800- \$1000
- The Division has reviewed the EPA memorandum and will take a logical, methodological approach.
- Interest in PFAS in the Tennessee legislature
- TDEC PFAS Information:
<https://www.tn.gov/environment/policy/pfas.html>



MyTDEC Forms

MyTDEC Forms - eMORs

- 2024 launch anticipated the Fall 2024
- Replace paper MORs and the excel “eMOR” process
- Testing now
- Can switch early – contact Ariel Wessel-Fuss
- Many permits already require use of MyTDEC Forms for MOR reporting. The Division will explicitly notify you when it is required.

Changes to Overflow Form

- In December 2022, the EPA launched an Overflow report working group to begin the process of integrating the data from the various state systems.
- Now that we have a better idea of what EPA's system is expecting, we will begin to make modifications to the form.
- Changes will likely be implemented in pieces over the next year.
- Aligning with EPA

Who Do I Call?

- Your Field Office Inspector For
 - Technical Questions about the event itself
- BG-Help_Desk@tn.gov

Put MyTDEC Forms in the subject line

- *Password Reset*
- *Locked accounts*
- *Challenge question Reset*
- *Site doesn't work*





Engineering

Plans & Upgrades

- Changes during design \$
- Changes during bidding \$ \$
- Changes during construction \$ \$ \$
- Changes after construction \$ \$ \$ \$

- Feasibility
- Constructability
- Operability
- Maintainability
- Accessibility

Operators should have an opportunity to look at the plans

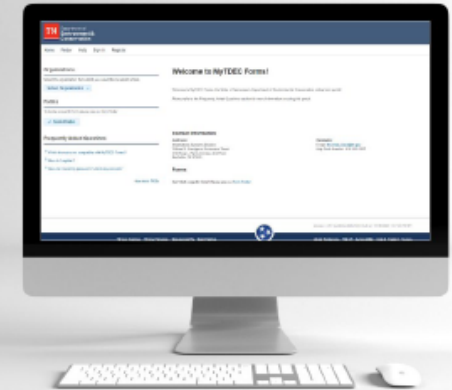
Workshop

Register today!

Join us for an in-person comprehensive training session on TDEC Drinking Water Engineering Plans Review!

- ❖ Discover best practices for submitting engineering documents to TDEC for review and approval.
- ❖ Learn how to navigate MyTDEC Forms for engineering document submittal.
- ❖ Earn free PDHs!

Drinking Water Plans Review Workshop



DWR.Engineering@tn.gov

Presented by Angela Jones, PE, CPM
Manager, TDEC- DWR-Engineering Services

Limited Seating!
Pre-registration required

Email DWR.Engineering@tn.gov to register

📅 Wednesday, March 20, 2024
🕒 1 p.m.—3 p.m.
📍 Jackson Environmental Field Office
1625 Hollywood Drive, Jackson, TN

📅 Thursday, March 21, 2024
🕒 1 p.m.—3 p.m.
📍 First Utility District of Knox County
122 Durwood Road, Knoxville, TN

📅 Thursday, March 28, 2024
🕒 1 p.m.—3 p.m.
📍 Fleming Training Center
2022 Blanton Drive, Murfreesboro, TN

Plans review

- Projects must be approved by TDEC before construction
- State approved plans must be on site during construction
- Rule 0400-40-16

Final Plans - Before work is commenced on any new construction or change of an existing system, final plans and specifications and cost estimates, together with such additional data as may be necessary to determine the suitability of the works, shall be submitted to the Tennessee Department of Environment and Conservation, and no part of the work shall be started until the Department has given its written approval.



