

Building Strong Collaborative Relationships for a Sustainable Water Resources Future:

STATE OF TENNESSEE

SUMMARY OF STATE WATER PLANNING

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The findings contained in this report are based on the information collected from the literature search and interviews for this initiative and should not be construed as an official Department of the Army position, policy or decision unless so designated by other official documentation.

STATE OF TENNESSEE

1. STATE/REGIONAL WATER PLANNING STATUS

Tennessee does not have a single comprehensive statewide water resources plan. However, the state maintains a watershed-based assessment and planning framework for water quality. Planning and management of Tennessee's water resources is coordinated primarily by the Department of Environment and Conservation (TDEC). TDEC's programs, policies, and actions are guided by several boards and commissions including the Ground Water Management Board (GWMB), the Water Quality Control Board (WQCB), and the Water Resources Technical Advisory Committee (WRTAC). Statewide planning activities depend on a number of state regulatory programs including the Drinking Water Program and Groundwater Management Program. These programs are described in detail below.

The GWMB advises and assist the TDEC Commissioner in the development of rule and regulations pertaining to the drilling of water wells (§69-10-107 Tennessee Code Annotated (TCA)).

WQCB has the authority to establish and adopt water quality standards, and to develop a state water quality plan (§69-3-105 TCA). The WQCB consists of 10 members; seven appointed by the Governor and three ex-officio members, including the Commissioners of Environment and Conservation, Health, and Agriculture. To date, WQCB has not proposed the development of a state water quality plan

In 2002, the Tennessee Water Resources Information Act (§69-7-101 et seq TCA) established and authorized the WRTAC. One of the major focuses of this act is development of a regional water supply planning program. Members of the WRTAC include representatives from:

- Tennessee Association of Utility Districts
- The Nature Conservancy of Tennessee
- U.S. Geological Survey
- Institute for a Secure and Sustainable Environment (University of Tennessee)
- Center for the Management, Utilization and Protection of Water Resources (Tennessee Tech University)
- Tennessee Valley Authority (TVA)
- Watauga River Regional Water Authority
- Tennessee Department of Agriculture
- Tennessee Wildlife Resources Agency
- Tennessee Duck River Development Agency
- Tennessee Department of Economic and Community Development
- Tennessee Advisory Commission on Intergovernmental Relations
- U.S. Army Corps of Engineers (USACE)
- U.S, Department of Agriculture (USDA) Rural Development
- Memphis Ground Water Institute (University of Memphis)

In a 2008 presentation to WRTAC, “Tennessee’s Approach to Regional Water Resource Planning,” TDEC’s Deputy Commissioner Paul Sloan suggested that state water resources issues are growth pressures, drought shortages and support uses that hinder matching sustainable sources to current and future uses.

To address requirements of the Water Resources Information Act, TDEC under guidance by WRTAC has begun a pilot study on water supply in two areas in Tennessee: North Central (Portland, TN area) and South Cumberland Plateau (Monteagle and Tracy City, TN area) (WRTAC, 2009). Work on the pilot areas is on-going and preliminary results will be available in early 2010. Expected outcomes of this pilot study are development of regional water supply plans that have the following components (WRTAC, 2008a):

- Current water supply assessments
- Current water use information
- Projected water demands (20-year and 30-year forecasts)
- Identification of alternative water supply sources
- Alternatives analysis
- Opportunities for public participation and comment
- Plan implementation strategy

Phase one, the on-the-ground data collection and evaluation portion of the pilot study process, has been completed by the U.S. Army Corps of Engineers. Phase two involving population projections, land use studies, and evaluation of available resources at the 20 to 25 year time horizon is the next step in the process. The two pilot projects are scheduled to be completed in Spring 2010.

Strategic planning and management of Tennessee’s water resources is also provided by the TVA, a federal entity. TVA operates 32 reservoirs, 19 hydroelectric dams, seven locks, seven coal-fired power plants, and two nuclear power plants in the state. TVA manages Tennessee’s rivers to help improve water quality, riparian conditions, biodiversity, and recreational opportunities, and control flooding (TVA, 2009).

2. RESPONSIBLE STATE AGENCIES/REGIONAL ENTITIES

TDEC is the state’s lead environmental and natural resource regulatory agency, which has delegated responsibilities from the USEPA. There are three TDEC Divisions dedicated to water resources issues: Ground Water Protection (DGWP), Water Supply (DWS), and Water Pollution Control (DWPC).

DGWP’s duties include the regulation of on-site wastewater disposal and permitting of new conventional and alternative subsurface sewage disposal systems and repair of malfunctioning systems (TDEC, 2009b).

