Baker Creek and Centenary Creek Restoration Initiative

Final Close-out Report

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Submitted to: The Tennessee Department of Agriculture

January 15, 2015

- **Grantee & Title:** Blount County Soil Conservation District - "Baker Creek & Centenary Creek Restoration Initiative"

- **EPA Assistance Agreement Number:** C9994674-09-0

- **State Contract Number:** 18658

- **Agency Submitting Report:** Blount County Soil Conservation District

- **Project Period:** January 16, 2010 through January 8, 2015

- **Summarize Project And Include Lessons Learned:**

The Baker Creek and Centenary Creek Restoration Initiative was a collaborative effort among multiple grant partners to begin a multi-phased approach in restoring these waterbodies to their intended uses. A "319" grant (so named after paragraph 319 of the Clean Water Act) was obtained via the Tennessee Department of Agriculture (TDA) in the amount of $300,000.

This and other related funding was used to implement on-the-ground conservation practices and programming that would improve water quality parameters within the watershed boundaries.

Grant partners that participated in grant development and implementation included:

- Blount County Soil Conservation District
- Tennessee Valley Authority
- Blount County Planning Department
- Blount County Stormwater Department
- Carpenters Elementary and Middle Schools
- Environmental Landscape Design Associates
- Keep Blount Beautiful
- Loudon County
- Loudon County Soil Conservation District
- Natural Resources Conservation Service
- Tennessee Department of Agriculture
- Tennessee Wildlife Resources Agency
- The University of Tennessee
- The University of Tennessee/Tennessee State University Extension
- U.S. Fish and Wildlife Service
- Smoky Mountain Resource Conservation and Development
- Tennessee Department of Environment and Conservation
- Tennessee Division of Forestry
- U.S. Forest Service
- Watershed Association of the Tellico Reservoir

The "319" grant included four categories to accomplish the goal of improving water quality standards.
These categories included:

I. Conducting Public Listening Sessions
(for public buy-in and support of grant programming)
II. Assessment of Stormwater Detention/Retention Basins
III. Septic System Repair and Restoration for Low-income Households
IV. Implementation of Agricultural Best Management Practices

A breakdown for each category above has been included in this report. Each category was reviewed for completion and effectiveness on a monthly basis by the Blount County Soil Conservation District Board of Supervisors as part of an adaptive management strategy to ensure project completeness.

Summary of Project—continued:

Likewise, all grant categories were reviewed by members of the Baker/Ninemile Partnership which met on a quarterly basis. This partnership was coordinated by the Watershed Association of the Tellico Reservoir (WATeR).

- **Location**

Grant programming focused on Baker Creek, Little Baker Creek, and Centenary Creek Watersheds, the latter being a sub-shed of the Ninemile Creek Watershed.

Watershed names, County Location, Hydrologic Unit Codes (HUC), and Segment Identification Numbers are as follows:

Watershed Name:	**County(s):**	**8-digit HUC Numbers:**	**Segment Identification Numbers** **(Source TDEC 2012 303(d) List)**
Baker Creek	Blount and Loudon	06010204	043-1000
Little Baker Creek	Blount	06010204	043-0400
Centenary Creek	Blount	06010204	043-0100

Baker Creek and Ninemile Creek are within the eight-digit Hydrologic Unit Code (HUC) TN06010204, both of which drain to Tellico Reservoir. The Baker Creek Watershed and Ninemile Creek Watershed are both within the Lower Little Tennessee River Basin which drains 2627 square miles (USGS Water Resources Data Report) (Figure 1).

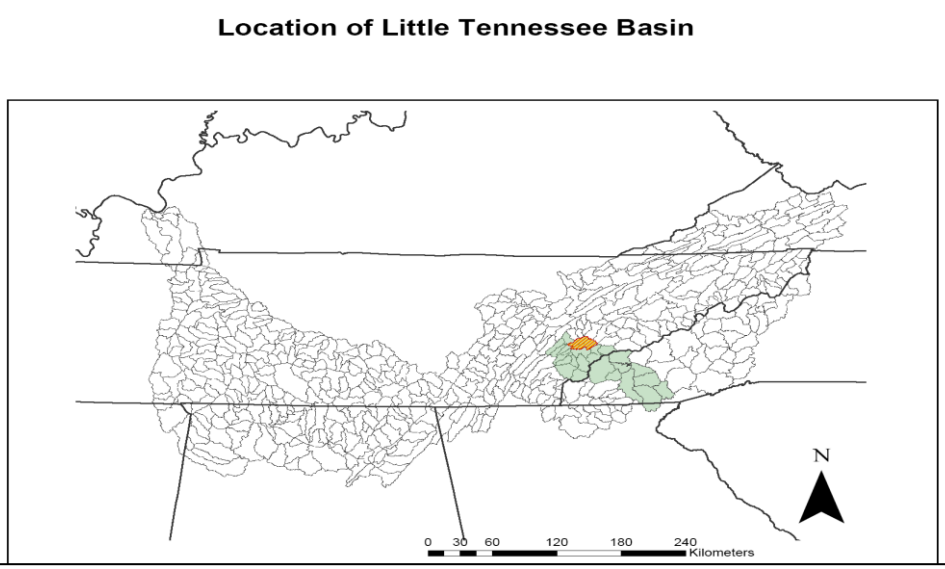


Figure 1. Location of Baker and Ninemile Creek Watersheds within the Little Tennessee River Watershed

Location—continued:

Baker and Ninemile Creeks, tributaries of the Little Tennessee River and Tellico Reservoir in East Tennessee, drain approximately 103 square miles or 65,664 acres. The watersheds are located within the tri-county area of Blount, Loudon, and Monroe Counties (Figure 2).