Fleming Training Center

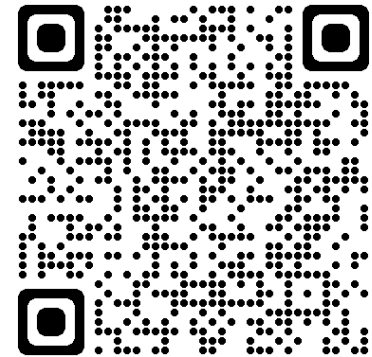
Pretreatment

- Pretreatment Seminar
 - April 10, 2024
 - 8:30
 - 6 CEUs
 - Free
 - At FTC and Virtually
- Adam Bonomo – vacancy
- Samantha O’Neil – point of contact

License Renewals

- **Renewal invoices were sent via email this year**
 - If you didn't receive an email:
 - Check your spam first! (it came from BG44BSVCP0081@tn.gov so it looks like spam)
 - Call 615-898-8090
- Invoices were attached as PDFs in email
 - You can still print & mail with checks **OR**
 - Pay in Operator Public Portal
 - Can pay individual or multiple invoices
 - Video instructions on how to pay using the portal: <https://youtu.be/VW47xaO3LJ8> (also on website)

Scan for video →



Workforce Survey



KENTUCKY WATER WORKFORCE SURVEY 2022

AUGUST 2022

 Kentucky Water
Resources Research Institute

TENNESSEE WATER WORKFORCE SURVEY



Do you have experience
as an operator or
manager at a water or
wastewater utility in
Tennessee?

Share your experience with us for a chance to **win a free operator training course (up to \$575 in value)** from the Fleming Training Center

Researchers at the University of Tennessee invite you to take part in a survey about your experience as an operator and/or manager for a water or wastewater utility. The purpose of the Tennessee Water Workforce Survey is to better understand and address challenges, barriers, and opportunities related to hiring and retaining operators. Interested participants will be asked to take a brief 10-15 minute online survey. Survey participants will be given a chance to win free training class credit at the Fleming Training Center after completing the survey.

You may be eligible to participate if you:

- Are over the age of 18, and
- Have experience as a manager or operator at a water utility

Visit the link below to learn more:

[survey link and/or QR code here]



THE UNIVERSITY OF
TENNESSEE
KNOXVILLE





Permitting

Late Applications

- In the last 5 years, roughly 20% of the applications for NPDES and SOP permits were submitted late.
- Email reminder will be sent about a month before it is due
- Once the application is late, we will initial an NOV with a due date specified.
- If that date passes, a second NOV is initiated.
- If the permit expires without a complete application, an enforcement action is requested.
- Contact your permit writer if you are having issues that will prevent you from meeting your application Due Date (180 days before the expiration of the permit)

Applications

- Due 180 days **BEFORE** the expiration date
- New Application Forms (2019)

Print All Pages

Print Form Only

United States
Environmental Protection Agency

Office of Water
Washington, D.C.

EPA Form 3510-2A
Revised March 2019

Water Permits Division



Application Form 2A

New and Existing Publicly Owned Treatment Works

NPDES Permitting Program

TN

Department of
Environment &
Conservation

Effluent Sampling

At a minimum, effluent testing data must be based on at least **three** samples taken within 4.5 years prior to the date of the permit application. Samples must be representative of the seasonal variation in the discharge from each outfall. Existing data may be used, if available, in lieu of sampling done solely for the purpose of this application.