DWS carries out the provisions of the Tennessee Safe Drinking Water Act, Safe Dams Act, Water Resources Act, Water Withdrawal Act, and Water Wells Act (TDEC, 2009d). DWS’s Ground Water Management Section develops the state ground water protection strategy, and

oversees well-head protection and underground injection of waste. The Division's Ground Water Management Section is responsible for the development of a groundwater protection strategy, well-head protection, supervising the underground injection of waste, and some provisions of the Water Quality Control Act that pertain to pesticide management.

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DWPC's primary responsibility is administration of the Tennessee Water Quality Control Act of 1977 (§69-3-101 TCA). The DWPC is also in charge of the non-coal surface mining program and illegal coal mining under the Tennessee Coal Surface Mining Law (TDEC, 2009c).

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3. WATER MANAGEMENT VISION AND GOALS

The TDEC's Bureau of Environment is an overarching state entity consisting of three subdivisions: Water Supply, Water Pollution and Control, and Subsurface Sewage. The Bureau of Environment's mission is, "to safeguard human health and the environment for all Tennesseans by protecting and improving the quality of our land, air and water for present and

future generations,” and its vision is, “To make Tennessee a national model of environmental stewardship (TDEC, 2006).”

WRTAC and TDEC’s goals for regional water resource planning are (WRTAC, 2008):

- Ensure sustainability of water resources for multiple uses.
- Collaboration among utilities, municipalities, and counties to address water resource/supply issues.
- Secure adequate funding.

4. SCOPE OF WATER RESOURCES PLANNING AND MANAGEMENT

The DWS manages water resources through numerous regulatory programs including the Drinking Water Program, Safe Dams Program, Water Withdrawal Registration Program, Well Program, and Ground Water Management Program (TDEC, 2009d).

There is a need to place a greater emphasis on water resources availability in Tennessee. Recent drought has brought attention to this need and has identified those areas of the state that are most susceptible to drought and limited water availability. These areas of concern are mainly located in the Cumberland Plateau region and mountainous areas of eastern Tennessee. Parts of middle Tennessee also face problems of declining water supply sources due to increased demand by a growing population and karst topography limiting the availability of groundwater resources.

Managing the water supply to meet the needs of both people and the environment is another prevalent issue in the state. Providing enough water to maintain aquatic habitat, allow for wastewater assimilation, and to meet the needs for municipal supplies is a water resources management concern that has brought attention to the need for better overall drought planning.

In 2004, DWS conducted a survey investigating the water resources needs in rural areas of the state. DWS published their findings in the “Tennessee Rural Water Needs Report (2004)”, summarizing each county’s water supply needs in terms of miles of new water lines needed. The Report concludes that there are over 110,000 homes across the state without public water service. In order to extend public water service to all areas of Tennessee, over 18,000 miles of new water lines must be constructed, costing approximately \$1.7 billion.

As part of the state Drinking Water Program, DWS also oversees the construction and operation of public water systems. DWS is authorized to adopt and enforce rules and regulations that govern the location, design, construction, operation, and maintenance of these facilities. In addition, DWS enforces the requirements of the Safe Drinking Water Act with respect to water quality and information reporting. Responsibilities of DWS under the Drinking Water Program are (TDEC, 2009g):

- Administering a certification program for laboratories and water suppliers that conduct microbiological, organic, inorganic, and turbidity analyses of drinking water samples.
- Conducting sanitary surveys of water supply systems for compliance and providing technical assistance to public water systems.

- Conducting examinations of water supply system operators and certifying compliance with performance standards.
- Conducting training courses for water supply operators for the purpose of assisting them in the understanding of changing regulations and technologies.
- Maintaining an accurate database of water supply information.

Through the Groundwater Management Program, DWS is working with the USEPA and other state agencies with ground water responsibilities to develop a comprehensive state ground water protection plan (TDEC, 2009h). A major focus of the program is establishing wellhead protection for public water systems relying on groundwater. DWS currently regulates groundwater discharges through the underground injection control program under authority from the Water Quality Control Act.

