

Tennessee State Wetland Program Summary



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Section A. Quick View

Description of State's Wetlands

Palustrine wetlands are the predominant wetlands in Tennessee. These include bottom-land hardwood forests and upland swamps (forested wetlands), scrub-shrub wetlands, beaver ponds (unconsolidated-bottom, aquatic-bed, or emergent wetlands), wet meadows and marshes (emergent wetlands), and highland bogs (forested, scrub-shrub, or emergent wetlands that have organic soils). Lacustrine and Riverine systems consist of aquatic beds consisting of floating and submersed aquatic plants, such as water lily and coontail, and nonpersistent-emergent wetlands consisting of plants such as pickerelweed and American lotus are associated with Tennessee's rivers, lakes, and reservoirs.

State Definition of Wetlands

Wetlands are defined in rule (Chapter 0400-40-07) as "those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas". They have hydric soils and a dominance (at least 50%) of obligate hydrophytes.

Historic Wetland Loss/Gain

Original Wetland Acreage	Remaining Wetland Acreage	Acreage Lost	% Lost
1,937,000	787,000	1,150,000	59%

Primary State Wetlands Webpage

Note: Tennessee is currently in the process of developing a state wetland webpage based in the DEC Division of Water Resources.

Tennessee Department of Environment and Conservation Aquatic Resource Alteration Permit Webpage (401 Certification)

<http://www.tn.gov/environment/permits/arap.shtml>

State Wetland Program Plan

Tennessee does not have a state wetland program plan. The state is in the process of developing a new plan, which is expected to be complete in early summer 2015.

No Net Loss/Net Gain Goal

- The Rules of the Tennessee Water Quality Control Board (Chapter 1200-4-7) establish a standard of no net loss of water resource value in permitting alterations of streams and wetlands through either §401 Certifications or state Aquatic Resource Alteration Permits

State Resources for Wetland Work

State Name	Core element #1: Regulation	Core Element #2: Monitoring and Assessment	Core Element #3: Wetland Water Quality Standards	Core Element #4: Voluntary Wetland Restoration
Agency	TDEC Division of Water Resources	TDEC – DWR Regional Field Offices	TDEC – DWR (Several periods during year that staff worked on this effort)	TDEC- DWR (Field office)
Amount	Unknown			
Source(s)	General funds, wetland permitting fees, EPA program development grants	EPA program development grants		Healthy watershed program’s funding source
FTE	~5.5 FTE* (Central) ~5 FTE (Regional Field Offices – Hired as permit writers)	0.5 FTE Combined between regional offices	0.1 FTE	3 FTE

**Central office staffing = 1 FTE admin (public notices); 1 FTE Manager; 3+FTE wetland alteration permits*

State Permitting Fees

State Permitting Fee	State Name
Yes/No	YES
Amount (range)	\$50-\$5,000 (+ annual maintenance fee for applications open longer than one year)
Agency	Department of Environment and Conservation

Innovative Features

Tennessee uses a matrix that weights the amount of infraction with the severity of impacts.

Models and Templates

Unknown.

Section B. Regulation

How are Wetlands Regulated in Tennessee?

Wetlands are regulated under the Tennessee Water Quality Control Act of 1977. The Act and the corresponding Aquatic Resources Alteration Rule establish the state's Aquatic Resources Alteration Permit (ARAP) program that regulates wetlands and wetland activities apart from those covered by individual §404 permits. The state provides protection for wetlands through its Section 401 Water Quality Certification efforts and state Aquatic Resource Alteration Permits. A §401 certification affirms that the discharge would not violate Tennessee's water quality standards. The application process for a §401 certification is the same as the ARAP process.

In 2000, rules for implementation of the Tennessee §401 Certification and state Aquatic Resource Alteration Permit program were formally adopted. The rules specifically define wetlands as a category of waters of the state and establish a "no net loss of water resource value" standard for permitting

This program covers many activities that do not require 404 permits (draining, ditching, etc.). Since the definition of waters of the state in The Tennessee Water Quality Control Act of 1977 is much broader than the federal definition of waters of the U.S., many wetlands not subject to federal regulation are still protected by state law and regulations. The state is currently implementing its Wetlands Conservation Strategy to offer greater administrative protection to wetlands.

