

# DWSRF and Capacity Building in Action: Source Water Protection

July 28, 2021



OFFICE OF GROUND WATER  
AND DRINKING WATER



## Disclaimer

The information in the EPA presentation has been reviewed and approved for public dissemination in accordance with the U.S. Environmental Protection Agency (EPA). The views expressed in this presentation are those of the speaker(s) and do not necessarily represent the views or policies of the Agency. Any mention of trade names or commercial products does not constitute EPA endorsement or recommendation for use.

# Welcome!



All attendees are in listen-only mode. Please do not unmute yourself during the presentation.



We will be recording this webinar. Please do not turn on your video during the presentation.



A copy of the slides is attached in the chat. The recording will be posted and a link emailed to all registered attendees 1-2 weeks after the webinar.

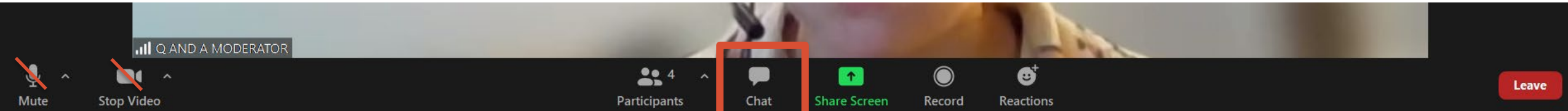


Check out <https://www.epa.gov/dwreginfo/drinking-water-training> for more drinking water webinars and trainings.



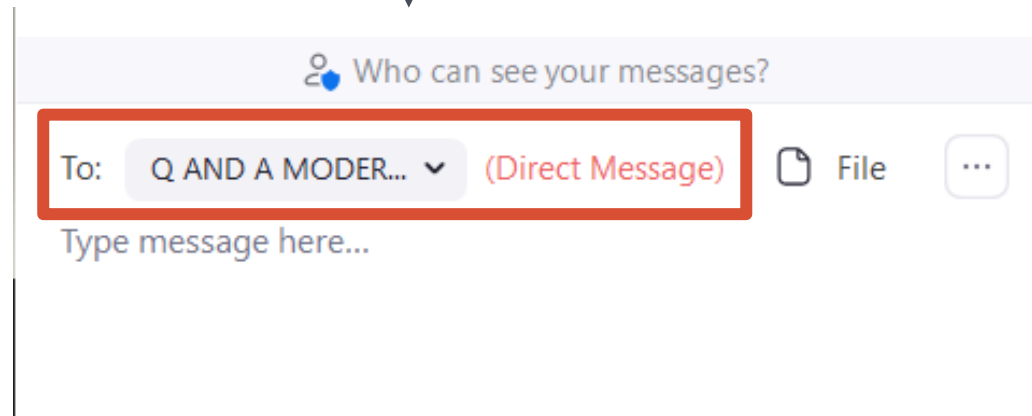
We encourage attendees to ask questions throughout the presentation by using the chat feature.

**DIRECT YOUR QUESTIONS TO "Q AND A MODERATOR"**



Chat box will pop up. Type in your questions at the bottom.

**PLEASE DIRECT YOUR QUESTIONS TO "Q AND A MODERATOR"**







# QUICK POLL

# Learning Objectives



- Leveraging the Drinking Water State Revolving Fund Set –Asides for Source Water Protection

*Kara Goodwin, EPA HQ*

- State Example:

- Tennessee's State Revolving Fund and Source Water Protection Synergy

*Brian Ham and Vena Jones, Tennessee Department of Environment and Conservation*

- North Carolina's Drinking Water Protection Program

*Danny Edwards, North Carolina Department of Environmental Quality*

- Q&A at the end of the presentation.

# Leveraging the Drinking Water State Revolving Fund Set – Asides for Source Water Protection

Kara Goodwin

July 28, 2021

*DWSRF & Capacity Development in Action*  
Webinar Series



OFFICE OF GROUND WATER  
AND DRINKING WATER



# What is Source Water Protection?

- 🌿 Part of a multi-barrier approach to clean drinking water
- 🌿 Voluntary—no implementation requirements under SDWA
- 🌿 A watershed investment program



**Healthy Watershed = Clean Drinking Water**

# Source Water Assessments: 1996 to Now



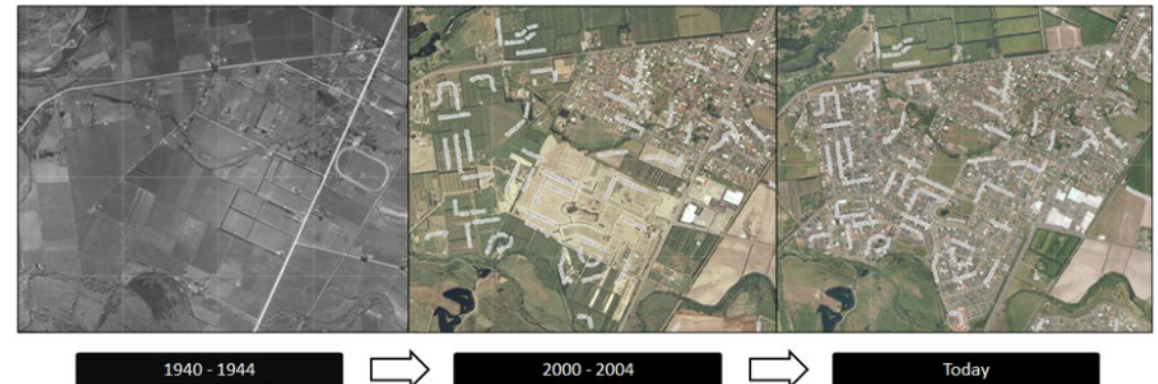
Changes within source water protection areas  
New tools and technology available  
New risks to consider



Inform SWP plan development  
Prioritize areas for investment  
Identify partners



Congress recognized need for updates → changed language for DWSRF set-asides



Map Credits: The imagery content was provided under the Creative Commons Attribution 3.0 New Zealand license by Land Information New Zealand, New Zealand Aerial Mapping (NZAM), New Zealand Aerial Surveys (NZAS) and the Royal New Zealand Air Force (RNZAF).

# Drinking Water State Revolving Fund



A Public Health Protection Program



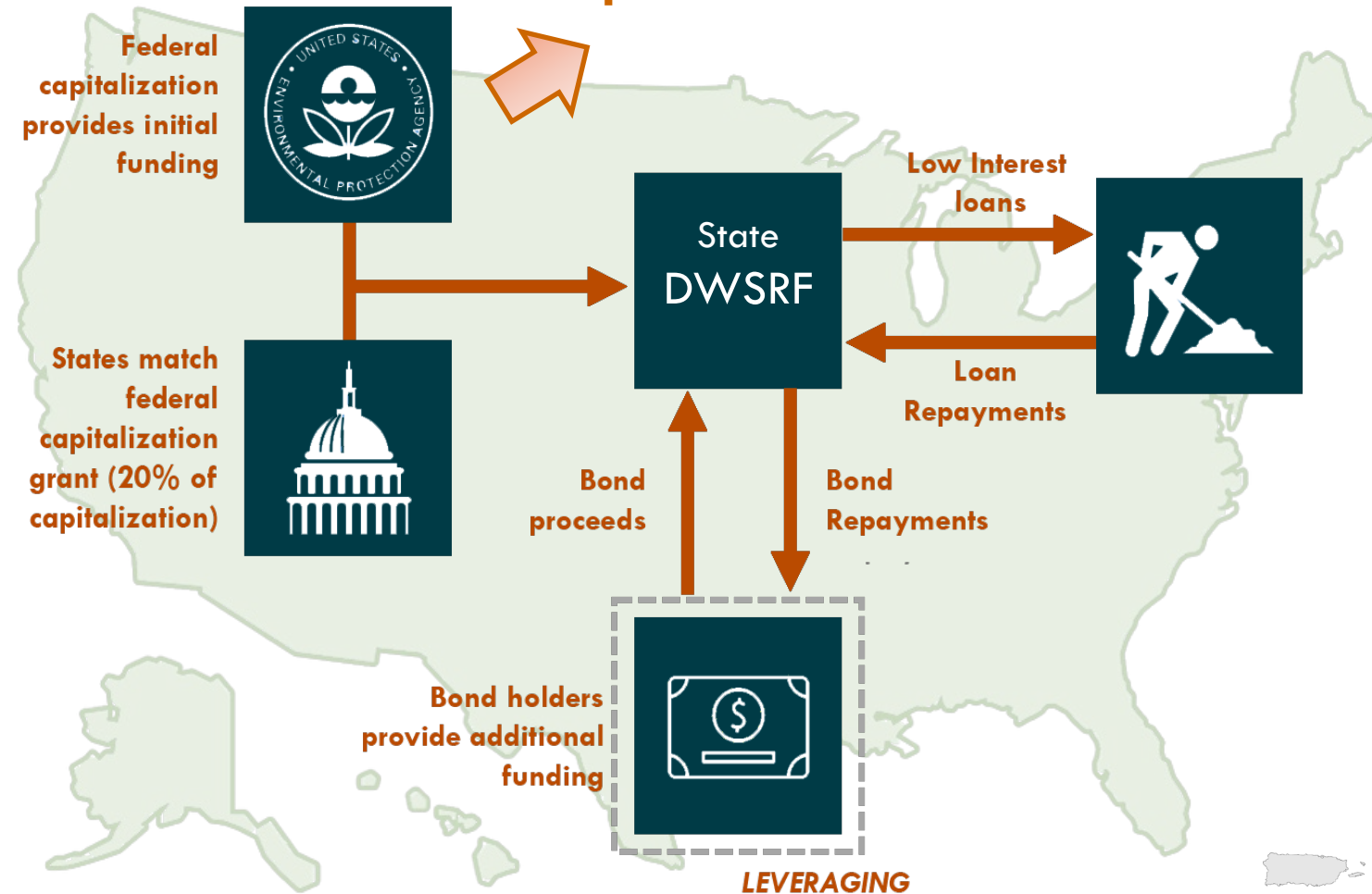
A federal/state partnership designed to create, in each state, a perpetual source of financing for drinking water infrastructure