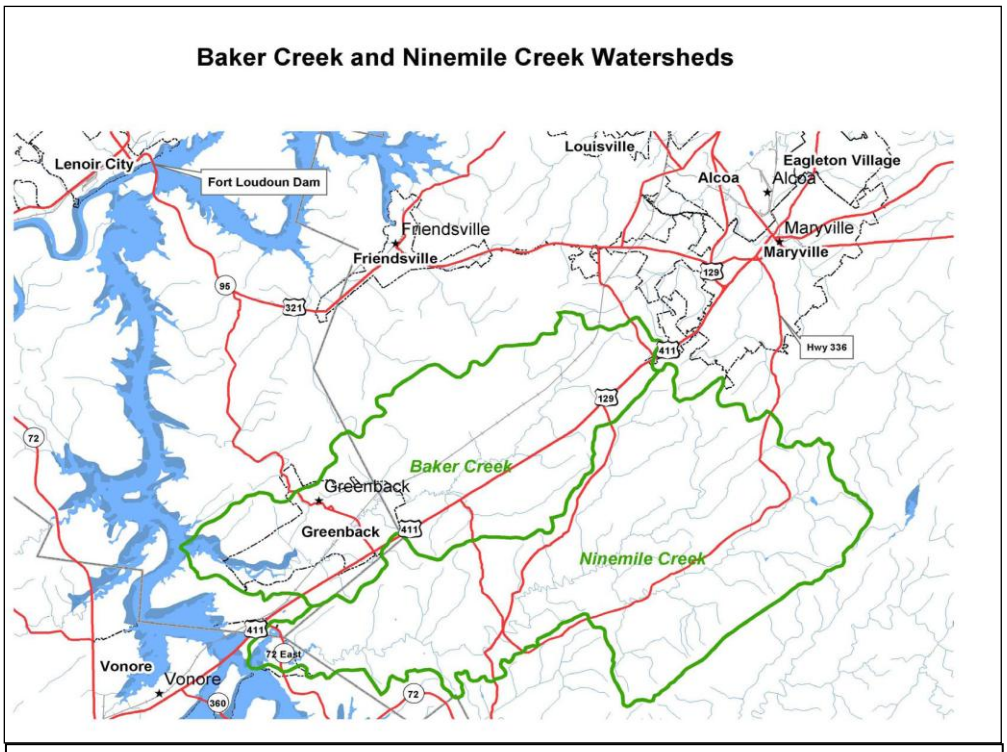


Figure 2. Location of Baker and Ninemile Creek Watersheds

Baker Creek Watershed drains 41.9 square mile area or 26,816 acres originating near Maryville and flows 18.2 miles through the Town of Greenback. A large portion of the Baker Creek Watershed is located within Blount County; however, 25% of the watershed is located within Loudon County. Ninemile also originates near Maryville and flows 17.1 miles draining 60.7 square miles or 38,848 acres.

- **Milestones**

The following is a quantitative summary (where applicable) of grant milestones per category:

I. Public Listening Sessions:

Three public listening sessions were conducted for the purpose of promoting "319" grant programming but also to gain input and support of the watershed restoration plan.

The date, location and county for each listening session were as follows:

Date:	Location:	County:	Attendance:
11/1/10	Binfield Community Center	Blount	10
11/4/10	Carpenters Elementary School	Blount	13
11/8/10	Greenback Community Center	Loudon	9
Total			**32**

The listening sessions were facilitated by the Planning Director of each County (Blount and Loudon). A power-point presentation was given that summarized all aspects of the grant as well as the impacts (non-point source pollutants) to water quality within the watersheds.

These events were marketed utilizing newspaper advertisements, targeted mailings, and email list serves. The listening sessions were also promoted at the 2010 Blount County Soil Conservation District's 54th Annual Awards Banquet with 200 in attendance.

The first two listening sessions (held in Blount County) received largely negative feedback aimed towards government intrusion onto private lands and waste of taxpayer dollars. It was explained that the grant itself was based solely on the voluntary request of the participant and that the respective county governments were not funding this initiative. Based off comments received (see subsequent page) it was obvious that a dedicated homeowner outreach and education campaign is needed within this section of the watersheds. This ideal will be incorporated into the next phase of the watershed restoration plan. Despite the negative comments a local radio personality offered to run public service announcements regarding the septic system aspect of the grant and two agricultural clients requested assistance. Additionally, a representative from a local engineering firm offered their services on an in-kind basis regarding retention basin retro-fits that may be applicable once the assessment of the retention basins within the watersheds had been completed.

The final listening session was held in Loudon County and was attended by agricultural land users. Once again the meeting started out with distrust of any government program but ended on a very positive note achieving support of the grant itself and generating new clients for both the Blount and Loudon County Soil Conservation Districts. Comments received regarding agricultural best management practices (see subsequent page) were discussed with the TDA Watershed Coordinator.

In total, 32 individuals participated in the listening sessions not including the planning directors or project director.

Milestones—Public Listening Sessions—continued:
Comments received per listening session venue are as follows:

Binfield Community Center—November 1, 2010

- All for clean water but against mandatory buffer (ordinance).
- Concern with fluoride in water that goes into streams – hazardous waste.
- Jet fuel (from airplanes flying overhead) falling into water.
- Medical drugs getting into water.
- Electric company and other utilities cutting down trees and using herbicides to clear right-of ways.
- Lack of trust in government programs given past actions, e.g., fluoridation and stream buffers.
- Carpenters Elementary School drainage plan still affects (residents) downstream.
- Government needs to be held to same standards as private development.

Carpenters Elementary School—November 4, 2010

- Concern with mandated requirements.
- Money could be used for more important purposes.
- Don't want any help – and no government intrusion
- 100 percent against this – just a foot of government in the door.
- Maybe get a kudzu eradication program.
- Grants have strings attached.
- Cows need to be under trees and in water to cool them.

Greenback Community Center—November 8, 2010

- Need more money dedicated to Pasture Renovation.
- We want 319 grant practices continued.
- Stop subdivisions.
- Expansion of public sewer in Greenback.
- Need a practice to address issue of dead animal disposal—primarily cattle

Comments received such as jet fuel from airplanes falling into open bodies of water, fluoridation in drinking water, and government intrusion were reviewed by the Blount County Soil Conservation District Board of Supervisors as well as grant partners associated with the Baker/Ninemile Partnership. No follow-up action was taken since these comments fall outside the programmatic boundaries of watershed programming as deemed by the district.

Comments that did receive follow-up action have been highlighted in green above.
Specific actions taken by grant partners per comment are as follows:

Comment:	**Action:**
Medical Drugs Getting into Water	This concern had already been addressed as part of an educational program entitled "Sustainable Gardening". This curricula, focuses on ecologically friendly landscaping practices that includes a teaching module on non-point source pollutants including the proper disposal of unused medications. This curriculum is part of the annual programming by the Blount County Soil Conservation District. Plans to expand this programming into Loudon County have been included in the Phase II watershed based plan.
Electric company and other utilities cutting down trees and using other herbicides to clear right-of ways	This comment not only referred to electric companies cutting down trees but also that utilities be held to the same stormwater protocols as private contractors or individuals. This concern was addressed via the stormwater entities of Blount County, City of Alcoa, and City of Maryville (all in Blount County) in conjunction with Keep Blount Beautiful by sponsoring an educational symposium on non-point source pollutants and stormwater best management practices aimed toward utility companies.
Need more money dedicated to pasture renovation.	Concern shared with TDA watershed coordinator.
We want 319 practices continued	Concern shared with TDA watershed coordinator.
Expansion of pubic sewer in Greenback	Concern shared with Loudon County Planning Department.
Need a practice to address dead animal disposal—primarily cattle	Concern shared with TDA watershed coordinator. This issue has recently been addressed by The University of Tennessee Extension by conducting research into large animal composting facilities. This information is shared with landowners on a technical assistance basis.

Milestones—Public Listening Sessions—continued:

A summary of actual accomplishments per this aspect of grant programming is as follows:

Number of Listening Sessions as Stated in Grant Proposal:	Number of Listening Sessions Implemented:	Percent Completion:	Status:
3	3	100%	Project Completed. No further action to be taken.

The public listening sessions were deemed successful and allowed for additional conversations between grant partners and the public in regard to non-point source pollutants and corrective actions thereof.

Karen Hewitt, District Secretary, Loudon Co. Soil Conservation District speaks to Russ Newman, Loudon Co. Planning Director about the Baker Creek Watershed.