Physical alterations to waters of the state that require either an ARAP or a §401 water quality certification include: dredging, excavation, channel widening, or straightening; bank sloping; stabilization; channel relocation; water diversions or withdrawals; dams, weirs, dykes, levees or other similar structures; flooding, excavating, draining and/or filling a wetland; road and utility crossings; and structural fill.

Wetland Delineation

Delineation Guidance	Yes	No	Detail
Use State's Own Method		X	
Use Corps' 87 Manual and Regional Supplement	X		
Other (Please describe)		X	

Evaluation Methodology

The State uses the Tennessee Rapid Assessment Method (RAM) for most projects. It is both accurate and fast at the same time. The RAM is based on the state's HGM. It was developed using Wetland Program Development Grants. When detailed evaluation is necessary, the hydrogeomorphic (HGM) method is used. However, detailed HGM models have not been developed for all wetland types. The state is in the process of defining and refining reference wetlands, trying to keep up with the types of wetlands in the state's different ecoregions.

Exempted Activities

Only agricultural and forestry activities are exempted; any other activities that affect wetlands must receive a permit.

Special Provisions for Agriculture and Forestry

Agricultural and forestry activities are exempted.

Penalties and Enforcement

The state assesses civil penalties for violations of the Water Quality Act for activities in wetlands (unpermitted fill, drainage, violation of §401 permit conditions, etc). Civil penalties can be imposed in amounts of up to \$10,000 per day. Typically, though, these penalties range between \$3,500 and \$15,000 per offender. TDEC has an Enforcement Section that handles wetland issues, but the responsibility to follow-up with enforcement orders lies with the Division of Water Pollution Control's permit writers. Additionally, the state uses an innovative matrix to weight the amount of infraction based on the severity of impacts.

Permit Tracking

TDEC uses WaterLog a public portal to a database that tracks every application. The public has access to this data. TDEC's data viewer spatially represents streams, wetlands, and permitting impacts. The state is in the process of developing an exceptional streams and wetlands GIS layer that represents all compensatory mitigation sites.

State General Permit (statewide vs. regional coverage)

Permit Coverage	Yes	No	Detail (Type of Permit)
Regional General Permit		X	
Statewide General Permit		X	

Other: Tennessee currently has 17 General Aquatic Resource Alteration Permits that can be used to authorize a variety of minor impact activities in streams and wetlands. The DE&C Division of Water Resources has issued the following general permits:

<http://www.tn.gov/environment/permits/aragpps.shtml>

Assumption of 404 Powers

Assumption Status	Yes	No	Detail
Assumed		X	
Working Toward Assumption		X	
Explored Assumption	X		Although Tennessee has explored assumption, the state has no current plans to pursue assumption.

Joint permitting

Tennessee has rules in place, which allow the U.S. Army Corps of Engineers (Corps) to issue joint public notices that serve as notice for the state's potential permit action as well as the Corps'.

Special Area Management Plans and Advanced Identification Plans

None.

Buffer Protections

The state provides some protections from construction for buffers through the statewide stormwater program. Additionally, Phase 1 and 2 MS4s must develop permanent buffers to achieve compliance with post-construction requirements.

Mitigation Policy

The Aquatic Resources Alteration Rule requires that impacts resulting in lost resource value of waters of the state must be "offset by mitigation sufficient to result in no overall net loss of resource value." Under this regulation, a §401 certification or ARAP permit may not be issued unless proposed projects are designed to avoid impacts, minimize them, or provide mitigation. Replacement ratios typically start at 2:1, depending on the resource lost and the nature of the proposed mitigation.

TDEC rules guide compensatory mitigation in Tennessee. These rules include suggested ratios for common mitigation measures. Certain minor impacts to wetlands authorized under the state's General Aquatic Resource Alteration Permits are exempt from mitigation requirements if they do not exceed prescribed limits. The rules suggest ratios for the various common mitigation measures and establish an alternative of an appropriate resource value assessment.