Modeled after the successful Clean Water SRF program, with notable modifications



## Optional State Set-Asides







## The DWSRF Infrastructure Model

- 51 state-level “infrastructure banks” make loans with water systems for drinking water projects
  - Water systems apply for funding with their respective state DWSRF program
- States craft their DWSRF program to meet the needs of their state
  - Each of the 51 programs are unique
  - They operate within the federal framework but may target funding more narrowly



# DWSRF Set-Asides

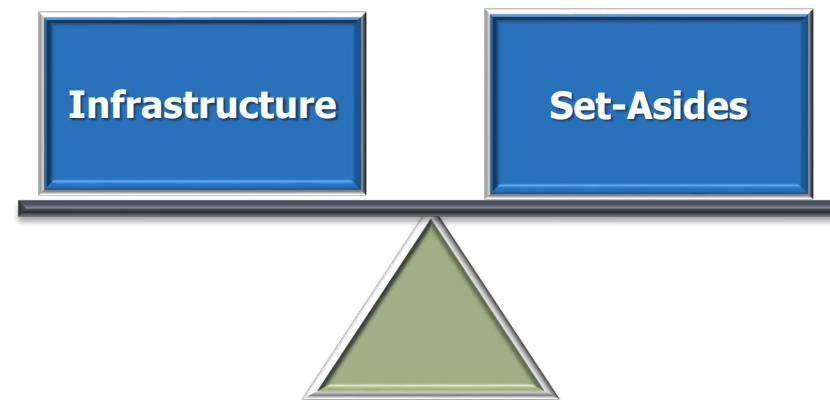
-  Optional for States
-  Trade-off with Loan Funds
-  Different Eligibilities than Loans
-  Unique to Drinking Water SRF

2%: Small Systems Technical Assistance

4%: Administration & TA

10%: State Program Management

15%: Local Assistance and Other State Programs



# State Program Management (10% Set-Aside)



**Develop and Implement** Drinking Water Protection, Capacity Development, Operator Certification, and Source Water Protection Programs



Often Used to **Fund Staff**

- Source Water Coordinators
- Hydrogeologists



Can also be used by state for source water protection activities



[This Photo](#) by Unknown Author is licensed under [CC BY-SA](#)

# Local Assistance and Other State Programs (15%)

## Source Water Protection and Capacity Development Activities



- Loans to PWS for SWP land acquisition/easements, voluntary, incentive-based SWP measures, and source water petition programs



- Delineation, assessment, and *updates to assessments* for SWP areas



- Provide assistance as part of a capacity development strategy



- Establishment and implementation of wellhead protection programs and *implementation of efforts to protect source water*



# Local Assistance and Other State Programs (15%)

## Source Water Protection and Capacity Development Activities



- Developing Source Water Protection Plans
- Small grant programs



- Technical Assistance through 3<sup>rd</sup> parties
- Implementation of BMPs
- Updating SWA with GIS



- Development of local ordinances
- Public outreach and education



Cover crops around high-risk public wells in Sussex County, DE

# Small Investments Can Go a Long Way



Think long-term



Account for multiple benefits



Consider funding sources outside your program



# AWIA/DWSRF/SWP



- Now is the time for conversations between SWP programs and the DWSRF administrators in states about the opportunities to dedicate set-aside money for source water protection
- EPA encourages states to re-think how they are utilizing their set-asides and consider new opportunities for leveraging these dollars for source water protection

## How to get started



Reach out to your DWSRF or SWP colleagues

<https://www.epa.gov/dwsrf/state-dwsrf-website-and-contacts>

<https://www.epa.gov/sourcewaterprotection/source-water-contacts-epas-regional-offices>



States submit a Set-Aside Workplan as part of their capitalization grant application



Identify priority areas/systems to update assessments and develop plans



# QUESTIONS?

Kara Goodwin

USEPA HQ

Office of Ground Water and Drinking Water

[goodwin.kara@epa.gov](mailto:goodwin.kara@epa.gov)

[epa.gov/sourcewaterprotection](https://epa.gov/sourcewaterprotection)

[epa.gov/dwsrf](https://epa.gov/dwsrf)



Department of  
**Environment &  
Conservation**

Division of Water Resources

## State Revolving Fund and Source Water Protection Synergy

July 28, 2021

Vena Jones, PG  
Brian Ham, PG, GISP  
Division of Water Resources

# Strategic Use of SRF Funds

- Expansion of Source Water Protection use of funds through AWIA
- TDEC mission and priorities
- DWR mission and priorities



Drinking Water - SRF partnership to strengthen SWP program and increase use of set asides for SWP projects

# TN State & Federal Coordination Team

- Gather a team of multi-agency partners:
  - ✓ Tennessee Department of Environment & Conservation (TDEC)
    - ✓ Drinking Water Program
    - ✓ Engineering Services
    - ✓ Stormwater
    - ✓ Commissioner's Office
  - ✓ Tennessee Department of Economic and Community Development (ECD)
  - ✓ Tennessee Office of the Comptroller
  - ✓ TN USDA-Rural Development

# Create DW SRF priorities based on team input

- **SRF Technical Advisory Team**
- Target Small and Disadvantaged Communities (SDCs)
- Water loss
- Asset Management
- **Regionalization**
- Drinking Water Optimization
- **Source Water Protection**
- **Improved Planning and Design**
- **Early Coordination**

# Growing the Source Water Program

## Strengthen Source Water Protection Program

Gather Technical Advisory Group and identify priorities

**Summer 2019**

Collaborate with Drinking Water Program to identify funding priorities

**SFY 2020**

Expand use of Local Assistance Set Asides for Source Water Protection

**SFY 2021**

Build a funding mechanism through Local Assistance set asides to provide loans or grants for land acquisition and conservation projects

Include SWP in Intended Use Plan Goals  
**SFY 2020-Present**

Build partnership with TN Dept of Ag, 319 program – NPS and source water  
**SFY 2020**

Review statute and ranking system for updates  
**SFY 2022-2023**

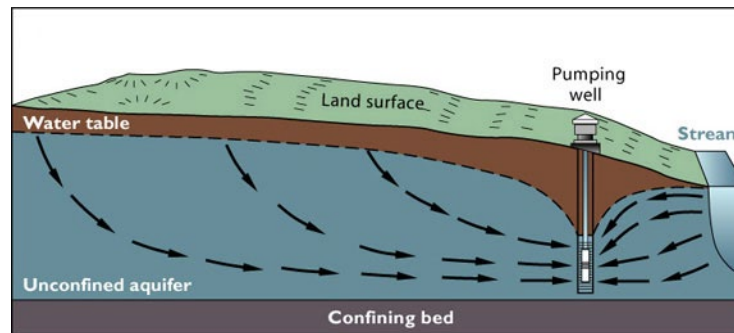
## Increase Funding through Local Assistance Set Asides





# Source Water Protection

- Chapter 0400-45-01-.34
  - Public Water Systems – Drinking Water Source Protection
    - Surface Water Source
      - Source Water Protection Plan
    - Groundwater Source
      - Wellhead Protection Plan