Nutrients

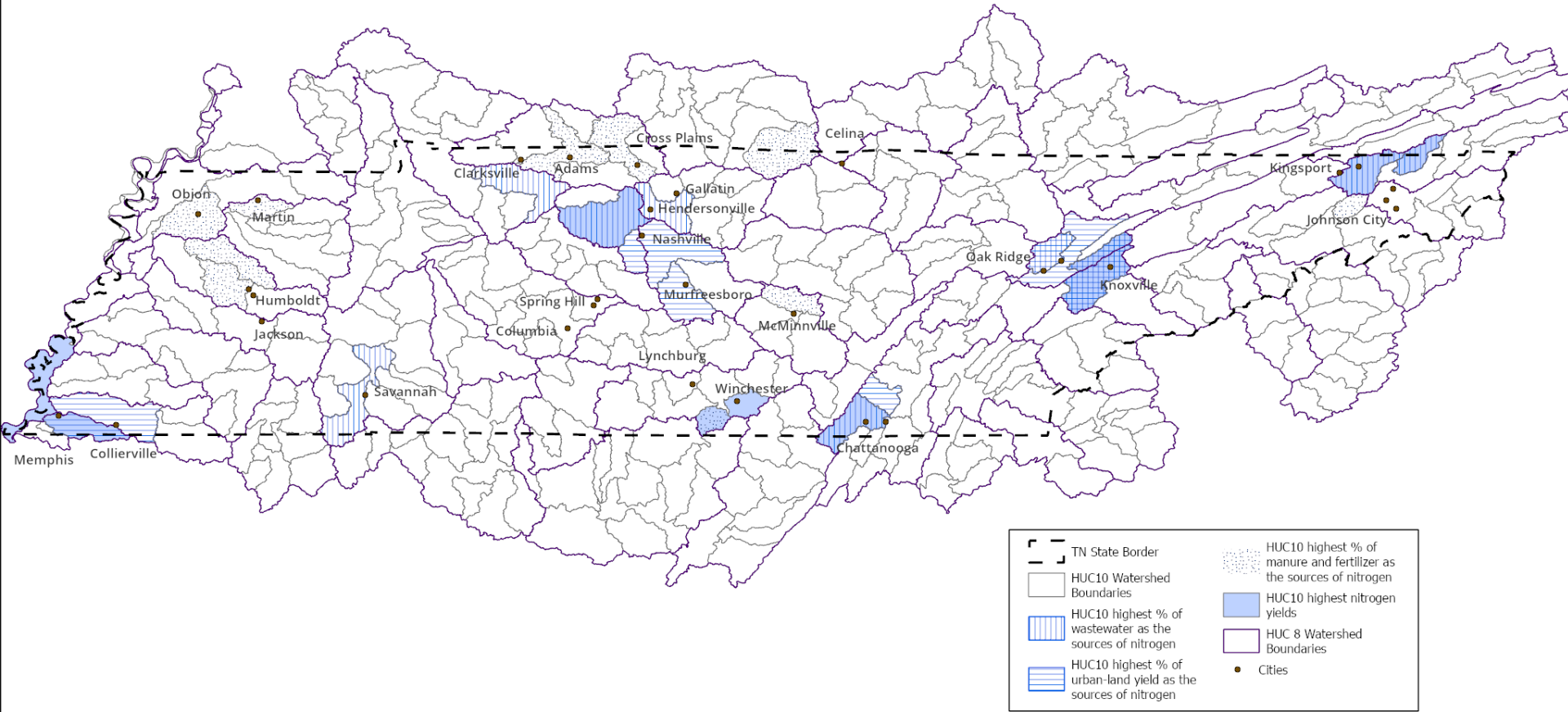
Nutrient Priorities

- TN specific SPARROW model – HUC10
- Contributions: % from each source & % in background
- Contributors to large streams
- Stream impairment
- Antidegradation
- Gulf Hypoxia