TWRA reviews public notices for §401 certification and ARAP permits to ensure that the proposed impacts and mitigation comply with the Basic Minimum Compensatory Mitigation Requirements developed by TDEC, TWRA, EPA, Corps, and FWS. TWRA also ensures that permits follow the mitigation ratios laid out in the TDEC mitigation rules.

Mitigation Database

The Water Resource Division's WaterLog-based permit database tracks information on applications, permits, severity of impacts, location, where mitigation is occurring, mitigation monitoring reports, and comments.

Section C. Monitoring and Assessment

Agency Responsible for Wetland Monitoring and Assessment

The Department of Environment and Conservation (TDEC) collects and analyzes data on wetlands water quality. TDEC's wetland assessment methodology is still evolving. The Tennessee Wildlife Resources Agency (TWRA) monitors wetland hydrology related to habitat.

Mapping/Inventory

National Wetlands Inventory (NWI) maps have been done for Tennessee based on the Cowardin classification. The inventory was based on 1980 aerial photography. No detailed status and trends study has been conducted. NWI maps are used for desktop analysis to determine whether or not an application has potential for wetland impact (using aerial imagery). NWI, however, is only the starting point, though. The state also uses vegetation and soils information to make further assessment. TDEC is working with Tennessee Technical University to update the NWI maps and refine them when possible.

State Wetland Mapping Public Portal

TDEC MapViewer

<http://tnmap.tn.gov/>

Tennessee GIS: Wetlands

<http://www.tngis.org/wetlands.htm>

Tennessee Wildlife Resources Agency Wetland Maps Website

http://www.tn.gov/twra/gis/nwi_wetlands.html

Wetland Classification and Assessment

The State primarily uses Tennessee Valley Authority Rapid Assessment Method (TVARAM) (<https://sewmg.rti.org/LinkClick.aspx?fileticket=5k7hlwHC3UI%3D&tabid=60>). Tennessee has collaborated with Tennessee Technological University and EPA to develop HGM methodology for some wetland classifications. This method has been used some to determine quality and function of wetlands proposed for alteration.

Statewide Wetland Monitoring Plan

Tennessee does not currently have a state wetland monitoring plan. However, they do have a plan to identify and classify reference wetlands.

Overall Wetland Gain and Loss Tracking System

Overall wetland gain and loss is not tracked in an integrated way by the state. This data is partially in the WaterLog database, but would have to be mined to determine offset of resources. WaterLog allows users to query projects with wetland losses. Theoretically, this information could be manually calculated. Voluntary restoration efforts are tracked if required ARAP or 401 Certification.

Wetland Monitoring and Assessment Characteristics

Level	None	Level 1	Level 2	Level 3
<i>Tennessee</i>		X		

Type	None	IBI	Condition	Functional
<i>Tennessee</i>			X	

Frequency	None	Project Specific	Ongoing
<i>Tennessee</i>		X	?

Description: TDEC has developed a functional assessment methodology (the Tennessee Rapid Assessment Methodology (TRAM)) to assess the quality of wetlands. This methodology is based on the Ohio Rapid Assessment Methodology and has been modified to account for differences between Ohio and Tennessee.

TDEC also has developed two hydrogeomorphic (HGM) models and is in the process of developing a third in coordination with TWRA, FWS, Corps, EPA, and USDA. TDEC hopes to eventually combine the use of the TRAM, a primarily qualitative assessment, with the more quantitative HGM assessments.

These methodologies allow TDEC to assign wetlands a tier category for antidegradation regulatory purposes. The assessments also justify permit decisions in the §401 or ARAP application processes.⁶ TDEC is considering using an assessment methodology to determine wetland mitigation requirements. The agency is proposing a seminar under its current EPA Program Development Grant for all applicable agencies to discuss feasibility.

