

STOCK CREEK WATERSHED INITIATIVE

2019 Summary Report

A watershed is an area of land that drains into a common stream, river or other water body. In south Knox County there is a watershed named after Stock Creek. Its 20-plus square miles is sparsely populated and almost two thirds of its land is in pasture and forest. Stormwater that lands in this drainage basin ends up in Stock Creek and flows into the Little River embayment. This makes Stock Creek part of the larger Little River Watershed. John Sevier Highway, Marble Springs, and South Doyle High School are located here.



Photo 1 Pastoral scene in Stock Creek

The pastoral landscape and relatively sparse population of the area make it increasingly popular among those who seek to live in the beauty of East Tennessee. The watershed is now beginning to urbanize – becoming a patchwork of an increasing number of subdivisions and commercial developments, separated by farms and forested areas.

Stakeholders in the Stock Creek Watershed value its rural character and would like to maintain its current demographics while improving their quality of life and spurring economic growth.



Photo 2 Sign of failed septic system

Stock Creek is listed as “impaired” by the Tennessee Department of Environment and Conservation due to bacteria and sediment. The bacteria of concern is *E. coli*, known to cause illness in humans. “Impaired” means that the water quality in Stock Creek will not fully support some of its designated uses such as providing water to farms and industry, fostering aquatic species and wildlife, and allowing for safe recreation. One source of bacteria in the creek is runoff from failed septic systems. Another comes from livestock having unrestricted access to the creek. The SCWI’s goal is to reduce the pathogen level in Stock Creek to make it “fishable and swimmable” again.

Increasing land use is taking a toll on Stock Creek. Federal, state and local stream monitoring indicates water quality has declined. The good news is that the level of decline is still slight enough that with wise land use decisions and proper planning, Stock Creek can be restored and protected so that future generations may take pleasure in it as those have in the past.

In 2002, under the direction of the Water Quality Forum (WQF), a consortium of local agencies, consultants and concerned citizens formed the Stock Creek Watershed Initiative (SCWI). The two primary working bodies of the SCWI are a Technical Advisory Committee and an Education/Outreach committee. The mission of the SCWI is to improve the water quality in Stock Creek and have it removed from Tennessee's list of "impaired" streams.

Entities that have been involved in the SCWI over the past 14 years include:

- Knox County Stormwater Management
- Knox Chapman Utility District
- Knox County Soil Conservation District
- Knoxville/Knox County/Knoxville Utilities Board Geographic Information System
- Metropolitan Planning Commission
- National Resources Conservation Service
- South Doyle Area Homeowners Association
- Marble Springs
- Tennessee Department of Environment and Conservation
- Tennessee Water Resources Research Center
- Tennessee Valley Authority
- United States Geological Survey
- University of Tennessee

Technical Committee

Using a variety of innovative assessment tools, the Stock Creek Technical Advisory Committee determined that the primary sources of pathogens in Stock Creek originate from failing septic systems and livestock operations.

The approach the SCWI has used to remediate the identified problem is to:

1. Engage stakeholders to develop a watershed action plan to improve water quality.

In 2005 a \$20,000 Tennessee Department of Agriculture grant was awarded to develop a stakeholder driven watershed action plan. A series of public meetings were conducted to inform stakeholders of the problems with water quality in Stock Creek and to seek input into some of the proposed solutions. The watershed restoration plan was completed in the spring of 2007.

2. Build on the current watershed inventory and assessment information to target priority areas and expedite the planning process.

The Technical Advisory Committee identified certain areas within the watershed with a potentially high number of failing septic systems and worked with the Knox County Health Department, Knox County Community Development, Knox Chapman Utility District and TVA to verify this data and provide funding and support for improvements or alternatives to targeted failed systems. Over \$100,000 in Community Development funding was used to connect failed septic systems to existing sewer in 2010-11.

3. Continue to work with partners to implement Best Management Practices (BMPs).

The Technical Advisory Committee has also identified a number of grazing operations contributing to bacterial contamination in Stock Creek. SCWI, in conjunction with the Knox County Soil Conservation Service and Knox County Stormwater's Environmental Stewardship Program, have worked to address these problems. From 2005 – 2012, approximately \$100,000 in grant funding from the Tennessee Department of Agriculture and other sources was spent on improvements to a number of properties in the Stock Creek Watershed.

4. Secure grant funding to fix failed septic systems and implement BMPs on agricultural lands.



Photo 3 Fencing and watering system on Stock Creek farm

In 2012 the SCWI secured \$100,000 from the Tennessee Department of Agriculture's 319(h) program to fix failed septic systems and address poor pasture management in Stock Creek. Knox County Stormwater contributed another \$50,000 to this effort. From 2012 – 2014 25 failed septic systems were repaired and over 150 acres of farmland was improved with BMPs.

Education/Outreach Committee

The SCWI Education/Outreach Committee meets monthly at Marble Springs State Historic Site. Active members include the Water Resources Research Center at UT, Knox County Stormwater Management, Knox County Soil Conservation District, Marble Springs, the South Doyle Area Homeowner's Association, and interested citizens.

The Education/Outreach Committee has adopted a multi-pronged approach to educating stakeholders in the Stock Creek Watershed about the importance of water quality and involving them in efforts that address local water quality issues. The Committee has developed and distributed numerous publications including brochures to promote general watershed awareness and septic maintenance magnets for residents with septic systems. A general Stock Creek Watershed awareness display was created to use at public events along with a display devoted to the care and maintenance of septic systems. It also promotes the WQF's Adopt-A-Stream program as a way for citizens to become involved in protecting their local water resources. The Committee also assists the Knox County Stormwater AmeriCorps Water Quality Team in conducting the Adopt-A-Watershed program at South Doyle High School.

The Committee has participated in a number of events in Stock Creek including:

- Annual participation in John Sevier Days at Marble Springs
- Annual participation in Bonny Kate Fun night
- Numerous Farmer's Breakfasts with outside speakers for continuing education for the farming community
- Farm Tours
- Public meetings



Photo 4 Bonny Kate Fun Night in 2014

Finally, at an April 2006 public meeting, the SCWI conducted a survey with 60 Stock Creek Watershed residents. Results of the survey show that Stock Creek residents are aware that bacteriological contamination is the primary problem facing Stock Creek along with trash and sedimentation. Many folks would consider picnicking by Stock Creek, some would fish in it, and only a very few would have anybody contact with the water at this point; a wise choice made by a water-quality aware community.

After years of work in Stock Creek by the SCWI and its citizens conditions are improving. Sediment is no longer an issue. Only one small tributary to Stock Creek, Casteel Branch remains impaired for sediment. Monitoring results from both 2016 and 2017 showed dramatic improvements in *E. coli* concentrations. The SCWI will continue in our efforts until Stock Creek becomes “fishable and swimmable” for all. We thank you for your continued support.