Participants view a power point presentation in regard to the Baker Creek Watershed Restoration Plan.

Milestones—continued:
II. Assessment of Stormwater Detention/Retention Basins:

The stormwater coordinators for Blount and Loudon Counties assessed all existing retention/detention basins within the watershed boundaries for the purpose of identifying those basins that may need remedial corrective actions in terms of improving vegetation for enhanced filtering capabilities.

No suspect basins were identified in Loudon County and two were identified in Blount County. It was initially thought that more suspect basins would be identified, so it was welcome news to grant partners that out of 15 basins (within Blount County) only two were identified as needing remedial work.

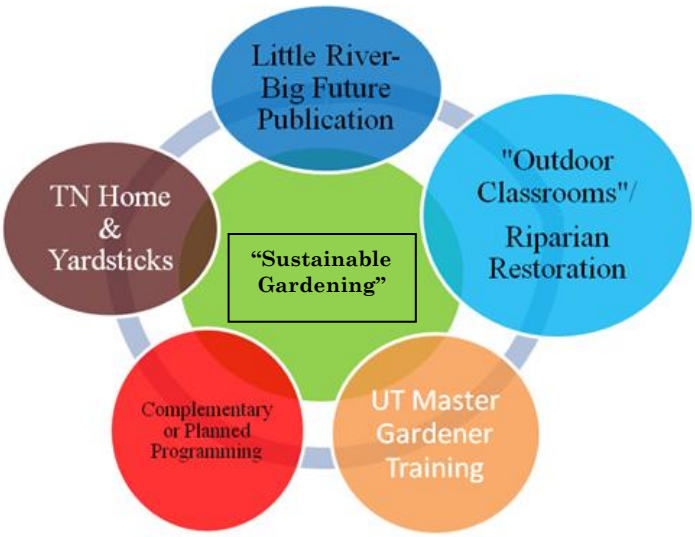
Initially, a process was begun to retro-fit the identified basins. This process utilized the following criteria to ensure project completeness and integrity.

1. Ease of access to site
2. Availability to be viewed by public—
   (Highway frontage with possibility of educational signage)
3. Designed Correctly---No re-design of structure necessary
4. Active homeowners association (to facilitate continuing education initiatives)
5. Lack of complaints about existing structures (thus no pending litigation associated with site)
6. Possibility for enhanced improvement of sites upstream and downstream of drainage network
7. Opportunity to effectively improve water quality.

Ultimately, no retro-fits were performed as the respective landowner or entity responsible for each basin repaired or improved vegetative conditions on their own without district or grant partner involvement.

Lessons Learned:
If one or both basins had been retro-fitted as part of an ecologically-friendly landscaping plan, they would have complemented an existing homeowner outreach and education campaign currently being used in Blount County. The campaign features multiple initiatives which may be used as stand-alone modules or combined for enhanced understanding and outreach. The primary or core educational module is known as "Sustainable Gardening" which teaches basic suburban best management practices such as turf maintenance, rain gardens, and native plants to homeowners and serves as the educational cornerstone for other endeavors.

A model demonstrating the various components of this program is as follows:



Homeowner Outreach & Education Campaign—Interrelationship Model:

Milestones— Assessment of Stormwater Detention/Retention Basins--continued:

Lessons Learned—continued:

The aforementioned educational components are designed to improve environmental education, awareness, and ACTION over time. They have been developed in conjunction with over 25 watershed partners including The Tennessee Valley Authority, The University of Tennessee Extension and U.S. Forest Service. The model allows for cross-training and support from a variety of educational tools.

As mentioned, grant partners began a process to retrofit one or both basins that would have complemented the outreach campaign. These retrofits would have included enhanced plantings of native vegetation and other stormwater best management practices such as trash guards, V-weirs, and drainage enhancements.

These types of practices provide a demonstration site to homeowners who may adapt these practices for their own landscaping needs or give insight into how public lands may be more effectively managed from an ecological viewpoint.

In regard to retrofitting the basins, it was discovered that the original budget for this grant category would have been drastically under budget if an ecological based plan was to be implemented. The original budget was adopted after consultations with The University of Tennessee College of Landscape Architecture. The original budget would have allowed for the development of a concept plan but did not allow for implementation.

Budgetary line items that need to be considered for similar projects should include:

1. Development of concept plan (project goal, partnership meetings)
2. Site analysis (Soil Ph, hydrology, topography, existing vegetation)
3. Development of plant palette (native plantings)
4. Hardscaping (stormwater best management practices)
5. Implementation and oversight of concept plan (budget development, inspection, adaptation)

It should also be noted that the skill set and willingness of the land user to maintain these practices should be taken into account when developing an ecological based landscaping plan. If public funds are to be used for a project of this type then grant partners need some assurance that the lifespan of the project be accounted for in return for technical and financial assistance.

Regardless, the process of looking into avenues to retro-fit the suspect basin was appreciated by grant partners as it provided a foundation for similar projects henceforth. As stated, the respective landowner or entity for each basin improved basin conditions on their own and did not receive grant funding designated for this category.

A summary of actual accomplishments per this aspect of grant programming is as follows:

Grant Proposal:	**Actual Accomplishment:**	**Percent Completed:**	**Status:**
Assess all Stormwater Detention/Retention Basins within Project Boundaries	All Basins Assessed	100%	Project Completed. No further action to be taken.

Milestones—continued:
III. Septic System Repair and Restoration for Low-income Households:

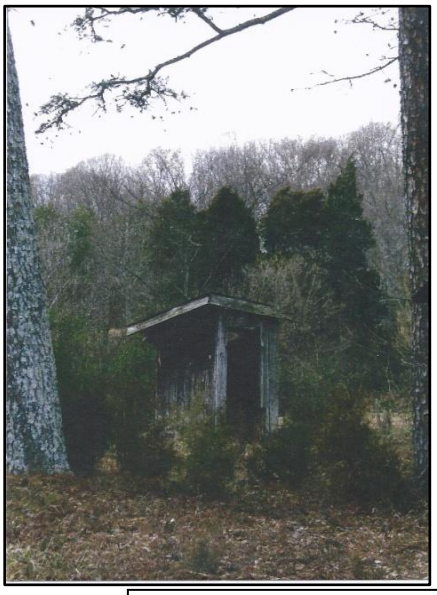
This aspect of grant programming allowed for the restoration of failing septic systems for low-income households within the watershed boundaries. The Blount County Environmental Health Department (BCEHD) provided administration of septic repairs including site analysis, type of septic system (conventional, pump, etc…), bid packages, and construction specifications. Budgetary oversight was provided by the Blount County Soil Conservation District Board of Supervisors.