Water quality planning and management is provided by DWPC based on the USEPA’s Watershed Approach. In the Watershed Approach, Tennessee’s 55 watersheds are divided into 5 groups (Figure 1). During each 5-year cycle, DWPC works with local stakeholders to develop watershed water quality management plans (TDEC, 2009i)

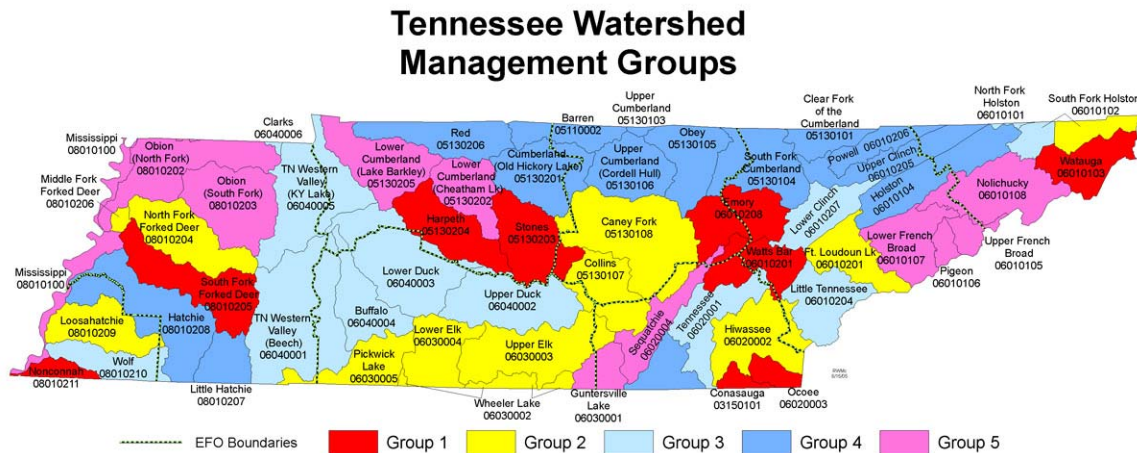


Figure 1. Tennessee’s Watershed Management Groups (TDEC, 2009j)

In 2009, TDEC updated the state’s Drought Management Plan. The Drought Plan defines TDEC’s role during a drought to facilitate planning and to provide a framework for action and cooperation in water resources management among the many local, state, and federal agencies with drought-related responsibilities. The plan recommends that:

Future plans should examine more fully a process for dealing with water use conflicts, declaring ‘limited’ or regional water conservation emergencies and providing more detailed guidance in the development of local and user specific water shortage management plans. Future planning for drought management should allow for full participation by public water systems, industry, the agricultural community, TVA, the Corps of Engineers, and other users in a regional planning setting whereby standards, regulations, procedures and plans might be developed to address specific needs and issues.

State plans for emergency management are found in the Tennessee Emergency Management Plan developed by the Tennessee Emergency Management Agency (TNEMA). Because details of the emergency plan cover topics such as national security issues and terrorism, the plan is not available to the public. TNEMA publishes a separate plan, the Disaster Recovery Plan (2007), which describes the methods the state will use to conduct recovery activities.

Funding for the planning, design, and construction of wastewater and drinking water facilities are available through the Tennessee Clean Water State Revolving Fund (TDEC, 2009a) and Drinking Water State Revolving Fund (TDEC, 2009f) administered by TDEC. Projects are prioritized based on a ranking system established in the intended use plans. Each biennium, TDEC publishes a new prioritized project list.

5. PARTNERSHIPS, STAKEHOLDER, AND PUBLIC INVOLVEMENT

Water resources planning and management in Tennessee is made possible through collaborative partnerships between TDEC and numerous federal, state, and regional entities including:

- U.S. Army Corps of Engineers
- USEPA
- U.S. Department of Agriculture-Rural Development
- U.S. Department of Agriculture-Natural Resources Conservation Service
- U.S. Geological Survey
- U.S. Fish and Wildlife Service
- Tennessee Valley Authority
- National Park Service
- Tennessee Department of Agriculture
- Tennessee Wildlife Resources Agency
- Tennessee Department of Transportation
- Tennessee Emergency Management Agency
- Ground Water Management Board
- Water and Wastewater Operators Certification Board
- Water Quality Control Board
- Water Resources Technical Advisory Committee
- West Tennessee River Basin Authority
- Boone Watershed Partnership
- Caney Fork River Watershed Association
- Coal Creek Watershed Foundation
- Conasauga River Alliance
- Cumberland River Compact
- Duck River Watershed Association
- Fort Loudoun Lake Watershed Association
- Harpeth River Watershed Association
- Hiwassee River Watershed Coalition
- Little River Watershed Association
- Lower Clinch River Watershed
- Mid Cumberland Watershed Association

- Middle Nolichucky Watershed Alliance
- North Chickamauga Creek Conservancy
- Old Hickory Lake Watershed Association
- Red River Watershed Association
- Stones River Watershed Association
- Wolf River Conservancy
- Emory River Watershed Association
- Tennessee Citizens for Wilderness Planning
- Obed Watershed Association

DWS encourages public involvement in the planning process through its Public Participation Opportunities webpage (TDEC, 2009e). Publications available for public comments are also posted to the website as well as notices of current permitting decisions, public hearings, and rule-making activities.