TDEC Priority Watersheds

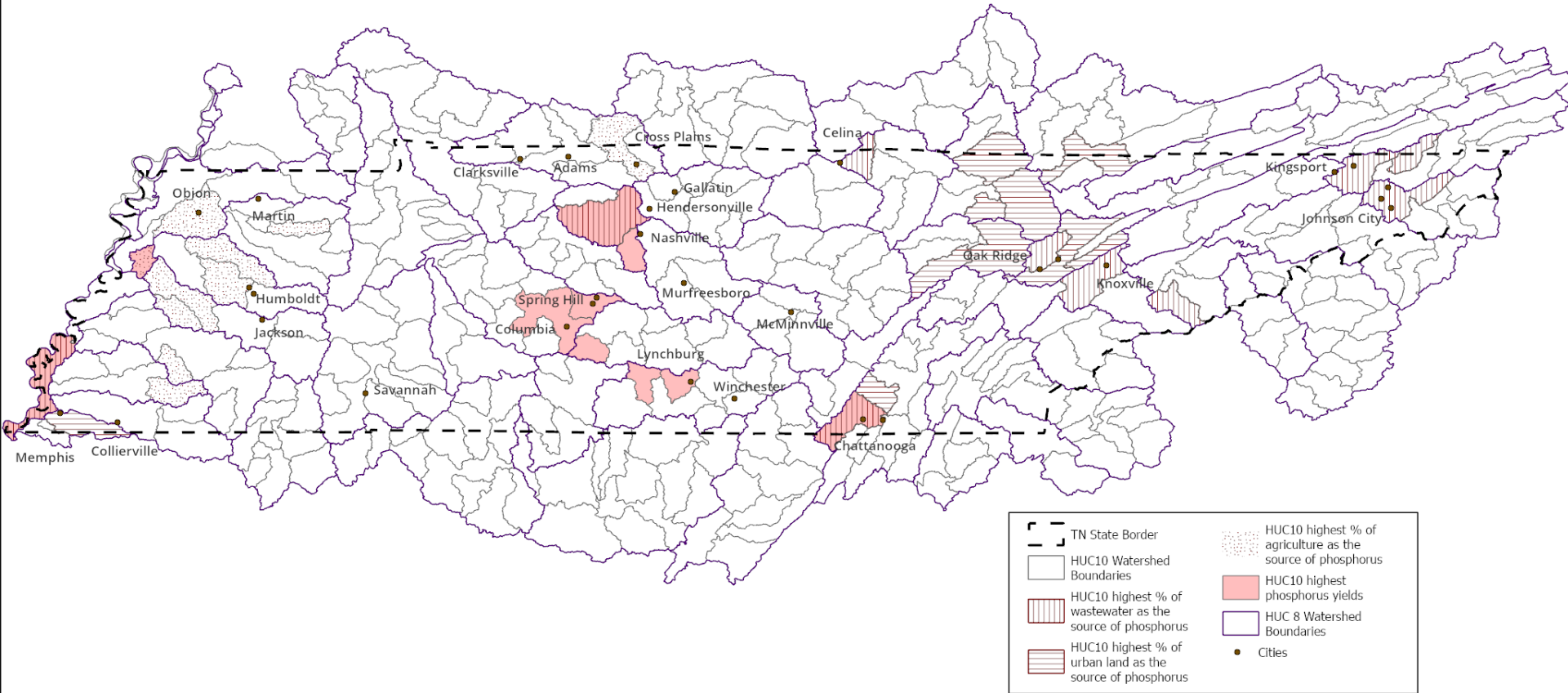
watersheds with the highest phosphorus yields		watersheds with the highest nitrogen yields	
286 0604000302-Rutherford Creek		318 801010007 Memphis-Mississippi River	
71 0513020203-Cumberland River		199 602000112 Nickajack Lake-Tennessee River	
318 0801010007-Memphis-Mississippi River		71 513020203 Cumberland River	
69 0513020201-Mill Creek		147 601020102 Sinking Creek-Tennessee River	
199 0602000112-Nickajack Lake-Tennessee River		182 601020702 Beaver Creek	
283 0604000206-Fountain Creek		106 601010207 Fort Patrick Henry Lake-South Fork Holston River	
344 0801020600-Forked Deer River		242 603000303 Boiling Fork Creek	
247 0603000308-Cane Creek		368 801021101 Nonconnah Creek	
244 0603000305-Mulberry Creek		245 603000306 Beans Creek	
289 0604000305-Catheys Creek-Duck River		104 601010205 Beaver Creek	
watershed with highest % of agriculture as the source of phosphorus		watersheds with highest % of manure and fertilizer as the sources of nitrogen	
342 0801020504-Nixon Creek	141	601010805 Big Limestone Creek	
356 0801020804-Big Muddy Creek	90	513020602 South Fork Red River-Red River	
337 0801020403-North Fork Forked Deer River	5	511000201 East Fork Barren River-Barren River	
343 0801020505-South Fork Forked Deer River	245	603000306 Beans Creek	
331 0801020303-Spring Creek	337	801020403 North Fork Forked Deer River	
361 0801020901-Upper Loosahatchie River	326	801020203 Obion River	
326 0801020203-Obion River	336	801020402 Middle Fork Forked Deer River	
344 0801020600-Forked Deer River	95	513020607 Elk Fork-Red River	
336 0801020402-Middle Fork Forked Deer River	53	513010704 Collins River	
90 0513020602-South Fork Red River-Red River	333	801020305 Mud Creek	