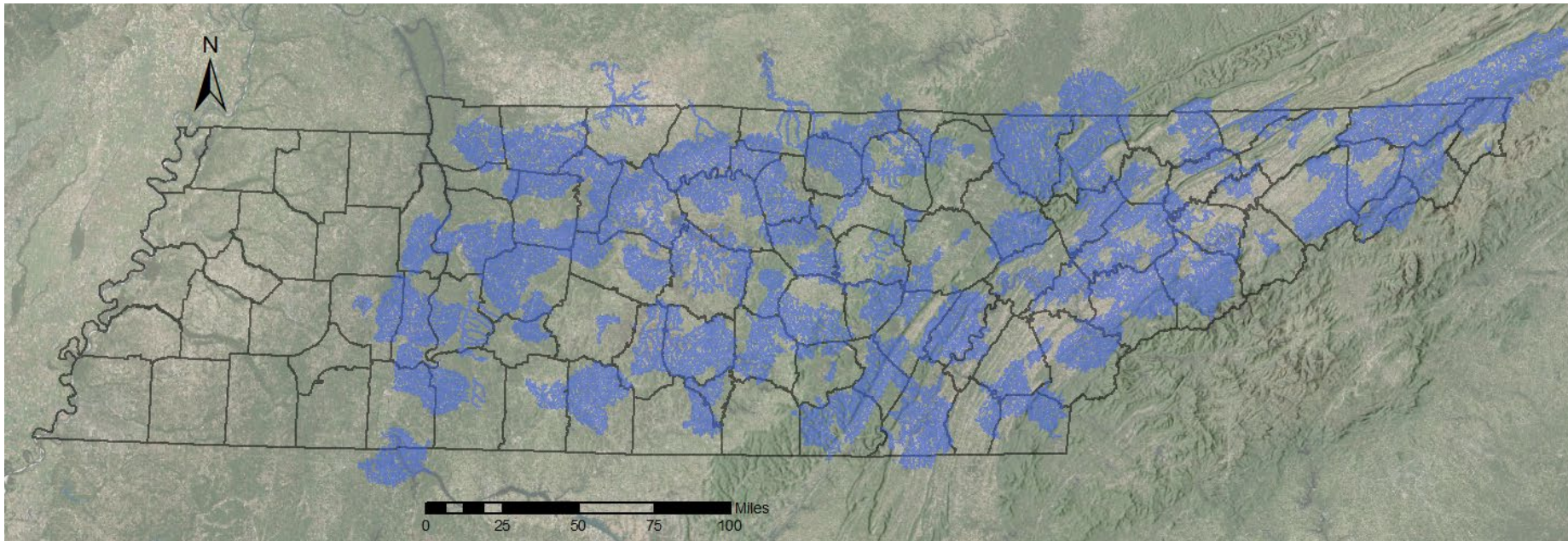




## Public Water Systems - Surface Water Source

- “Critical Source Water Protection Zone” means the surface water body and adjacent land area from one half (1/2) mile downstream of the intake to five (5) miles upstream of the public water system intake, including a one thousand (1000) foot corridor parallel to the designated stream banks and any perennial streams which are tributaries to that stream.
- “Significant Potential Contaminant Source” means a facility or activity that involves the handling of materials that could readily be introduced into the water supply source via spill, leakage, intentional discharge or other release of contaminants and presents a likely threat to drinking water quality and the public health.
  - Significant potential contaminant sources would include, but not be limited to, the following: automotive shops, service stations, automotive body shops, junkyards, salvage yards, machine shops, metal fabrication shops, chemical manufacturers, electronic and electrical equipment manufacturers, boat manufacturers, oil distributors, petroleum bulk stations and terminals, bus and truck terminals, storage or mixing areas for commercial fertilizers, pesticides and herbicides; landfills, construction debris landfills, dumps, sludge spreading or landfills; facilities that generate, treat or dispose of hazardous waste; concentrated animal feedlots, golf courses, and mining areas.

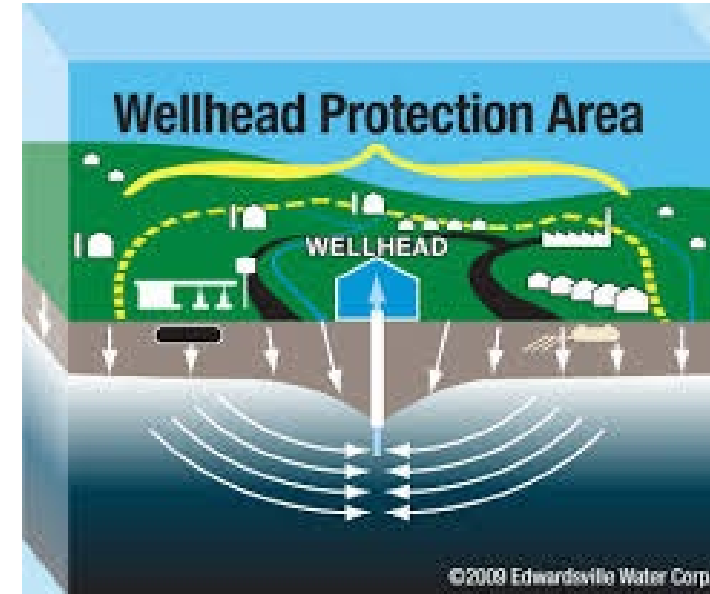
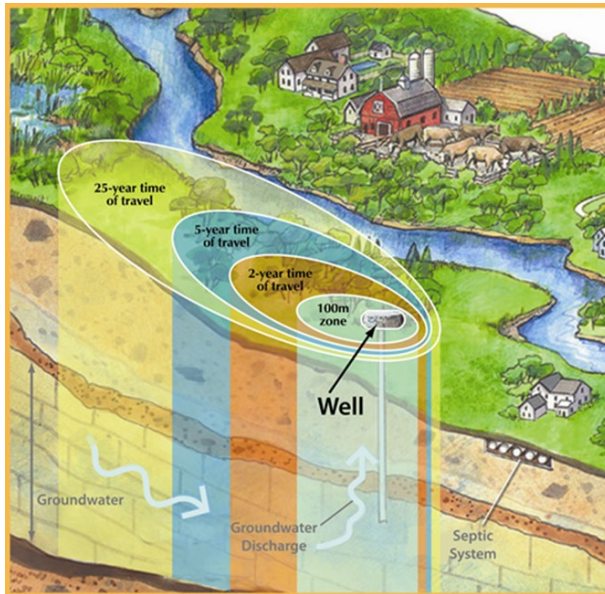
# Source Water Protection





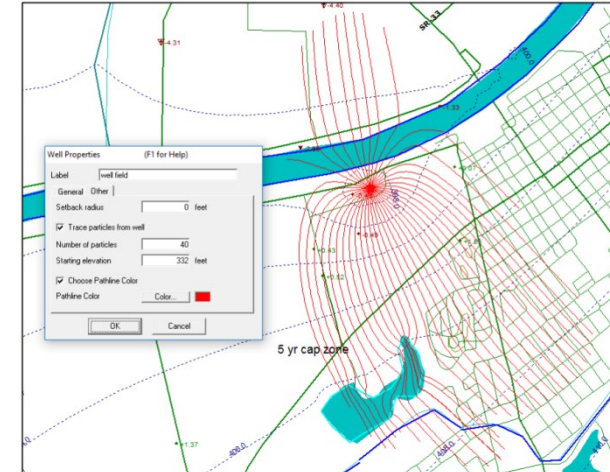
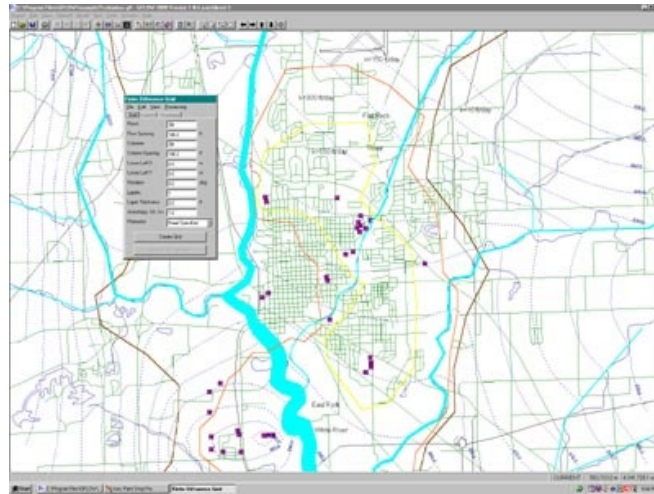
# Wellhead Protection Areas

The Wellhead Protection Program was established to protect public water systems using ground water from contamination. This program has an emphasis on the prevention of ground water contamination due to the difficulty in cleaning up the contamination once it occurs. These drinking water sources are vulnerable to a variety of contaminant sources such as industrial spills, shallow underground injection discharges {referred to by EPA as class V (5) wells} through wells, floor drains and septic tanks, leaks from underground storage tanks, etc.

