Local Conservation Initiatives

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Soil and Water Conservation District Operations

The soil and water conservation districts in North Carolina are comprised of a five-member Board of Supervisors for each county in the state staffed by resource professionals in the district, usually with federal, state, and local funds. This group establishes local resource priorities. This structure allows the local district to call upon federal, state, local, non-profit, non-government, and other natural resource groups for technical, financial, planning, and implementation support to restore, enhance, and/or maintain the natural resource base at the local level.

The North Carolina Agricultural Cost Share Program

The NC Agricultural Cost Share Program (NCACSP) was established in 1984 to help reduce agricultural nonpoint runoff into the state's waters. The program, administered by the NC Division of Soil and Water Conservation (now within the NC Department of Agriculture and Consumer Services) and managed by the local districts, helps owners and renters of established agricultural operations improve their on-farm management by using best management practices (BMPs). These BMPs include vegetative, structural or management systems that can improve the efficiency of farming operations while reducing the potential for surface and groundwater pollution. The NCACSP is implemented by the Division of Soil and Water (DSWC), which divide the approved BMPs into five main purposes or categories:

• Sediment/Nutrient Delivery Reduction from Fields - Sediment/nutrient management measures include planned systems that prevent sediment and nutrient runoff from fields into streams. Practices include: field borders, filter strips, grassed waterways, nutrient management strategies, riparian buffers, water control structures, streambank stabilization, and road repair/stabilization.

• Erosion Reduction/Nutrient Loss Reduction in Fields - Erosion/nutrient management measures include planned systems for reducing soil erosion and nutrient runoff from cropland into streams. Practices include: critical area planting, cropland conversion, water diversion, long-term no-till, pastureland conversion, sod-based rotation, stripcropping, terraces, and Christmas tree conservation cover.

• Stream Protection from Animals - Stream protection management measures are planned systems for protecting streams and streambanks. Such measures eliminate livestock access to streams by providing an alternate watering source away from the stream itself. Other benefits include reduced soil erosion, sedimentation, pathogen contamination and pollution from dissolved, particulate, and sediment-attached substances. Practices include: heavy use area protection, livestock exclusion (i.e., fencing), spring development, stream crossings, trough or watering tanks, wells, and livestock feeding areas.

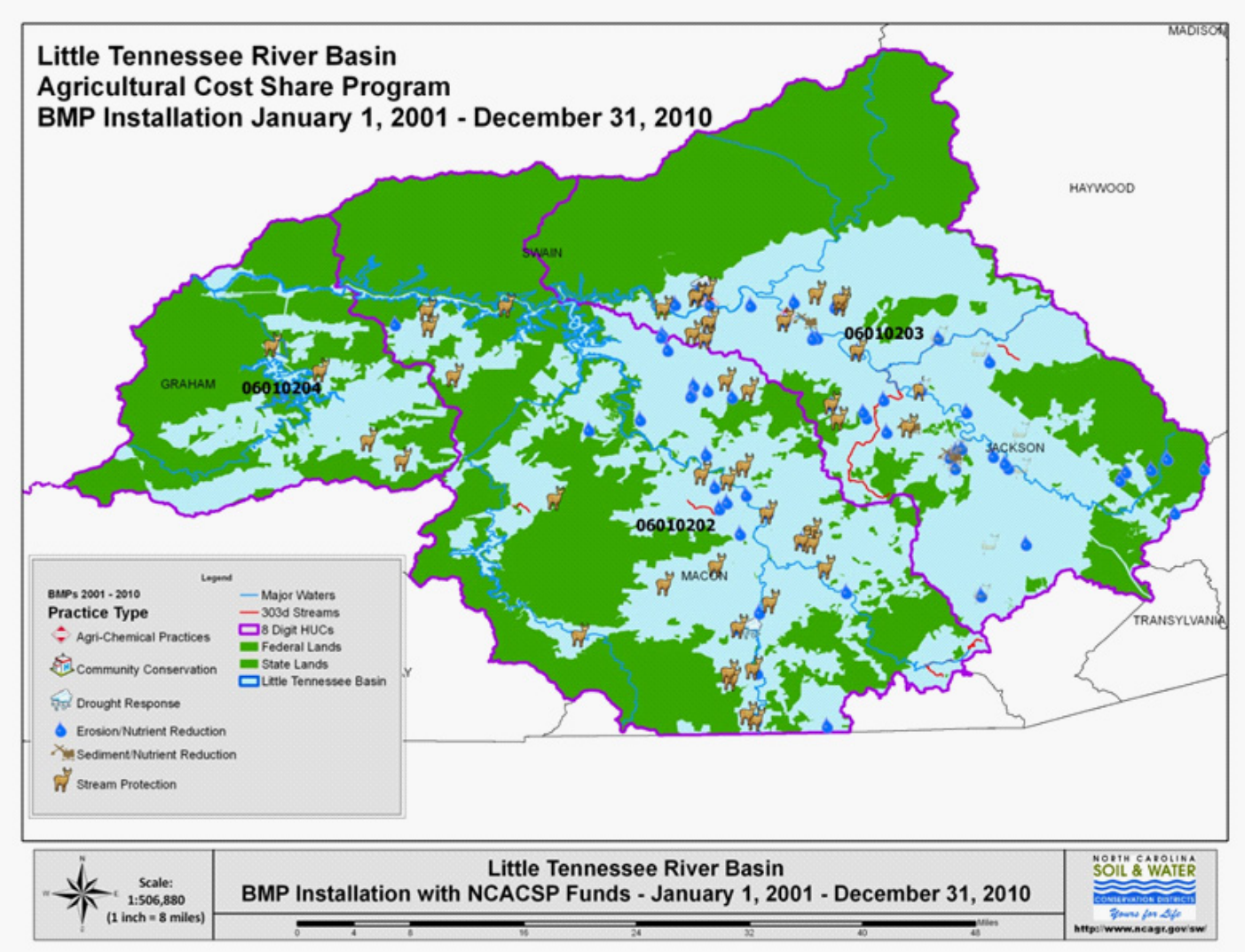
• Proper Animal Waste Management - A waste management system is a planned system in which all necessary components are installed for managed liquid and solid waste to prevent or minimize degradation of soil and water resources. Practices include: animal waste lagoon closures, constructed wetlands, controlled livestock lounging area, dry manure stacks, heavy use area protection, insect and odor control, stormwater management, waste storage ponds/lagoons, compost, and waste application system.