watershed with highest % of urban land as the source of phosphorus		watersheds with highest % of urban-land yield as the sources of nitrogen	
193 0602000105-North Chickamauga Creek	368	801021101 Nonconnah Creek	
186 0601020802-Daddys Creek	69	513020201 Mill Creek	
184 0601020704-Clinch River	367	801021003 Wolf River	
182 0601020702-Beaver Creek	182	601020702 Beaver Creek	
19 0513010106-Clear Fork	74	513020303 Stones River	
368 0801021101-Nonconnah Creek	147	601020102 Sinking Creek-Tennessee River	
37 0513010403-New River	193	602000105 North Chickamauga Creek	
188 0601020804-Emory River	73	513020302 West Fork Stones River	
35 0513010401-White Oak Creek	184	601020704 Clinch River	
39 0513010405-Roaring Paunch Creek-Big South Fork Cumberland	183	601020703 Poplar Creek	
watershed with highest % of wastewater as the source of phosphorus		watersheds with highest % of wastewater as the sources of nitrogen	
199 0602000112-Nickajack Lake-Tennessee River	199	602000112 Nickajack Lake-Tennessee River	
46 0513010505-Sulphur Creek-Obey River	71	513020203 Cumberland River	
147 0601020102-Sinking Creek-Tennessee River	147	601020102 Sinking Creek-Tennessee River	
106 0601010207-Fort Patrick Henry Lake-South Fork Holston River	106	601010207 Fort Patrick Henry Lake-South Fork Holston River	
71 0513020203-Cumberland River	183	601020703 Poplar Creek	
183 0601020703-Poplar Creek	182	601020702 Beaver Creek	
318 0801010007-Memphis-Mississippi River	104	601010205 Beaver Creek	
104 0601010205-Beaver Creek	68	513020106 Cumberland River	
134 0601010702-West Prong Little Pigeon River	83	513020503 Half Pone Creek-Cumberland River	
111 0601010305-Watauga River	272	604000105 Chambers Creek-Tennessee River	