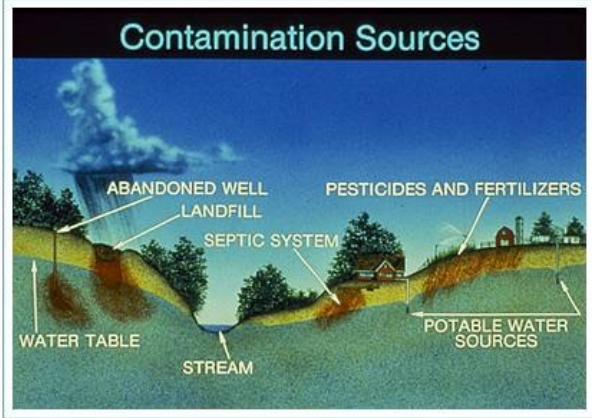
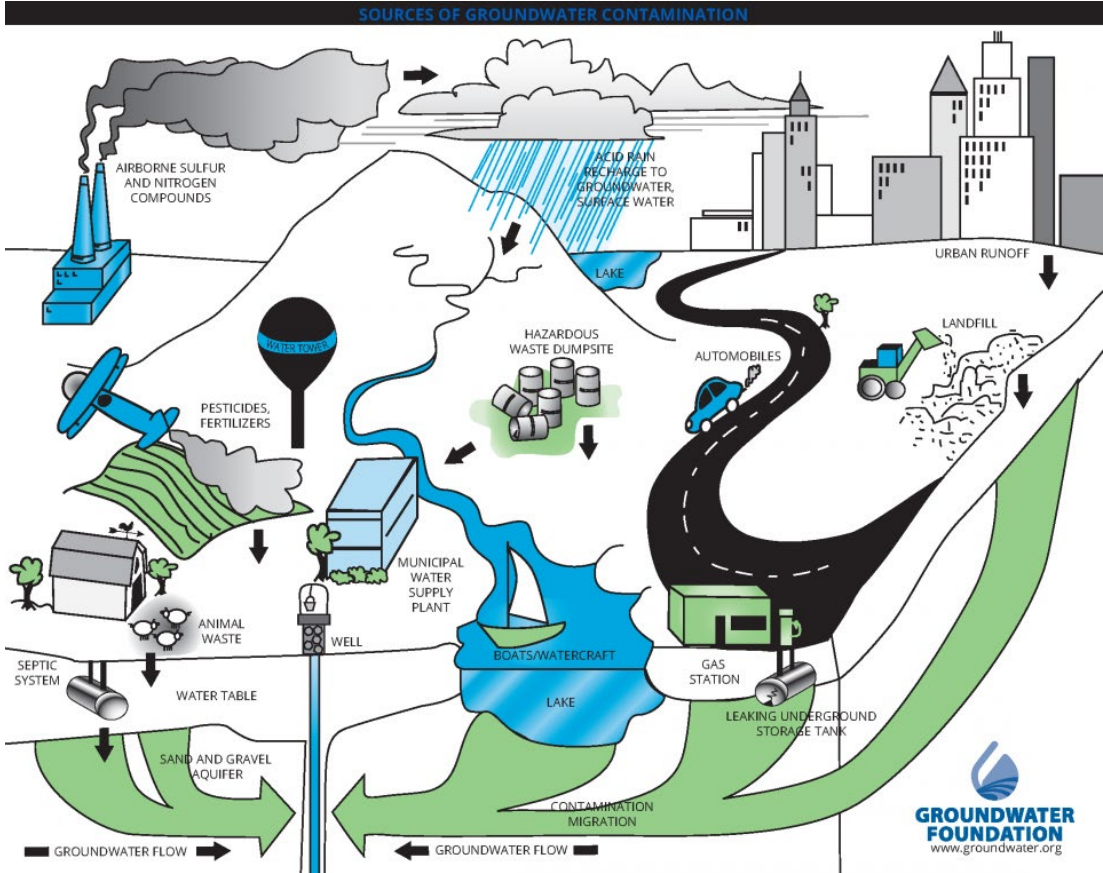


# Wellhead Protection Areas

- Wellhead Analytic Element Model (WhAEM)
  - Area Delineation
    - Radius
    - Uniform Flow Models
    - Hydrogeology



# Contaminant Source Inventory



# SRF and Source Water Protection Collaboration

## Funding for 5-year Interagency Agreement with USGS for Source Water Protection

### Objectives:

- Update the Statewide Source Water Assessment via a Geographic Information System (GIS) Analysis and associated report
- Launch a pilot system of real-time observation wells in aquifers used for public water system production which will be designed to monitor drought conditions in critical and historically affected areas
- Provide technical assistance to implement efforts to protect source water and delineate, assess, and update Source Water Protection Areas (Wellhead Protection Areas or Critical Source Water Protection Zones)

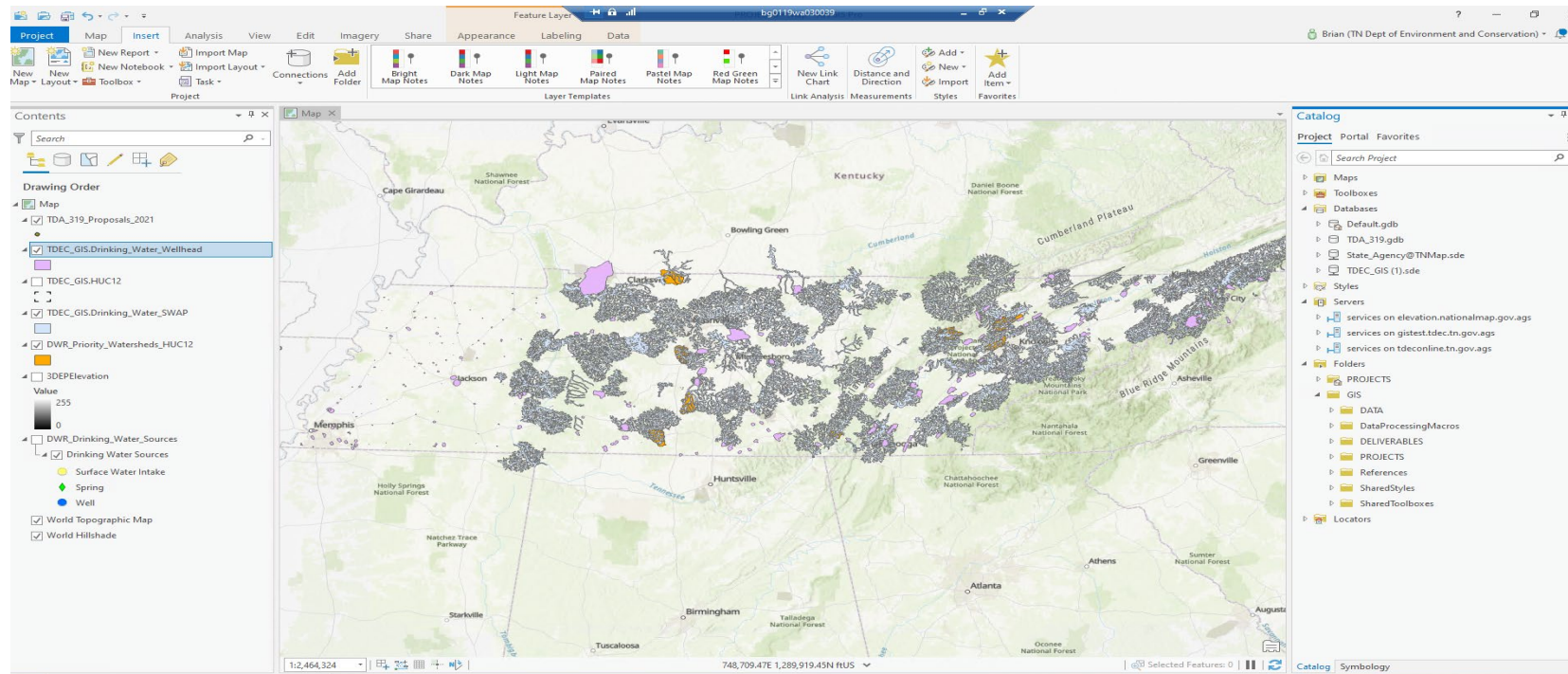


# SRF and Source Water Protection Collaboration



A proposal submitted to: Tennessee Department of Environment & Conservation (TDEC)  
Division of Water Resources