• Agricultural Chemical (agrichemical) Pollution Prevention - Agrichemical pollution prevention measures involve a planned system to prevent chemical runoff to streams for water quality improvement. Practices include: agrichemical handling facilities and fertigation/chemigation back flow prevention systems.

A full listing of all the BMPs and the categories they are grouped in is available at the following link (under Section V: Best Management Practice Guidelines): http://www.ncagr.gov/sw/acspprogrammanual.html

The practices mentioned above (please note, this is a partial list) have calculated water quality benefits associated with the implementation of the BMP. The benefits calculated include: affected acres, nitrogen reductions, phosphorus reductions, tons of soil saved, and the proper management of nitrogen and phosphorus resulting from animal waste. Within the Hiwassee Basin from 2001, 598 individual BMPs were installed that affected over 6,400 acres. The majority of these practices are categorized as “Stream Protection” measures. Stream Protection practices accounted for nearly 48% of the affected area. Nitrogen and phosphorus reductions were achieved primarily by Erosion/Nutrient Reduction practices. however, over 83% of the soil savings was achieved through Streamside Protection practices.

BMPs installed by the NC Agricultural Cost Share Program for the period January 1, 2001 through December 31, 2010 are shown in the map below:



Aquaculture

There are 4 permitted trout farms in the Little Tennessee River Basin, including the largest commercial trout hatchery in the eastern United States. This number excludes farms not meeting permit coverage requirements related to annual fish production and feed usage. Cold-water fish farms are required to obtain an NPDES general fish farm permit if they harvest over 20,000 pounds of fish per year, feed more than 5,000 pounds per month, and discharge more than 30 days per year. (See NPDES General Permit NCG530000 for more information.) Macroinvertebrate and chemical sampling data collected in streams utilized by farms indicate negative impacts to water quality standards. Additional data need to be collected and analyzed.

In an effort to support the industry in the region and improve and protect water quality, a collaborative approach has been undertaken which includes trout farmers, NC Department of Agriculture and Consumer Services, NC Cooperative Extension and DWQ. The collaborative work outcomes should be a better understanding of farm operations, BPMs, water resource/quality protection and regulatory needs for all parties. The NCG530000 permit will be renewed in July 2012. Any necessary permit modifications to fully protect surface waters utilized by trout farm operations will be considered and discussed by DWQ and stakeholders during the renewal period.

During this process, DWQ encourages trout farms to contact their local extension service and/or research institutions to use management measures such as those recommended/developed by DWQ in Collaborative Assessment for Watershed and Streams (CAWS) Project (funded by an EPA 104(b)(3) grant):

- Use hand feeding as much as possible to reduce the amount of food that enters the raceways and stream;
- Use high quality feed, which results in less manure production;
- Clean raceways regularly and land apply the manure as fertilizer; and
- Consider reducing the amount of fish being raised if the assimilative capacity has been exceeded.

NC Ecosystem Enhancement Program (EEP)

EEP uses watershed planning at two scales (basinwide and local) to identify the best locations to implement stream, wetland and riparian buffer restoration/enhancement and preservation projects. The EEP planning process considers where compensatory mitigation (under provisions of the Clean Water Act) is needed, and how mitigation efforts might contribute to the improvement of water quality, habitat and other vital watershed functions in the state. Watershed planning requires GIS data analysis, stakeholder involvement, water quality monitoring, habitat assessment and consideration of local land uses and ordinances. It is a multi-dimensional process which considers science, policy and partnership.

For more information on EEP's mission, processes and products, please visit http://portal.ncdenr.org/web/eep/home.