Nitrogen



RWMC 05/18/2023

Phosphorus

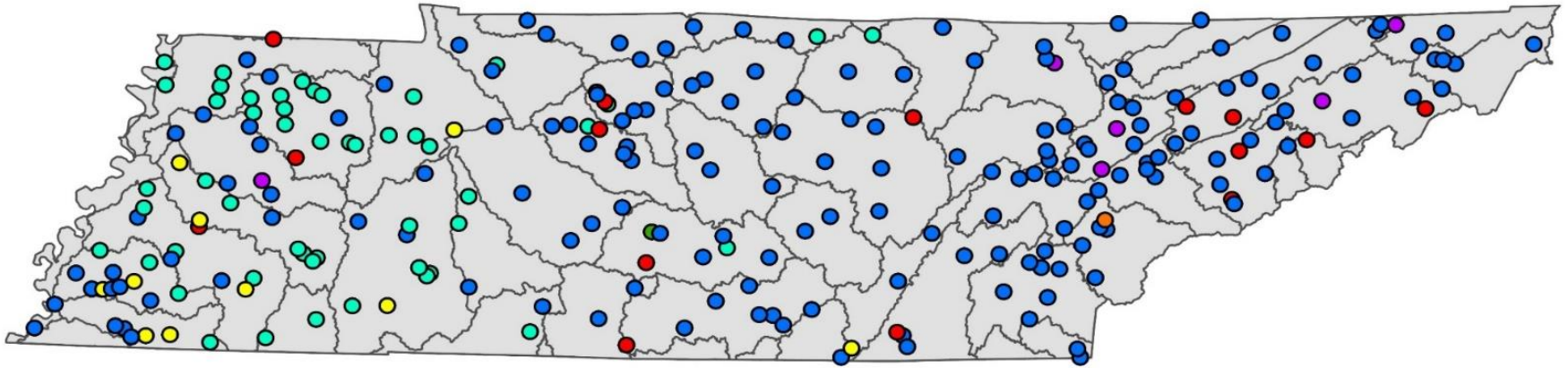


RWMC 05/18/2023

Wastewater Priority Watersheds

watershed with highest % of wastewater as the source of phosphorus			watersheds with highest % of wastewater as the sources of nitrogen			
199	0602000112-Nickajack Lake-Tennessee River	91.3 %	199	602000112	Nickajack Lake-Tennessee River	82.9 %
46	0513010505-Sulphur Creek-Obey River	67.0 %	71	513020203	Cumberland River	77.6 %
147	0601020102-Sinking Creek-Tennessee River	66.0 %	147	601020102	Sinking Creek-Tennessee River	47.2 %
106	0601010207-Fort Patrick Henry Lake-South Fork Holston River	64.7 %	106	601010207	Fort Patrick Henry Lake-South Fork Holston River	39.8 %
71	0513020203-Cumberland River	57.2 %	183	601020703	Poplar Creek	68.2 %
183	0601020703-Poplar Creek	51.6 %	182	601020702	Beaver Creek	34.5 %
318	0801010007-Memphis-Mississippi River	50.9 %	104	601010205	Beaver Creek	34.0 %
104	0601010205-Beaver Creek	47.1 %	68	513020106	Cumberland River	28.8 %
134	0601010702-West Prong Little Pigeon River	45.1 %	83	513020503	Half Pone Creek-Cumberland River	25.5 %
111	0601010305-Watauga River	38.6 %	272	604000105	Chambers Creek-Tennessee River	24.4 %

Tennessee Wastewater Facilities



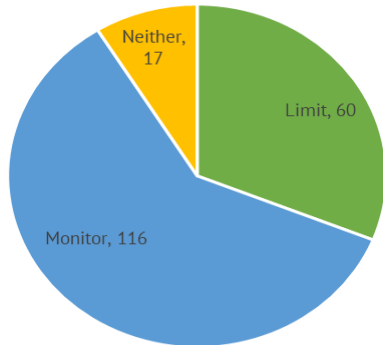
Facility Type

- Aerated Lagoon - 10
- Mechanical, Attached Growth - 16
- Mechanical, Suspended Growth - 172
- Mechanical, Suspended/Attached - 6
- Non-Mechanical Lagoon - 50
- Non-Mechanical Septic System - 1
- Non-Mechanical Wetlands - 1
- Tennessee Watersheds



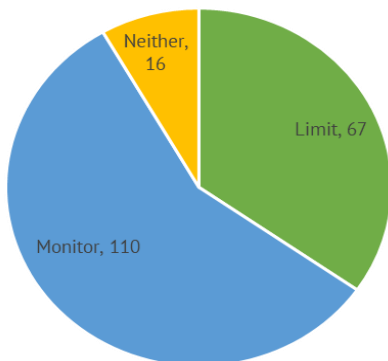
Nutrient Permitting

Nitrogen Monitoring or Limiting Requirements



Tennessee imposes monitoring and reporting of effluent total nitrogen and total phosphorus at a **quarterly frequency minimum in NPDES permits for POTWs** regardless of size. **Influent sampling would be very helpful.**

Phosphorous Monitoring or Limiting Requirements



For existing discharges, Tennessee is imposing **“hold the line”** limits on discharges into waterbodies which Tennessee assesses as having unavailable conditions for nutrients.

Tennessee applies these nutrient limits as **annual rolling loads to encourage biological removal**, versus chemical addition, and to encourage reuse alternatives.

Tennessee Nutrient Stakeholder Taskforce



2019



2024

- In 2019, Tennessee Department of Environment and Conservation and Tennessee Department of Agriculture **convened the Tennessee Nutrient Stakeholder Taskforce.**
- The Taskforce was, in part, a response to the 2011 EPA "Stoner Memo," which emphasizes **collaboration between state agencies**, conservation districts, industry, private landowners, agriculture, utility districts, and other stakeholders for developing a comprehensive state framework for nutrient reductions.
- This taskforce builds upon TDEC's and TDA's Nutrient Reduction Framework as part of comprehensive efforts to **accomplish long-term nutrient reduction** in Tennessee.
- Nutrient Taskforce Website [Nutrient Strategy Taskforce](#)
- Nutrient Reduction Framework [Nutrient Reduction Framework](#)

Funding – for the short-term

- Federal – Gulf Hypoxia Program – (FY 22 – FY26)