Public participation is also a major component of DWPC's Watershed Management Cycle (TDEC, 2009m). In the third year of the cycle, public meetings are conducted inform the public about the most recent water quality assessment and to solicit input on water quality issues. Public meetings are also held in the fifth year of the cycle to provide the public with an opportunity to comment on draft Watershed Water Quality Management Plans.

The ongoing pilot water supply studies involve substantial stakeholder input. Federal agencies such as the U.S. Army Corps of Engineers and the Tennessee Valley Authority along with local and state agencies and stakeholder groups are working to bring together data and resources. The goal of incorporating a wide array of stakeholders into the process is to ensure that the results and outcomes are recognized and accepted by a diverse set of parties and that the pilot studies can serve as an effective foundation for water resources planning throughout Tennessee.

6. PLAN IMPLEMENTATION STRATEGY

WRTAC's pilot study is being conducted in two phases. Phase I involves documentation of existing water assessments, water demand information, and water and wastewater system information and development of a GIS database (WRTAC, 2008b). Phase II will focus on the calculation of sustainable yields and future water demands, identification of alternative water sources, consideration of climate change and drought impacts, and development of a regional water supply plan (WRTAC, 2009). Much of the ground work for both phases will be spearheaded by the USACE Nashville District. Results of the pilot study are expected in early 2010.

In 2007 to 2008, TDEC partnered with the Department of Transportation in a project that placed watershed signs along Tennessee's major roadways (TDEC, 2009i). These signs are part of an effort to create awareness about the importance of watersheds and to promote good stewardship of the state's water resources. The public is also encouraged to learn about their respective Watershed Water Quality Management Plans and to participate in the watershed planning and implementation process. Each of Tennessee's 55 watersheds (Figure 2) has roughly four watershed signs.

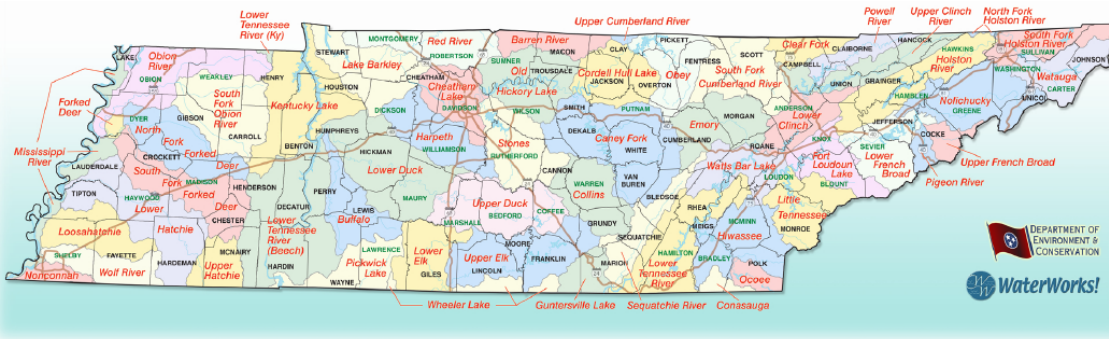


Figure 2. Tennessee’s 55 Watersheds (TDEC, 2009k)

7. OUTCOMES ASSESSMENT PROCESS

Within the Tennessee Department of Environment and Conservation each division has its own performance measures outlined in the department’s strategic plan. The performance measure goal of the Water Supply Division is that 97 percent of the population served will have water that meets all drinking water standards.

8. NEEDS, CHALLENGES, AND CRITICAL PRIORITIES – INTERVIEW INSIGHTS

The key water resources issues/needs in the state of Tennessee are:

- Population growth leading to increased water demand
- Balancing water resources availability to meet both human and environmental needs
- Developing policies to address and resolve conflicts over water resources
- Completing the two ongoing water supply pilot projects
- Human and financial resources to allow for more water resources planning

Historically, much of the water resources planning and management in the state of Tennessee has been performed by the U.S. Army Corps of Engineers and the Tennessee Valley Authority. As a result, the state agencies responsible for water resources planning and management are less advanced than their counterparts in other states where the federal presence is less dominant. In recent years more and more of the water resources planning and management responsibility is being handed over to the state. This shift has created the need for more sophisticated state water planning and the funding and personnel to carry out that planning.

The ongoing water supply pilot projects borne out of the Water Information Act and the subsequent formation of the WRTAC to advise TDEC have been important steps in moving water supply planning forward at the state level. The two pilot projects are scheduled to be completed in early 2010 with the hopes that they will result in a comprehensive process that can be replicated in other parts of the state giving Tennessee a better understanding of water supply planning and management.

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