Participation in National Wetland Condition Assessment

NWCA Study Type	Yes	No
National Study	X	
State Intensification Study		X

Detail: The state employed consultants to assist with the 2011 NWCA work. Tennessee is interested in conducting an NWCA Intensification Study in 2016.

Section D. Water Quality Standards

Wetland and Water Quality Standards

Type	None	Use Existing WQ Standards	In Process	Adopted	Future Direction
<i>Wetland-specific Designated Uses</i>		X			May be interested in creating these in the future

<i>Narrative criteria in the standards to protect designated wetland uses</i>		X			May be interested in creating these in the future
<i>Numeric criteria in the standards based on wetland type and location to protect the designated uses</i>		X Need to remove stream-created criteria for wetlands within state rules			
<i>Anti-degradation policy includes wetlands</i>				X Wetlands are included in A-D policy; working great for wetlands	

Description:

- Tennessee does not have water quality standards specific to wetlands. Wetlands are covered by the water quality standards and designated uses for all surface waters of the state.
- The state currently applies stream-specific standards to wetlands. These need to be removed from state rules.
- TDEC’s Planning and Standards Section is working to develop wetland-specific criteria.
- Tennessee has anti-degradation standards that apply to all waters of the state, and that are used in the §401 and ARAP permitting processes (*see Section II, Regulatory Programs, 401 certification program*).
- Source permit decisions for wetlands (NPDES) are based on the resource values of wetlands. If an activity is proposed that results in loss of resource values, then applicant must avoid, minimize, and/or compensate for these losses.
- Tennessee’s water quality standards and associated designated uses are designed to protect the “resource values,” or functions, of waters of the state. Resource values include the ability of water resources to: filter, settle, and/or eliminate pollutants; prevent the entry of pollutants into downstream waters; assist in flood prevention; provide habitat for fish, aquatic life, livestock and water fowl; provide drinking water for wildlife and water fowl; provide and support recreational uses; and provide both safe and adequate quality and quantity of drinking water.

Section E. Voluntary Wetland Restoration

Tennessee has a formal Voluntary Wetland Restoration Program through the Tennessee Wetland Acquisition Fund.

Types of Wetland Restoration Work Funded by the State:

Type of Work	YES	NO	Description
Fund Wetland Restoration (may include easement agreements)	X		Tennessee Wetland Acquisition Fund (TNWAF)
Private Land Restoration		X	
Public Land Restoration	X		Tennessee Wetland Acquisition Fund (TNWAF)
Technical Assistance	Unknown		
Tax Incentives		X	
Other – Real Estate Transfer Tax	X		Resources can be used to fund TNWAF

Description: The Tennessee Wildlife Resources Agency (TWRA) administers the state’s wetland restoration program, which is called the *Tennessee Wetland Acquisition Fund*. This program is funded by a real estate transfer tax to acquire, manage and restore wetland properties. Since the fund’s inception in 1986, it has acquired both wetlands and buffer zones. The state legislature periodically allows the agency to use the fund to purchase upland areas in regions that have few wetlands. TWRA reforests much of the land that has been converted for agriculture and conducts enhancement in wetland areas for waterfowl and shorebirds. This includes the creation of refuges and planting and managing vegetation. These areas are managed by staff members, who also monitor bird use and vegetation success.

Additionally, the Land Reclamation Section of the TDEC Water Pollution Control Division creates wetlands as part of its acid mine runoff treatment systems. The section builds created wetlands as the last stage in a series of acid drainage treatments. Funds are usually provided by state appropriations, the U.S. Office of Surface Mining, and matching money from agencies such as EPA and TWRA. The section monitors the success of these created wetlands with water quality sampling.