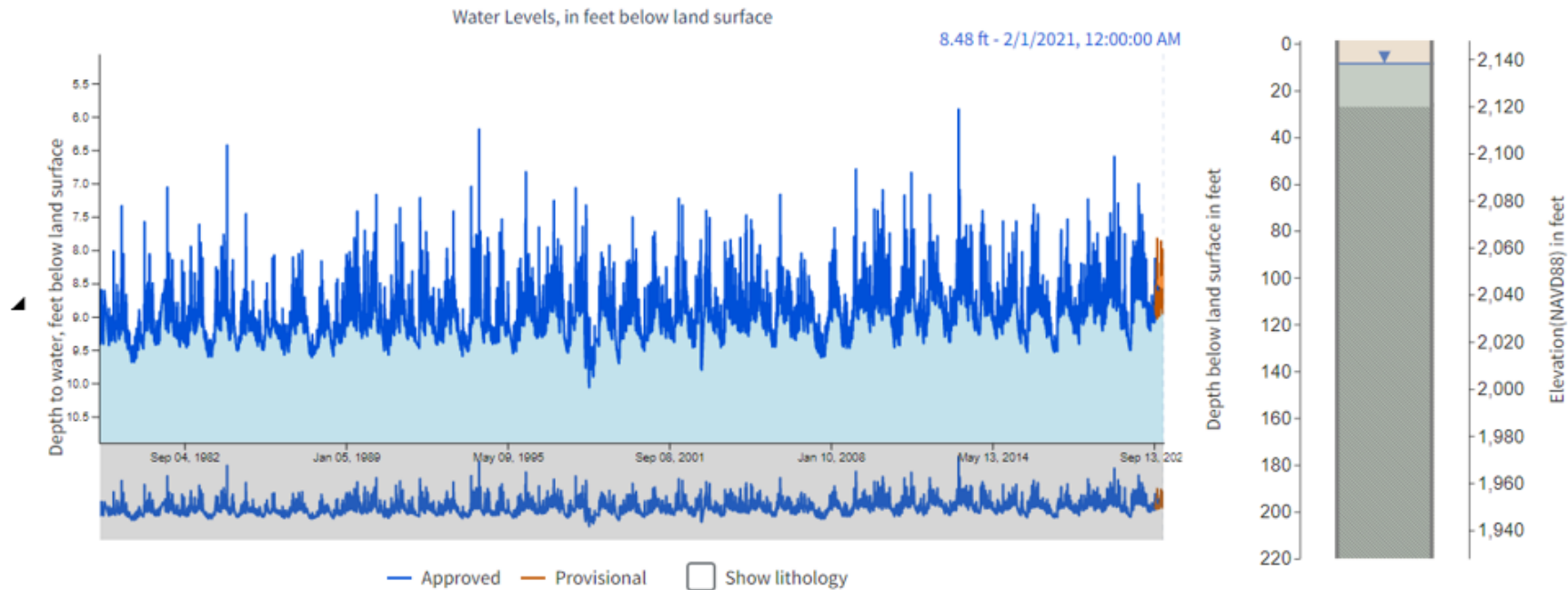
## Developing a Source Water Assessment Program Geographic Information Systems Model for the Tennessee Department of Environment and Conservation





# SRF and Source Water Protection Collaboration

## Monitoring Groundwater Resources in Tennessee – Expanding the Statewide Network of Water-Level Observation Wells and Springs



# SRF and Source Water Protection Collaboration

**Evaluating of hydrogeologic conditions in source water protection areas in Tennessee**



# Collaboration with Partners

## Conservation Project Funding





# Questions?



Vena Jones, PG  
615-898-9499  
[Vena.I.Jones@tn.gov](mailto:Vena.I.Jones@tn.gov)

Brian Ham, PG, GISP  
615-532-9224  
[Brian.Ham@tn.gov](mailto:Brian.Ham@tn.gov)





# NC Drinking Water Protection Program

July 28, 2021

*Department of Environmental Quality*

*Danny Edwards*



- DWSRF Set-asides are a significant source of funding for the NC Drinking Water Protection Program.
- NC Drinking Water Protection Program
  - Source Water Assessment Program
    - SWAP Model Update
  - Source Water Protection Planning
    - Voluntary Source Water Protection Plans
    - Mandatory Source Water Protection
  - Wellhead Protection Program



- NC Drinking Water Protection Program (cont')
  - NC Source Water Collaborative Awards Program
  - Collaborating with the Natural Resources Conservation Service



# *Source Water Assessment Program*

*Department of Environmental Quality  
Division of Water Resources*



# *NC Source Water Assessment Program*

- SWAP reports updated approximately every two years
- PCS inventory is also updated
- Current SWAP reports are available through the DWPP website
- Interactive Map App for accessing SWAP data

*Department of Environmental Quality  
Division of Water Resources*



# NC Source Water Assessment Program

← → ↻ deq.nc.gov/about/divisions/water-resources/drinking-water/drinking-water-protection-program ☆ W ⚙️ ⏸ Paused ⋮



[Home](#) [Divisions](#) [Permits & Rules](#) [Outreach & Education](#) [Energy & Climate](#) [News](#) [About](#)

**Systems**

[Water System Management Plan](#)

## Source Water Assessment Program (SWAP)

North Carolina's Source Water Assessment Program (SWAP) provides detailed assessments of all public drinking water intakes in the state. These assessments include a Susceptibility Rating to indicate the relative risk of source contamination. Our SWAP data is readily available to help define environmental priorities and projects that may prevent pollution. We have concise and current reports downloadable from this web page. Any local effort to protect drinking water should begin here.

- [Learn more about NC's SWAP](#)
- [View the SWAP Brochure](#)
- [Source Water Assessment Reports](#) 
- [Source Water Assessment Mapping Tool](#) 
- [Original USGS Methodology](#)
- [USGS Methodology Update - 2009](#)

## Wellhead Protection (WHP) Program

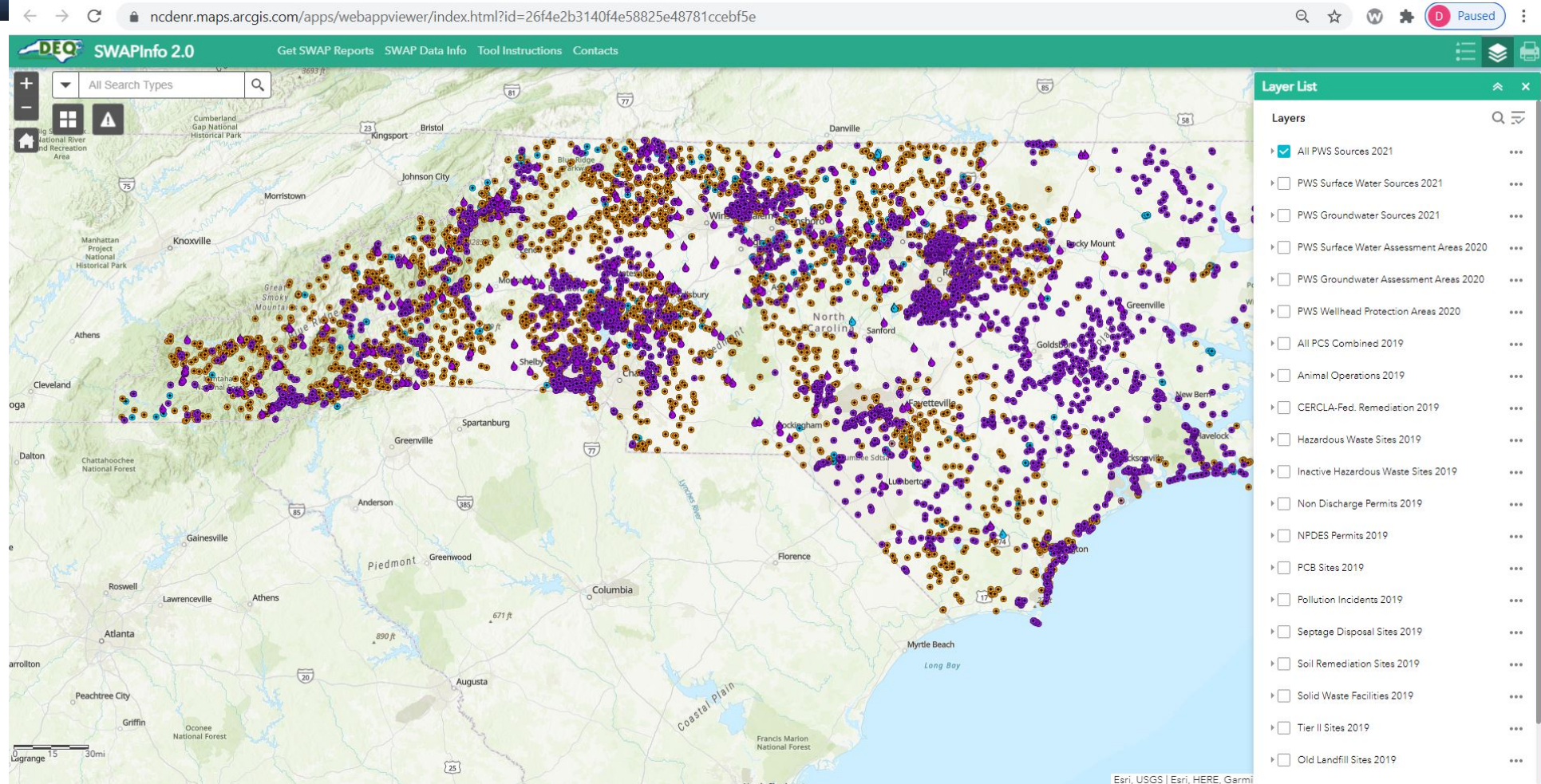
The NC Wellhead Protection (WHP) Program functions to protect groundwater sources of drinking water from contamination. Wellhead protection is simply the protection of all or part of an area surrounding a well from which the groundwater is drawn. The size of this area will vary and depends on a variety of factors, including local geology and hydrogeologic features. Most