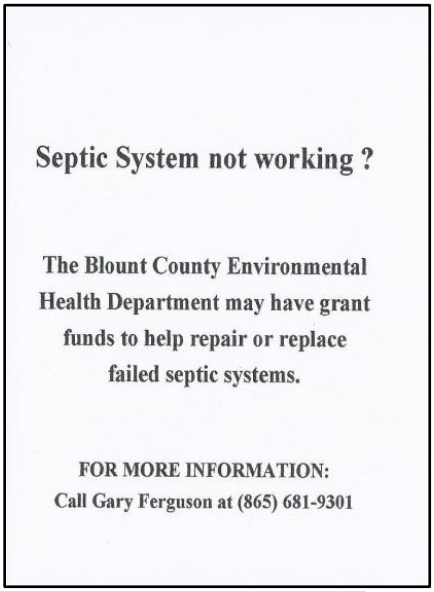
Pathogens derived from failing septic systems have been identified as a contributing source of non-point source pollutants within the watershed boundaries. Data from an Integrated Pollutant Source Index (IPSI) study conducted by the Tennessee Valley Authority in 2003 estimated that 19% of the pathogen load is generated by failing onsite wastewater systems. Some of these systems are failing because of age or inadequate maintenance, while others were constructed in unsuitable soils. The latter systems would not be approved under today's stricter environmental compliance protocols.

Applicants requesting cost-share assistance to repair failed septic systems were required to submit the following documentation.
1. Copy of Recorded Warranty Deed
2. Copy of a Current Electric Bill for Residence (to further establish ownership)
3. Proof of Income (Federal Income Tax Return, Social Security Benefits Statement)

Cost-share allocations were based on the number of residents within the household and annual household income. Cost-share percentages ranged from 50 to 100% and were based on similar cost-share guidelines prepared by Housing and Urban Development (HUD).

Lessons Learned:
Marketing for this aspect of the grant was accomplished through one-on-one conversations with septic tank installers, informational brochures (issued to community service and/or action agencies), and direct mailings (postcards) to known areas that had a high incidence of septic failures. These areas were correlated with suspect sites identified via IPSI. The mailing list for the stated areas was generated via parcel data obtained via the Geographical Information System (GIS) department of Blount County.





Front & Back of Postcard utilized as part of Direct-mailing Campaign:

Milestones—Septic System Repair and Restoration for Low-income Households-continued:
Lessons Learned—continued:
In total, 311 postcards were mailed to suspect areas.

Although the postcards did generate calls into the BCEHD to inquire about assistance, they likely had more of an impact in generating awareness of grant programming as opposed to directly producing a client base to utilize grant funding.

Many issues may prevent homeowners from inquiring about assistance including:
1. Distrust of governmental entities.
2. No knowledge if septic system is failing (no visible outcropping).
3. Lack of finances to obligate toward a new system even if financial assistance is available.

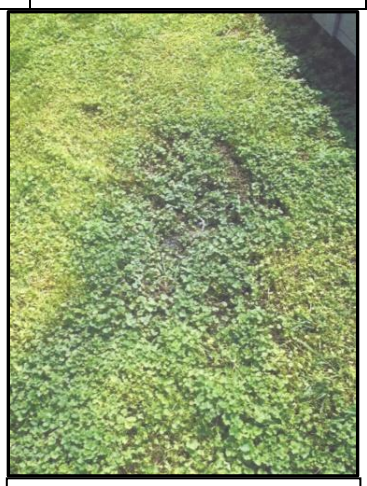
Continued progress for marketing this aspect of grant programming will ultimately rely on a combination of the aforementioned marketing strategies coupled with one-on-one conversations between homeowners and related governmental entities.

Project Implementation and Accomplishments:
The grant proposal included funding to repair a total of 25 systems with provisions to develop a risk-based system to guide field checks and to strategically target areas with high rates of known septic failures if volunteer applicants were not forthcoming. These actions were taken despite a 75% reduction in the staff of the BCEHD due to county budget cuts. Due in part to these staff reductions, there were only 6 systems that were restored under this phase of grant programming.

Although the total number of restored systems was less than planned, progress was made in establishing baseline communications for continued environmental progress. Grant partners will continue to market this aspect of grant programming including education of proper maintenance of septic systems via the aforementioned "Sustainable Gardening" curricula.

The parameters for the restored projects are as follows:

Number of Restored Systems:	**Type of System:**	**Average Total Cost Per System:**	**Average Number of People in Household:**	**Average Household Monthly Income:**	**Average Cost-share Percentage:**	**Status of Project (Actual Accomplishment):**
6	4—Conventional 2—Conventional with Pump	$3526.33	2.8	$1524.92	95.8%	**24% of Intended Projects Completed. No further action to be taken.**



Before: Failed system with visible plume and outcropping.

During: Excavation, leading from septic tank to new field line.

After: Completed system (conventional tank and field line) with critical area seeding of disturbed areas.

Milestones—continued:

IV: Implementation of Agricultural Best Management Practices:

Project Overview:
Agricultural lands comprise the second largest land-use classification within Blount County, being second only to forested land including The Great Smoky Mountains National Park. This land-use classification is mirrored within the project boundaries for the Baker and Centenary Creek Watersheds. Grant funds were utilized to implement agricultural best management practices within the watershed boundaries including the portion of the Baker Creek Watershed within Loudon County.

According to the 2003 TVA IPSI Model, agricultural lands contribute 90% of total suspended solids (TSS) and 78% of pathogen loads to the watershed system. Rather than viewing this data in negative terms, grant partners see these numbers as encouraging as non-point source pollutants derived from agricultural lands can often be easily remedied and have the potential to positively affect just not the agricultural parcel but also the surrounding drainage areas.

The Board of Supervisors of the Blount County Soil Conservation District view "319" funding as an effective tool to accomplish the following tasks:

1. Implementation of Ag. BMP's for targeted areas within a short timeframe.
2. Improvement of water quality utilizing qualitative parameters.
3. Capacity building for continued environmental progress.

It is this latter task that board members consider crucial to improve natural resource conditions by voluntary methods. If relationships can be built with agricultural land-users, it allows for subsequent conservation practices to be implemented via district acquired or federal farm bill programming.

It also allows for long-term technical assistance and continuing education derived from professional land-use consultants (NRCS, SCD's, UT Extension) for sustained environmental progress.

In total, grant funding was allocated to 33 individual producers representing 77 contracts. See Table I for a summary of implemented practices.

Marketing:

Opportunities for cost-share assistance were presented at multiple agricultural events including The University of Tennessee Extension Field Days, Blount County Soil Conservation District Annual Banquet, and the Loudon County Cattleman's Association Annual Meeting.

Targeted mailings (postcards) were sent directly to parcels greater than 15 acres in size within the Centenary Creek Watershed to further target or cluster agricultural best management practices.