Mississippi River/Gulf of Mexico Hypoxia Task Force

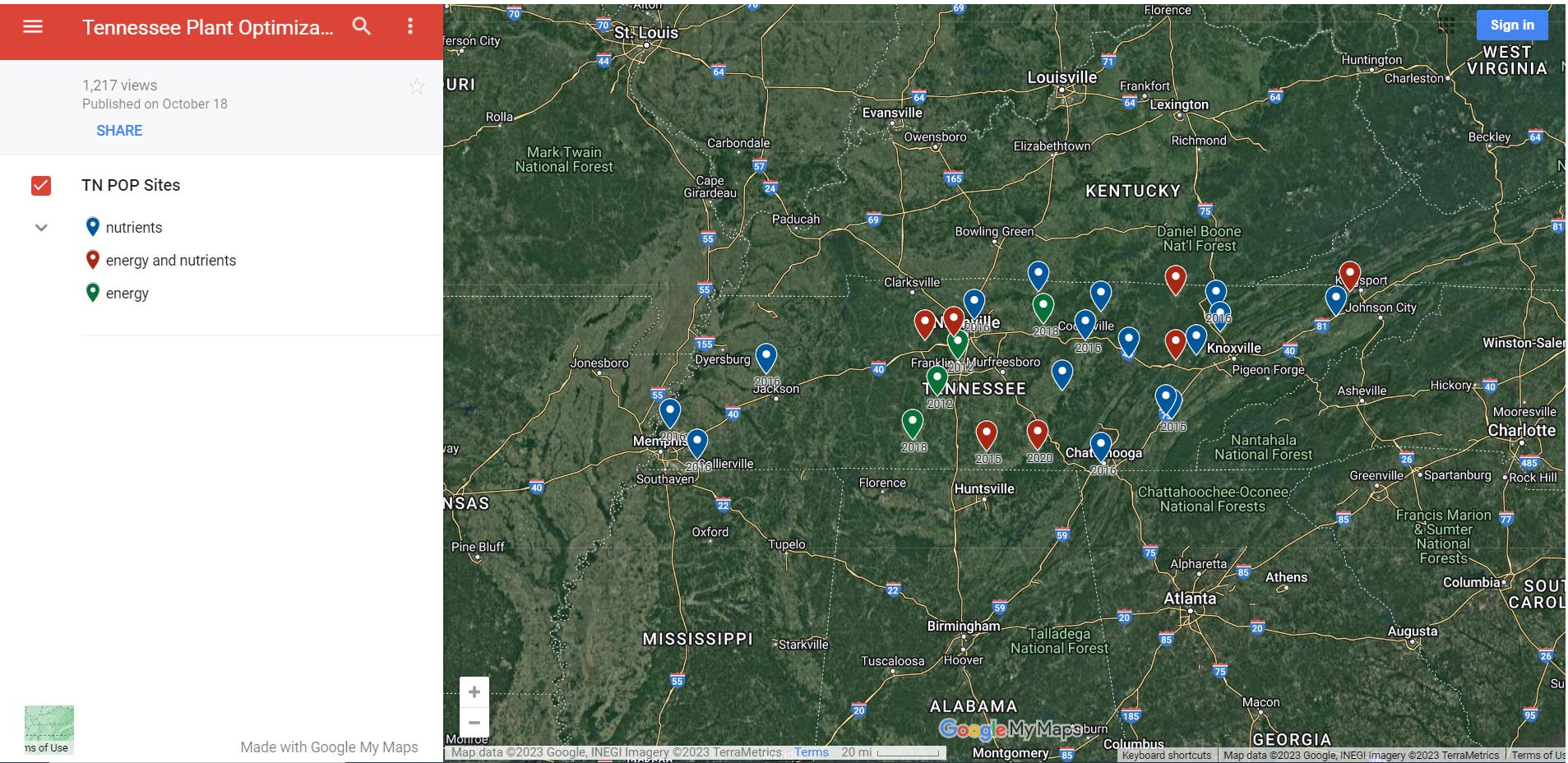


In the Spotlight

- [Register for the 38th HTF Public Meeting](#)
- [EPA Provides Bipartisan Infrastructure Law Gulf Hypoxia Program Funding to HTF States and Tribes](#)
- [HTF 2019/21 Report to Congress](#)
- [Hypoxia Task Force Newsletter - October 2023](#)