*Department of Environmental Quality  
Division of Water Resources*





# NC Source Water Assessment Program



Department of Environmental Quality  
Division of Water Resources





# *SWAP Model Update*

*Department of Environmental Quality  
Division of Water Resources*





# SWAP Model Update

- Updating/Redeveloping the SWAP Model:
  - Incorporating more recent data
  - Revising input components where relevant improvements have been identified

*Department of Environmental Quality  
Division of Water Resources*



# SWAP Model Update

- Example Updates to the SWAP Model:
  - Contaminant Rating Method – Raw PCS counts in assessment areas vs. proximity-based or density-based methods
  - Unsaturated Zone Rating (UZR)/Watershed Characteristic Rating (WCR) component data layer updates – Annual Average Precipitation, Land-surface Slope, Land Cover, Land Use, Vertical Hydraulic Conductance
  - Groundwater Assessment Area Delineation – Minor update to method of delineation for semi-confined aquifers that receive recharge from stream infiltration zones
  - Groundwater Source Rating - Revise methodology for determining the level of confinement in coastal plain aquifers based upon newer data sources.
  - Well Integrity/Construction Rating – Update rating method for Transient, Non-Community (TNC) water systems based upon siting requirement rule changes in 2008.

*Department of Environmental Quality  
Division of Water Resources*





# *Source Water Protection Planning*

*Department of Environmental Quality  
Division of Water Resources*



# NC Voluntary Source Water Protection Plans

- 10 approved plans
- 13 systems covered by plans
- 439,795 - population served by systems covered by plans



*Department of Environmental Quality  
Division of Water Resources*



## HB894

### § 130A-320 (c)

Every supplier of water operating a public water system treating and furnishing water from surface supplies shall create and implement a source water protection plan (SWPP). The Commission shall adopt rules that provide all of the following:

- A standardized format...
- Schedules for creating and implementing mandatory provisions
- Reporting requirements



# Rule .1305 Source Water Protection Planning

- Rule effective – January 1, 2019
- AWIA Section 2013 Guidance Released by EPA – August 2019
- Public Water Supply Section recognizes overlap and revises Rule .1305
- **Final Rule effective – April 1, 2020**





# *Wellhead Protection Program*

*Department of Environmental Quality  
Division of Water Resources*



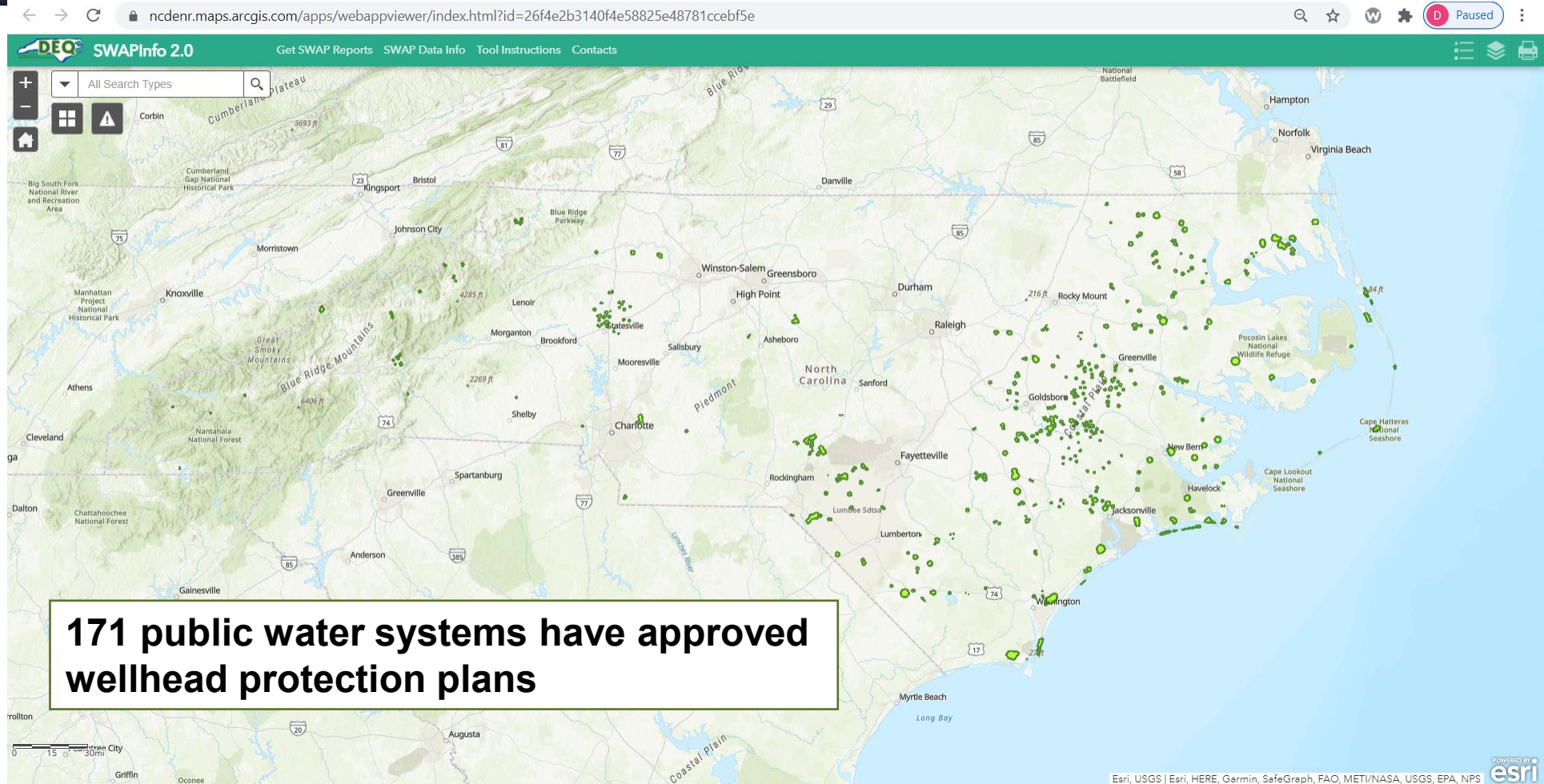
# Wellhead Protection Program

- In NC WHP is voluntary and exceeds the protections provided by state regulatory programs
- Water systems with an approved WHP plan receive priority points when competing for loans and grants awarded by the NC Division of Water Infrastructure
  - applies to WHP plans approved within past 5 years
- The PWS Section, using Drinking Water State Revolving Fund (DWSRF) set-asides, contracts two NCRWA Groundwater Specialists to assist in the development of local WHP plans

*Department of Environmental Quality  
Division of Water Resources*



# Wellhead Protection Program



*Department of Environmental Quality  
Division of Water Resources*






# *NC Source Water Collaborative Awards Program*

*Department of Environmental Quality  
Division of Water Resources*






# NC Source Water Collaborative



NC Source Water Collaborative  
Working together to protect your drinking water

## Award Categories

- \* GW Planning
- \* GW Implementation
- \* SW Planning
- \* SW Implementation
- \* Education
- \* Leadership