Milestones—continued:
Implementation of Agricultural Best Management Practices--continued:

Table I—Implemented Agricultural Best Management Practices:

Agricultural Best management Practice:	**Quantity Planned per Grant Proposal:**	**Actual Quantity Implemented:**	**Percent Completed:**	**Comments:**
Alternative Watering System	23 units	39 units	170%	-
Critical Area Treatment	8 acres	2.93 Acres	37%	-
Cross-fencing	12,632 feet	40,315 Feet	319%	-
Access Control Fence (Waterbody)	15,026 feet	9928 feet	69%	Percentage includes linear feet derived from woodland access control fencing category.
Animal Trail and Walkway	267 feet	280 square feet (Length= 20 feet)	340%	Percentage includes linear feet derived from access road category.
Heavy Use Area Feed Pad	6 units	6 units 16,241 square feet	100%	-
Stream Crossing/Access Ramp	6 units	7 units	117%	-
Streambank Restoration	64 linear feet	-	-	Streambank restoration measures corrected via other practices (grade stabilization structures, etc…)
Pasture Hayland Renovation	25 acres	-	-	No funding obligated for pasture renovation practices by decree of TDA Watershed Coordinator and Blount County SCD Board of Supervisors.
Percent Implemented versus Quantity Planned via Grant Proposal:	-	-	**164.6%**	**Project Complete. No further Action to be Taken.**
Other Implemented Practices Not Specified in Grant Proposal:				
Pipeline	Not specified	21,027 feet	N/A	-
Heavy Use Area (for watering facilities)	Not specified	22,687 square feet	N/A	-
Fabricated Storage Tank (Cistern)	Not specified	1 unit	N/A	-
Grade Stabilization Structures	Not specified	15 units	N/A	-
Access Control Fence (Woodland)	Not specified	433 feet	N/A	-
Heavy Use Area Protection	Not specified	8345 square feet	N/A	-
Access Road	Not specified	12,132 square feet (Length= 888 feet)	N/A	-
Grassed Waterway	Not specified	202	N/A	-
Pumping Plant	Not specified	1 unit	N/A	-
Roof Run-off Control Structure	Not specified	73 feet	N/A	-
Underground Outlet	Not specified	120 feet	N/A	-

Milestones—continued:
Implementation of Agricultural Best Management Practices--continued:

Implemented practices were an obvious improvement in natural resource conditions at some locations. Sample before and after photographs of project sites are as follows:

Before: Bare Earth, Saturated Conditions, Rill and Sheet Erosion, No Heavy Use Area Protection.

After: Access Road/Animal Trail & Walkway in Conjunction with Heavy Use Area Protection, Access Control Fence, Cross-fencing, Riparian Buffer, and Alternative Watering System

Before: Full Livestock Access to Centenary Creek with Eroded Streambanks and no Riparian Buffer.

After: Riparian Buffer Established (naturally) in conjunction with Access Control Fence and Access Ramp.

Milestones—continued:
Implementation of Agricultural Best Management Practices--continued:

Agricultural best management practices—continued:

Before: Existing Water Tank with no Heavy Use Area Protection or Prescribed Grazing System.

After: Alternative Watering System with Heavy Use Area Protection in Conjunction with Cross-fencing (In-progress) and Prescribed Grazing.

Before: Eroded Gully (draining to open waterbody).

After: Eroded Area Reclaimed following Implementation of Grade Stabilization Structures (Rock Check Dams), and Access Control Fencing.

Milestones—continued:

Grant Summary:
A summary of all completed milestones and accomplishments per grant programming is as follows:

Project Task (As Identified in Grant Proposal)	**Actual Task Completed:**	**Percent Completed:**	**Status:**	**Comments:**
Conduct Three Public Listening Sessions (for Public Buy-in and Support of Grant Programming)	Three Listening Sessions Conducted	100%	Project Completed. No further action to be taken.	-
Assess Stormwater Detention/Retention Basins within Watershed Boundaries.	All Basins Assessed.	100%	Project Completed. No further action to be taken.	-
Repair 25 Failing Septic Systems associated with Low-income Households.	6 Systems Restored	24%	Project Completed. No further action to be taken.	Task amended to reflect lack of buy-in from community and staffing cuts within the Blount County Environmental Health Department.
Implementation of Agricultural Best Management Practices.	Specified Practices Implemented.	164.6%	Project Completed. No further action to be taken.	Practices exceeded planned amounts. Practices not specified in grant proposal not included in percent completion. Practices funded with cost-share dollars other than 319 funding were excluded from percent completion.
Average Percent Completion		**97.2%**		**All Projects Successful!**

- **Expenditures**

The following table depicts the budget for this initiative.
All receipts, invoices, and supporting documentation have been cataloged.

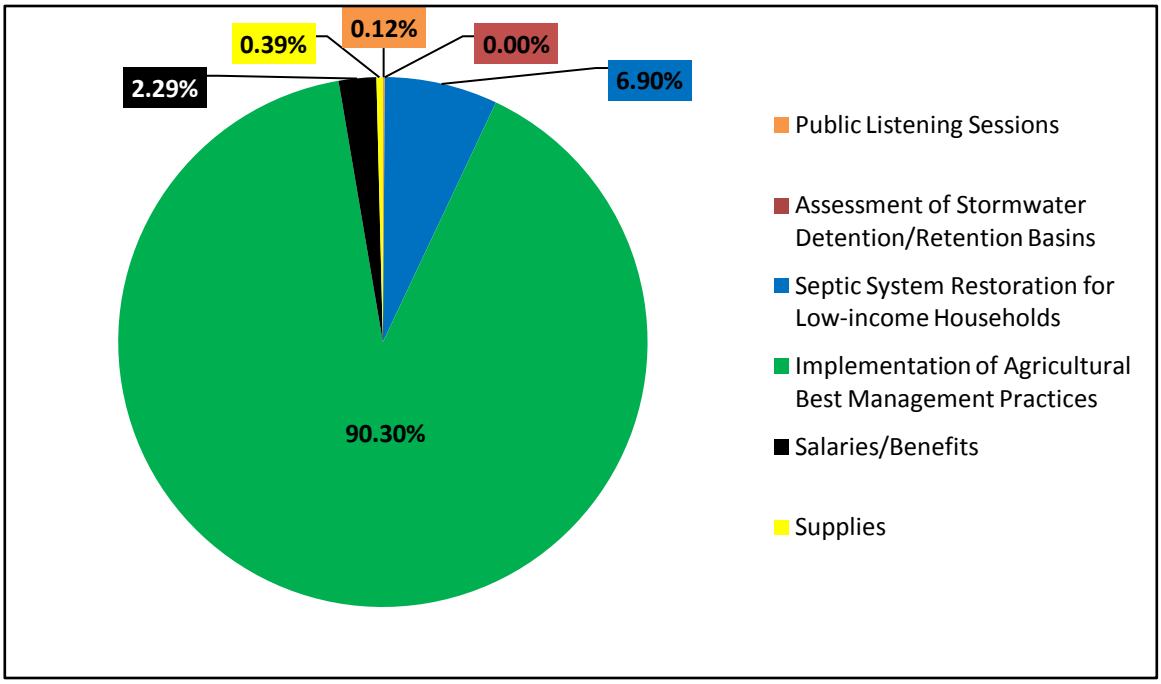
Line Item From Attachment A, Grant Budget	319(h) Grant Budget	Grantee Participation Budget	Remaining Balance 319(h)	Remaining Balance Grantee Participation
Salaries/Benefits	6862.50		0.00	
Salaries/Benefits Match		122,898.56		(46,087.44)
Prof.Fee/Gt.& Award	291,977.56		0.00	
Prof.Fee/Gt.& Award Match		115,772.00		(22,744.01)
Supplies/Travel/Etc.	1159.94		0.00	
Supplies/Travel/Etc. Match		5,658.00		(9737.40)
Total	**300,000**	**244,328.56**	**0.00**	**(78,568.85) (Overmatch)**