- State – Governor's budget

Tennessee Nutrient Plant Optimization - Pilots





Department of
**Environment &
Conservation**

TNPOP

TAUD Utility Technology Conference
March 7, 2024

Introduction

- Jordan Fey – TDEC Environmental Consultant
 - B.S. Physics, MTSU 2012
 - LabtronX equip. tech 2013-2015
 - TDEC wastewater inspector 2015-2024
- Goals
 - Aid facilities in operational improvements
 - Teaching & training
 - Learning

Optimization

- What is it?
 - Targeted effluent improvement via operational changes rather than capital or construction projects
- TNPOP
 - Tennessee Plant Optimization Program
 - Nutrient reduction through optimization
 - Federal Hypoxia Task Force

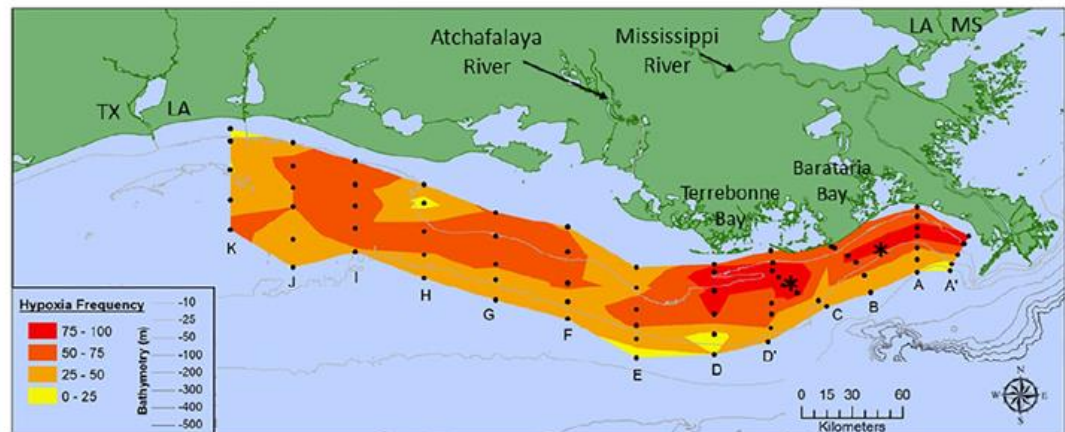


FIG. 1. The frequency of bottom-water hypoxia from shelf-wide hypoxia mapping (1985–2014) (updated from Rabalais et al. (2007b)); frequency is determined from stations for which there are data for at least half of all cruises. Asterisks (*) indicate locations of near-bottom oxygen meters; transects C and F identified. Data source: N. N. Rabalais and R. E. Turner.

TNPOP - Past

- Past Efforts
 - Brett Ward
 - Grant Weaver
 - TAUD, universities, NGOs
- Past Success
 - Nutrients
 - Power
 - Chemicals
- Lessons Learned
 - Patience
 - Enforcement discretion
 - Process control tests



TNPOP - Future

- Goals
 - Low cost solutions
 - Proof of concept
 - Collaboration with DWR staff, external contractors
 - Build knowledge
- Technical support
 - Additional personnel
 - Equipment

Why Bother?

- Improved effluent & streams
- Reduced costs
 - Lower electrical costs
 - Lower chemical costs
 - Reduced upgrade scope
- Future limits
- CE credits
- Free support



The Plan

- Nutrient training Academy
 - Free online seminars
 - Demonstration of capability
- Initial site visits
 - Not inspections
 - Basic facility info gathering
- Continuing visits
 - Quarterly
 - At least for 1 year
 - Additional time if needed
- Continuing training
 - Regional workshops
 - Seminars, training sessions

The Resources

- DWR staff
 - NPOP Coordinator
 - Environmental Fellow
 - Engineering staff
 - Fleming staff
- TAUD
- Universities



The Resources

- Lab equipment
- Portable monitoring

- Nitrogen
- Phosphorus
- BOD
- DO
- ORP
- Alkalinity



Recap

- Low cost optimization solutions
- TDEC-provided training, support, and equipment
- Cost savings, future-proofing



Questions?

Jordan Fey

Jordan.Fey@tn.gov

mobile: 615-306-3494

Parting Thoughts

- Surveys
- Training
- Assistance
- Input

Thank you!

Jordan & Karina