Voluntary Wetland Restoration Program Components

Wetland Restoration Efforts	Nothing in the Works	Planning	In Progress	Mature/ Complete
Program has a set of restoration goals	Unknown (General – For recreational hunting and fishing)			
Coordinate with relevant agencies that outline restoration/protection goals and strategies and timeframes	Unknown			

Developed multi-agency body to coordinate restoration/ protection efforts	Unknown			
Set restoration goals based on agency objectives and available information	Unknown			

Goals for Restoration Projects

Goal	Yes	No	Description
No Net Loss		X	
Reverse Loss/Net Gain		X	
Nonpoint Source Pollution (NPS)/WQ		X	
Total Maximum Daily Load (TMDLs)		X	
Habitat	X		
Coastal Protection	N/A		
Floodwater Protection		X	
Groundwater		X	
Other (please describe)		X	

Landowner Guides and Handbooks to Assist with Voluntary Wetland Restoration Efforts

None currently.

Section F. Innovative and/or Highly Effective Education and Outreach

TDEC educates all field staff. Additionally, by December 2015 a state-coordinated training will be conducted for professionals in wetland identification, delineation and condition assessment with the TVARAM to facilitate wetland work and restoration potential.

Section G. Climate Change and Wetlands

There is no work currently taking place on climate change issues within the state wetland program. Additionally, Tennessee has not developed a statewide adaptation plan. Some informal work is taking place at Denver State University. University and NRCS projects are looking at carbon sequestration in wetlands, but this effort is separate from the state wetland program. The State is interested in the stability of natural resources in a changing climate, however and focuses on preservation of headwater and sensitive areas through compensation mitigation.

Tennessee has acknowledged that climate change is as a primary challenge to conserving the state's wildlife populations. The state has studied the impacts of climate change on wildlife and published a report on impacts and providing recommendations in the 2009 report *Climate Change and Potential Impacts to Wildlife in Tennessee* (<http://www.tn.gov/twra/pdfs/tnclimatechange.pdf>). This report specifically identifies the importance of wetland habitat and provides recommendations for conserving wetlands and buffers.

Additionally, a study by the University of Tennessee's Center for Integrated Environmental Research, entitled *Economic Impacts of Climate Change on Tennessee* (2008) includes discussion of wetland value

and threats to these resources is openly discussed (<http://cier.umd.edu/climateadaptation/Tennessee%20Economic%20Impacts%20of%20Climate%20Change%20Full%20Report.pdf>). A quote from this report follows:

“Tennessee is home to around 787,000 acres of wetlands, which have been called nature’s water filters (Association of State Wetland Managers 2008). These are highly susceptible to higher temperatures, increases in atmospheric carbon dioxide, and changes in precipitation. Yet wetlands provide important ecological and water purification services for the state. For example, one study quantifying the impacts of water construction on wetlands estimated that the replacement costs per acre range from \$350 to over \$25,000 (USEPA 1997). A 20 percent loss of wetland acreage would cost the state from \$55 million to nearly \$4 billion. A \$2 billion cost to the state would amount to nearly \$3.5 billion in direct and indirect expenses throughout the state’s economy (RESI 2008).”

Section H. Integration

Entity/Program Area	Yes/No	Description of the Connection
NPDES/Stormwater	YES	The State’s stormwater Manager is house with the 401 certification section. The state SW program manager helped develop permit conditions for 401 certifications; also connections with SW General Permits and ARAP permits; do inspections for SW compliance. All who apply for 401 know that wetland conditions have been established to determine mitigation needs.
303(d)	YES	The state documents impaired wetlands using condition assessment; currently streamlining TVARAM to establish condition determination. Greater areas to offset including much higher ratios for compensation.
305(b) reporting on wetlands	~	Marginally
Total Maximum Daily Load (TMDLs)	NO	
Climate Change/ Resiliency	Indirectly	(See previous section)
Land Use /Watershed planning	YES	The Division of Water Pollution Control has established a watershed approach to permitting and water resource planning. The watershed plans currently include the limited information available on wetlands resources in a format that can be used. Although NWI information has been digitized, attribute data is such that it cannot be meaningfully utilized in the current planning process. The state has a Watershed Restoration Potential Tool that may include a wetland component.
Flood/Hazard Mitigation	NO	
Coastal Work	N/A	
Wildlife Action Plan	YES	
Statewide Comprehensive Outdoor Recreation Plan (SCORP)	YES	Extensive trails and parks system; includes some wetlands
Other	Unknown	