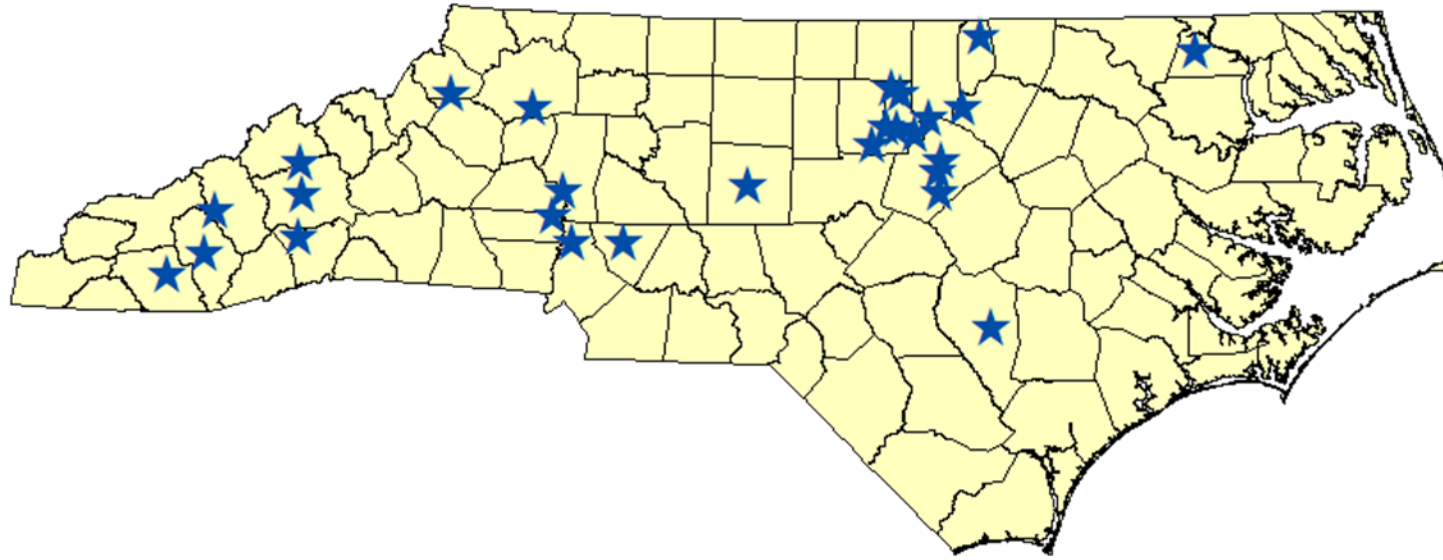


*Department of Environmental Quality  
Division of Water Resources*



# NC Source Water Collaborative

## NC Source Water Protection Award Winners




- 27 Projects have been recognized since 2015
- 3 Award Recipients were recognized during the 2021 NC Water Resources Research Institute's Annual Conference (Virtual Event)

*Department of Environmental Quality  
Division of Water Resources*









# NC Source Water Collaborative

City of Durham, Department of Water Management;  
Triangle Land Conservancy; Eno River Association



Surface Water Implementation



The complex block contains several maps and a photograph. At the top left is a graphic of a water drop with the text 'Surface Water Implementation'. Below it is a small photograph of a stream. To the right are two aerial maps with colored overlays, each with a legend. Below these are two more aerial maps with colored overlays and legends. On the left is a regional map showing the Lake Mecklenburg Watershed, Little River Watershed, and City of Durham. A north arrow is present on the regional map.

*Department of Environmental Quality  
Division of Water Resources*





# *Collaboration with the Natural Resources Conservation Service*

*Department of Environmental Quality  
Division of Water Resources*





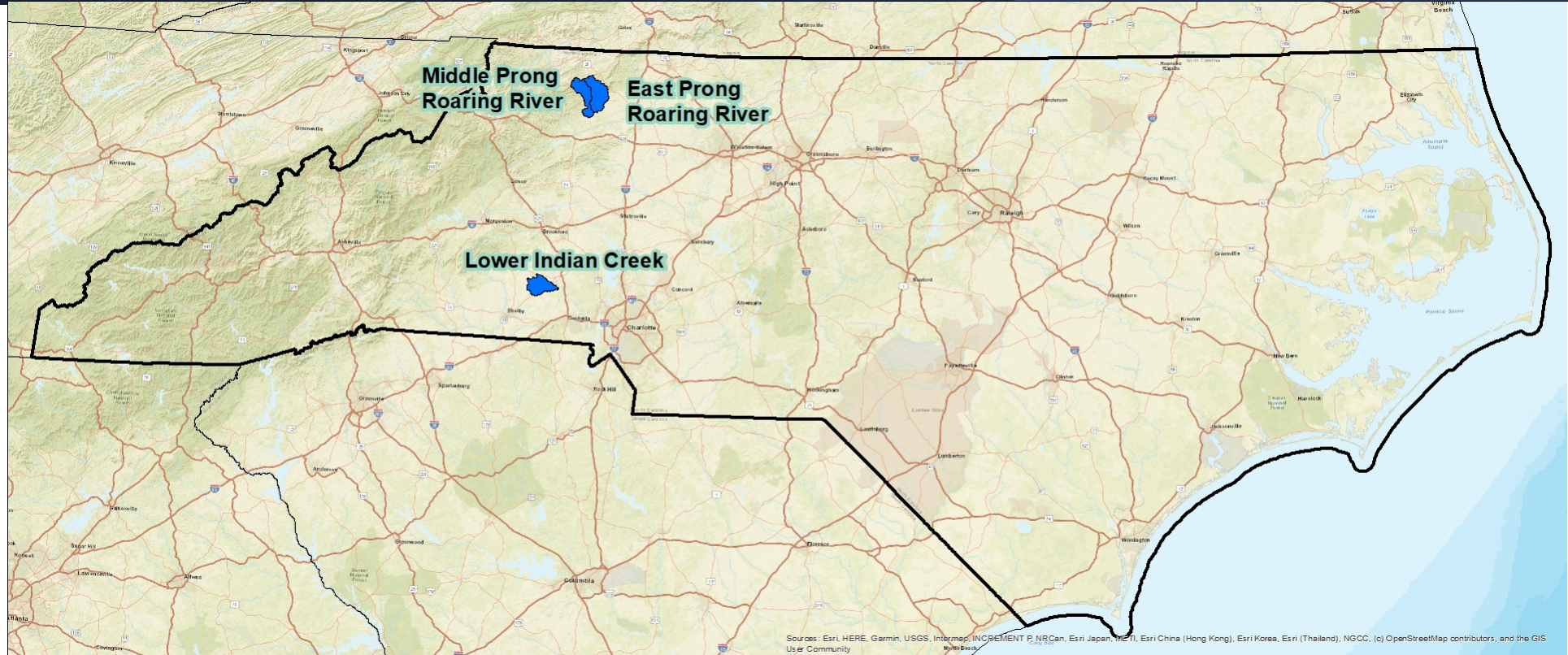
# Collaborating with NRCS

- NRCS State Technical Advisory Committee (STAC)
- NRCS STAC subcommittees
- Priority ranking points for projects located in source water assessment areas
- National Water Quality Initiative
- 2018 Farm Bill Source Water Priority Areas