A line-item breakdown for grant dollars, In-kind matching funds, and cash matching funds per grant task or accomplishment is as follows:

Task or Line Item:	**Grant Dollars Allocated:**	**In-Kind Matching Funds Generated from Grant Partnerships:**	**Cash Matching Funds Derived from Grant Partners, Septic System Homeowners, & Agricultural Landowners:**	**Comments:**
Public Listening Sessions.	$455.00	$580.00	-	Grant dollars utilized for marketing (advertising) of listening sessions and venue location.
Assessment of Stormwater Detention/Retention Basins.	0.00	$5340.17	-	No 319 funding required. Matching funds include development of Geographical Information System (GIS) shapefile layer for subdivisions within project boundaries.
Septic System Restoration for Low-income Households.	$20,545.50	$1200.00	$612.50	-
Implementation of Agricultural Best Management Practices.	$270,977.06	$163,082.75	$136,686.59	Includes cash matching fund for agricultural best management practiced derived from The Tennessee Valley Authority.
Salaries/Benefits	$6862.50	N/A	-	No "319" funding was utilized for county-funded district employees. Grant dollars were allocated for contractual employees of the district to provide technical assistance for the purpose of implementing agricultural best management practices. In-kind matching funds for salaries/benefits have been recorded in the grant program task or accomplishment line items.
Supplies/Travel	$1159.94	$15,395.40	-	Supply items included survey materials required for project implementation as well hardware for computer system.
Total(s)	**$300,000.00**	**185,598.32**	**$137,299.09**	
		$322,897.41 ($185,598.32 (In-kind) + $137,299.09 (Cash)= **Total Matching Funds**		

Expenditures—continued:

The following graph represents allocated dollars (319 funding only) on a percentage basis.



Complementary Funding:

Priority "319" funding for the Baker Creek and Centenary Creek Restoration Initiative served to implement on-the-ground conservation practices for agricultural lands. In turn, these practices escalate capacity building ideals for continued environmental improvements.

Some practices that may require certified nutrient management plans or practices that would exceed average cost-share allocations were funded with federal farm bill programming such as the Environmental Quality Incentive Program (E.Q.I.P.). Likewise, additional funding from the Tennessee Department of Agriculture—Agricultural Resources Conservation Fund (A.R.C.F.) and the Tennessee Valley Authority (TVA) were used to fully fund some projects.

Program dollars that complemented "319" grant funding are as follows:

EQIP=$68,326.30
ARCF=$5650.81 (Excludes ARCF Funding utilized in Loudon County)
TVA=$5583.47 (Included in cash matching funds)

Funding derived via EQIP and ARCF were not used as matching funds for this initiative since EQIP funding is derived from a federal (U.S. Government) source while ARCF funding is utilized as an overmatch for statewide "319" program dollars. TVA funding, while itself a federal entity is derived from non-federal power revenue and was included in the cash matching funds category.

- **Equipment—**No grant funding was utilized to purchase equipment.

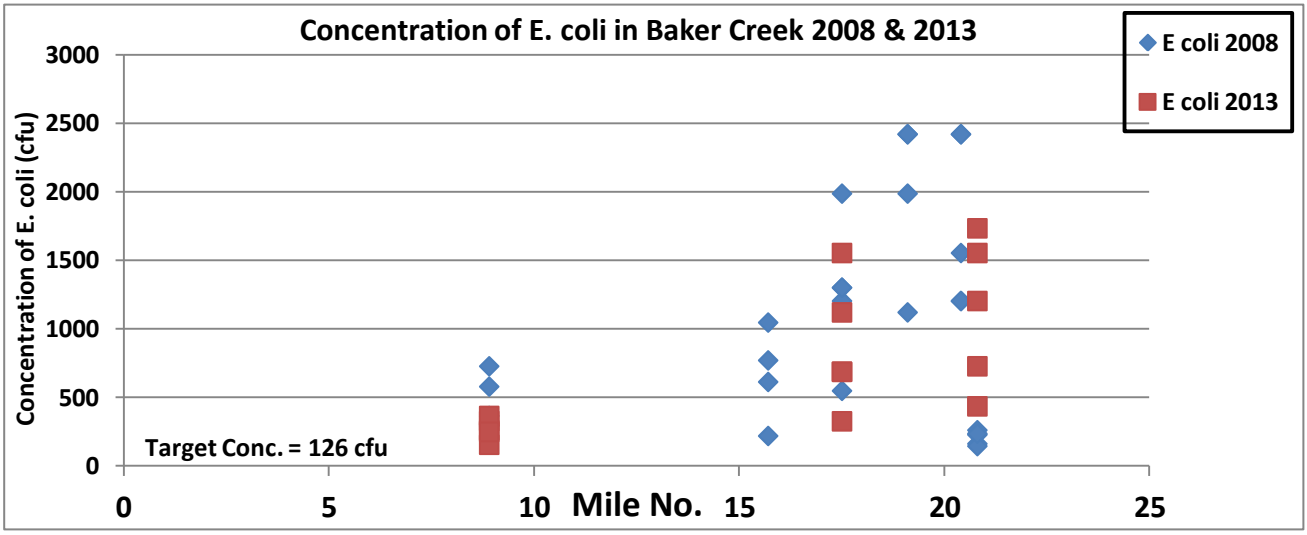
- **Conclusions:**

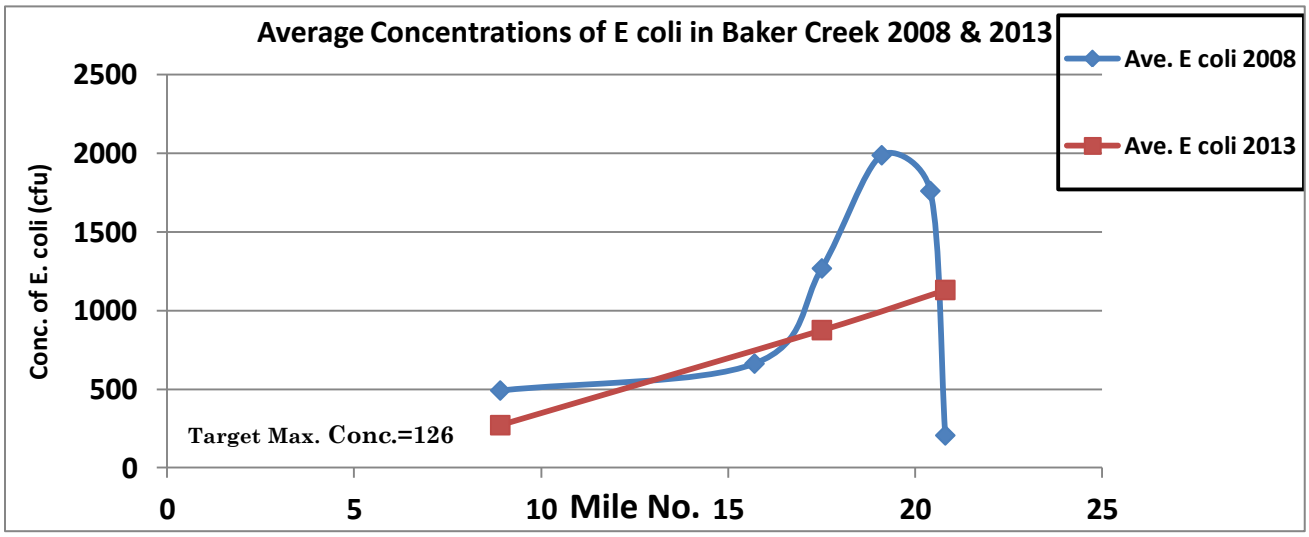
Water Quality Monitoring:

No "319" grant funding was utilized for water quality monitoring. However, monitoring was conducted by the Watershed Association of the Tellico Reservoir as part of a citizen science campaign in conjunction with the Tennessee Department of Environment and Conservation (TDEC). Likewise, TDEC conducted water quality sampling in 2013 for nutrients and pathogens as part of a 5-year monitoring cycle for the watersheds.

TDEC personnel are currently interpreting the 2013 data and final results have not yet been published. However, based on a comparison of 2008 versus 2013 data, relative improvements may be indicated for the respective pollutants within Baker Creek and Little Baker Creek. No current data is available for Centenary Creek as of this writing.

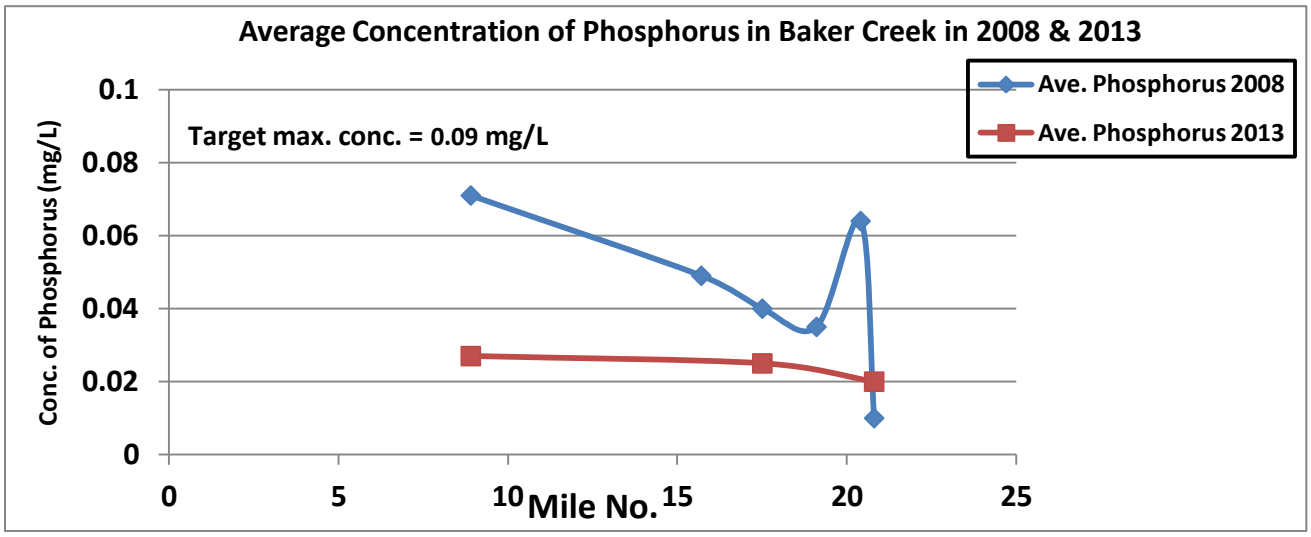
Pathogen and nutrient levels for 2008 and 2013 for the indicated watersheds are listed in the following tables:

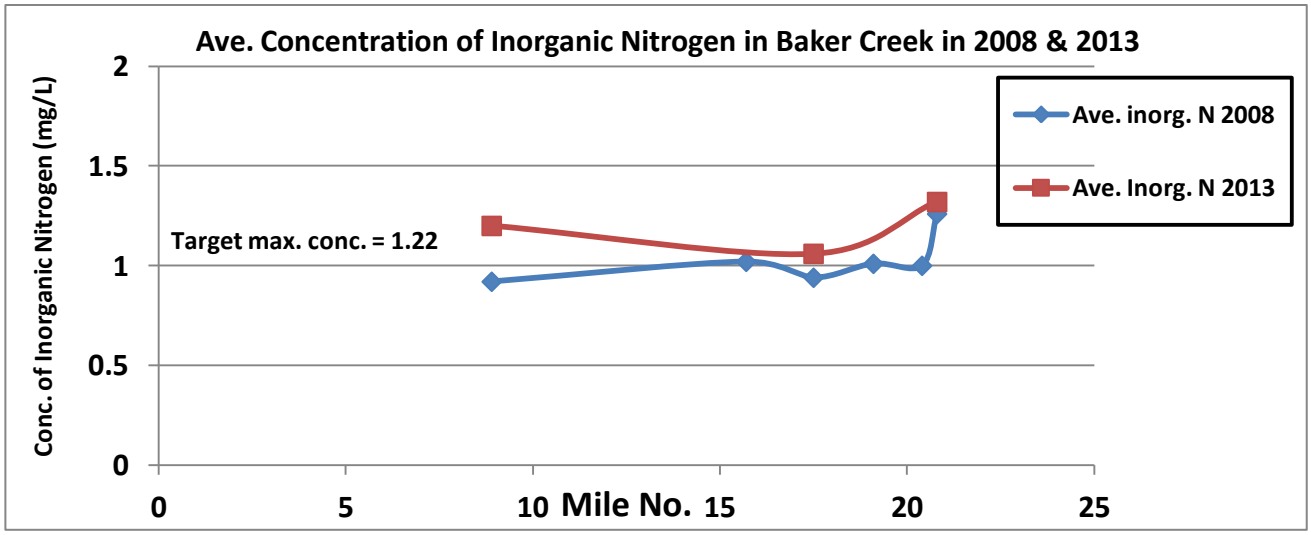




Conclusion—continued:

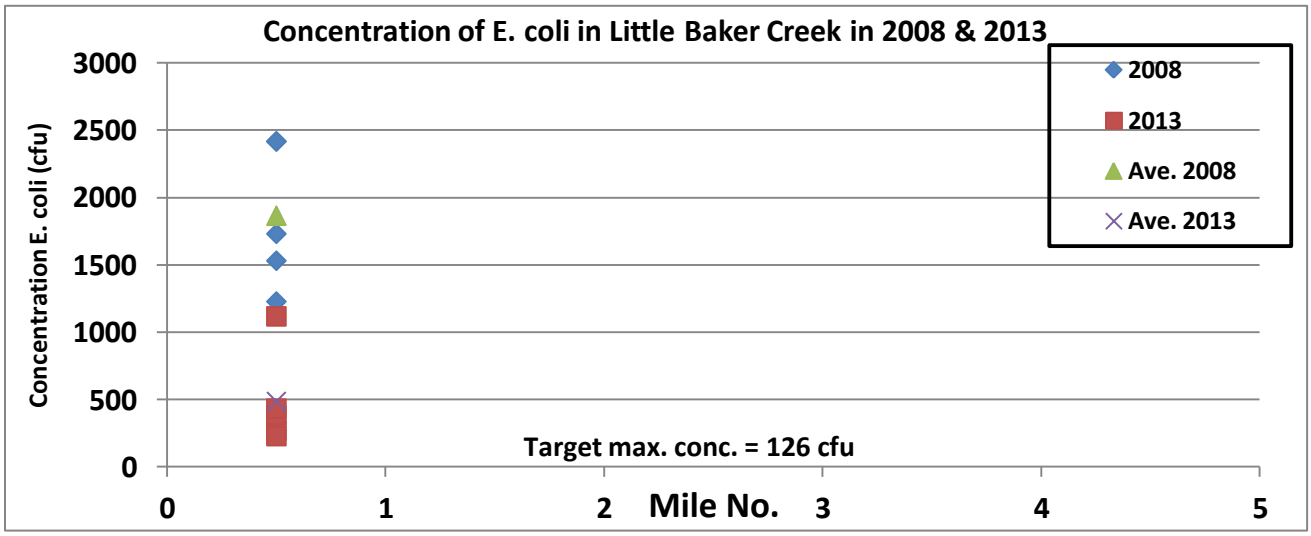
Water Quality Monitoring--continued:

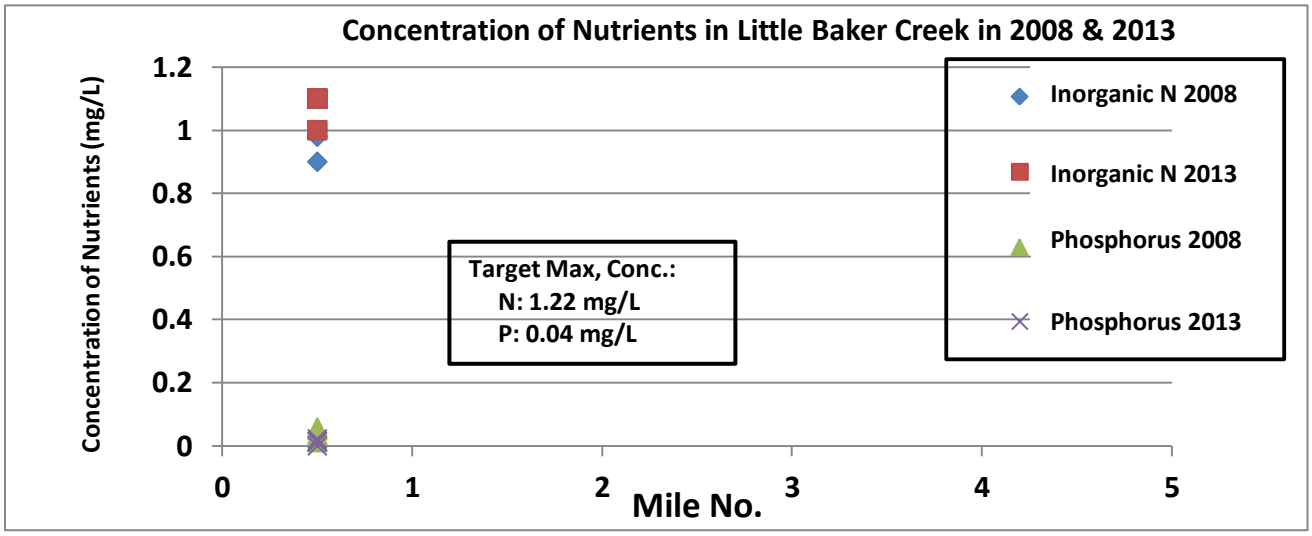




Conclusion—continued:

Water Quality Monitoring--continued:





All tables adapted from TDEC via WATeR

Preliminary results seem to indicate an improvement in E.coli and nutrients in Little Baker Creek. Similarly, improvements in E.coli. and phosphorus may be indicated for Baker Creek. However, continued monitoring efforts will be required to assess data over time and no conclusions other than long-term goals should be assumed based on the above graphical representations.

Conclusion--continued:

Grant partners have submitted a grant application in regard to Phase II of this initiative which (if approved) will allow for continued improvements within the watershed boundaries while providing capacity building tools and examples that may be duplicated or adapted across watershed and jurisdictional boundaries.

Acknowledgments:

Special thanks to Keri Chartrand of the Tennessee Valley Authority in regard to her expertise in formatting and building watershed plans and insight into water quality parameters.

Likewise, accommodations should be afforded to John Rogers, Bill Waldrop, Dick Sawinski and their colleagues of the Watershed Association of the Tellico Reservoir for their willingness to conduct quarterly planning meetings for all watershed partners and collecting water quality samples in conjunction with TDEC.

Effective implementation of agricultural best management practices would not be possible without the expertise of Amber Johnson, Leon Tillman, Gene Robinson, Joe Zimmerman, and Jerry Frady (retired) of the Natural Resources Conservation Service. Critical is Karen Hewitt of the Loudon County Soil Conservation District in her willingness to promote and market cost-share opportunities to her clients. Accounting skills for this initiative were provided by Sandy Gregory of the Blount County Soil Conservation District. Sam Lemmons, Watershed Coordinator, Tennessee Department of Agriculture is superb in guiding project directives and providing leadership for quality programming.

The assessment of stormwater retention/detention basins within the watershed boundaries was conducted by Justin Teague, Blount County Stormwater Department and Dale Jayne of the City of Maryville Stormwater Department. Tied to this initiative was a geographical information system (GIS) shapefile layer of subdivisions correlated by Ray Boswell, Blount County GIS Coordinator whose willingness to acquire all things GIS is appreciated.

Coordination and implementation of the septic system restoration aspect of grant programming would not be possible without the dedication of Gary Ferguson, Director, Blount County Environmental Health Department whose willingness to go above and beyond his normal duties has aided many families in being able to protect themselves from septic-effluent vectors.

John Lamb, Blount County Planning Director is no stranger to leadership roles. Together with his counterpart Russ Newman, Loudon County Planning Director (retired) their knowledge of quality growth parameters allowed for an outstanding framework for public listening sessions.

Kim Henry (wife of Erich Henry), should be credited with her outstanding editing skills and willingness to provide support, understanding, and perpetual patience in regard to her husband!

The Board of Supervisors of the Blount County Soil Conservation District would like to express their thanks to all who made this initiative a success. Apologies to those who may have been a part of this process but were inadvertently left off the above list. Your contributions are valued!

It will take a combined effort between federal, state, local, and private entities for continued environmental improvements within this region.