*Department of Environmental Quality  
Division of Water Resources*



# Collaborating with NRCS - NWQI Watershed Selection

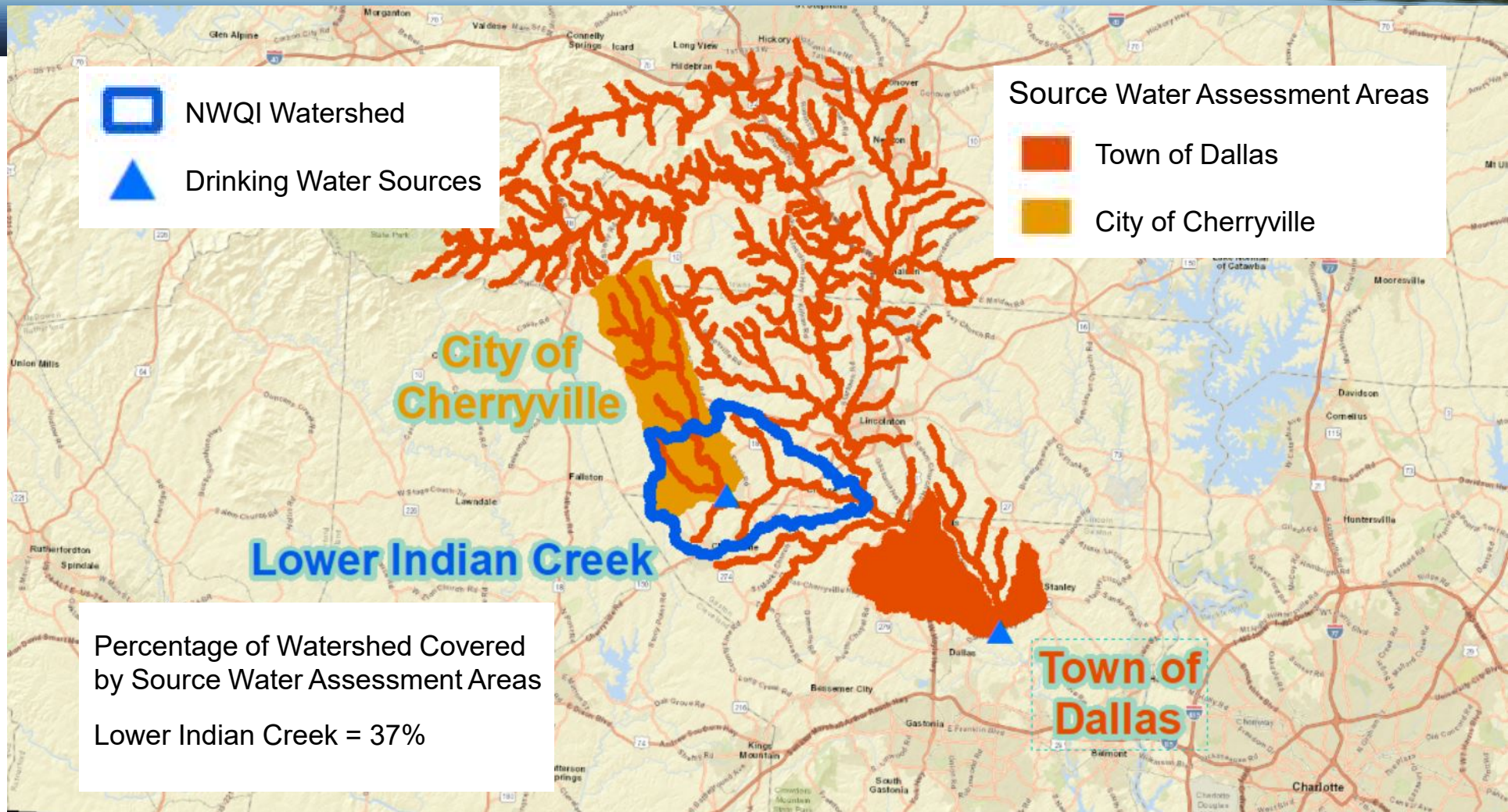


*Department of Environmental Quality  
Division of Water Resources*





# Collaborating with NRCS - NWQI Watershed Selection

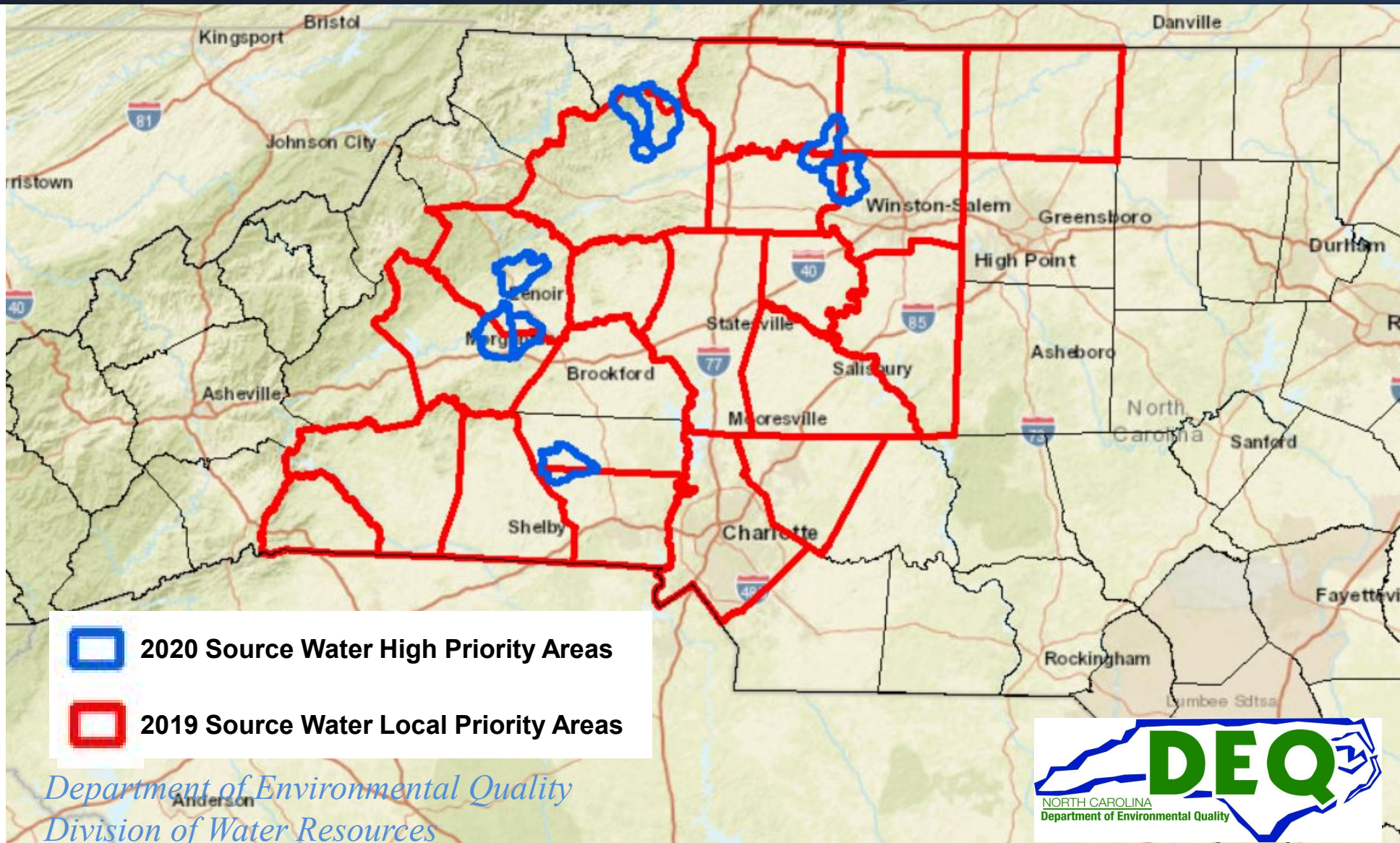


*Department of Environmental Quality  
Division of Water Resources*





# Collaborating with NRCS – Source Water Priority Areas





# NC Drinking Water Protection Program Team

Name	Title	Phone
<a href="#">Rebecca Sadosky</a>	Operations Branch Head	(919) 707-9096
<a href="#">Brad Whitman</a>	Drinking Water Protection Program Coordinator	(919) 707-9076
<a href="#">Sean McGuire</a>	Geographic Information Systems Specialist	(919) 707-9104
<a href="#">Danny Edwards</a>	Source Water Assessment and Wellhead Protection Programs Manager	(919) 707-9070
<a href="#">Jeff Talbott</a>	Unregulated Contaminant Program Coordinator	(919) 707-9093

*Department of Environmental Quality  
Division of Water Resources*





# Thank You!

NC Drinking Water Protection Website

<https://deq.nc.gov/about/divisions/water-resources/drinking-water/drinking-water-protection-program>

*Department of Environmental Quality  
Division of Water Resources*





# THANK YOU FOR ATTENDING! TIME FOR Q&A

**Kara Goodwin**

**[goodwin.kara@epa.gov](mailto:goodwin.kara@epa.gov)**

**Danny Edwards**

**[danny.edwards@ncdenr.gov](mailto:danny.edwards@ncdenr.gov)**

**Vena Jones**

**[Vena.l.jones@tn.gov](mailto:Vena.l.jones@tn.gov)**

**Brian Ham**

**[Brian.Ham@tn.gov](mailto:Brian.Ham@tn.gov)**

**You may find additional drinking  
water webinars and resources at**

**[www.epa.gov/dwcapacity](http://www.epa.gov/dwcapacity)**

**Please stay at the end to take a 5-  
question survey**