River Basin Restoration Priorities

EEP River Basin Restoration Priorities (RBRPs) are focused on the identification of Targeted Local Watersheds (TLWs) within the 8-digit Cataloging Units (subbasins) that comprise individual river basins. TLWs represent priority areas (14-digit Hydrologic Units or HUs) for the implementation of stream and wetland mitigation projects. GIS screening factors considered in the selection of TLWs include: documented water quality impairment and habitat degradation, the presence of critical habitat or significant natural heritage areas, the presence of water supply watersheds or other high-quality waters, the condition of riparian buffers, estimates of impervious cover, existing or planned transportation projects, and the opportunity for local partnerships. Recommendations from local resource agency professionals and the presence of existing watershed projects are given significant weight in the selection of TLWs. RBRP

documents (and TLW selections) for each of the 17 river basins in North Carolina are updated periodically to account for changing watershed conditions, increasing development pressures and local stakeholder priorities.

The most recent update to the Little Tennessee River Basin TLWs occurred in 2008. Nineteen 14-digit HUs (of 63 total in the basin) have been selected as TLWs by EEP in the Little Tennessee River basin:

Upper Little Tennessee Subbasin (06010202):

- Upper Little Tennessee River/ Middle Creek (06010202020010);
- Coweeta/ Tessentee Creek (06010202020020);
- Cartoogechaye Creek (06010202020030)
- Upper Cullasaja River (06010202030010)
- Lower Cullasaja River (06010202030020)
- Rabbitt/Watauga Creek (06010202040010)
- Iotla/Crawford/upper Burningtown Creek (06010202040020)
- Cowee Creek (06010202040030)
- Tellico/Lower Burningtown Creek (06010202040040)
- Brush/Rattlesnake Creek (06010202060010)

Tuckaseegee River Subbasin (06010203):

- Caney Fork (06010203010060)
- Cullowhee Creek (06010203010070)
- Lower Scott Creek (06010203020010)
- Upper Scott Creek (06010203020020)
- Savannah Creek: 06010203020030
- Soco Creek: 06010203030080

Lower Little Tennessee Subbasin (06010204):

- Tulula Creek (06010204010010),
- Sweetwater Creek (06010204010020)
- Long/Atoah Creek (06010204010030)

The 2008 Little Tennessee RBRP, including maps and a summary table of Targeted Local Watersheds, can be found at http://portal.ncdenr.org/web/eep/rbrps/little-tennessee.

Local Watershed Planning

EEP Local Watershed Planning (LWP) initiatives are conducted in specific priority areas (typically a cluster of two or three Targeted Local Watersheds) where EEP and the local community have identified a need to address critical watershed issues. The LWP process typically takes place over a two-year period, covers a planning area around 50 to 150 square miles, and includes three distinct phases: I - existing data review and preliminary watershed characterization (largely GIS-based); II – detailed watershed assessment (including water quality & biological monitoring and field assessment of potential mitigation sites); and III – development of a final Project Atlas and Watershed Management Plan. EEP collaborates with local stakeholders and resource professionals throughout the process to identify projects and management strategies to restore enhance and protect local watershed resources.

There is one LWP in the basin, Franklin to Fontana. This plan is summarized in the Upper Little Tennessee Subbasin section.

EEP Projects

In the Upper Little Tennessee River Subbasin, there is one restoration project in the Franklin to Fontana Local Watershed planning area. The Cat Creek project restored almost 9,000 ft of stream channel and riparian area and 8 acres of riparian wetland through old and current cattle pasture and an old golf course. In addition, EEP contributed funds to protect the 4,500 acre Needmore Tract, which includes riparian wetland, field, and forest along the Little Tennessee River and numerous high quality tributaries.

There is one EEP restoration project in the Tuckaseegee River Subbasin. The Junes Branch project will be constructed in 2012 and will restore the stream channel and riparian area on a 3,000 ft reach on the outskirts of Sylva.

There are three EEP restoration projects that have been constructed in the Lower Little Tennessee River Subbasin. The East Buffalo Creek project restores about 3,000 ft of stream channel and riparian area and preserves almost 9,000 ft of additional headwater forested stream channel. The Snowbird Tributaries project restores only about 600 ft of stream channel and riparian area but preserves 7,500 ft of additional forested stream channel along tributaries to lower Snowbird Creek. The Tulula Bog project is a large project in a Significant Natural Heritage Area, and it restored almost 9,000 ft of stream channel, preserved about 5,000 additional stream feet, restored 81 acres of riparian wetland, and protected 141 additional wetland acres.

Section 319 Grant Program

Section 319 of the Clean Water Act provides grant money for nonpoint source demonstration and restoration projects. In 2009/2010, approximately $450,000 was available annually through base funding for demonstration and education projects across the state. An additional $2 million was available annually through incremental funding for restoration projects on impaired waters statewide. All projects must provide non-federal matching funds of at least 40 percent of the project's total costs. Project proposals are reviewed and selected by the North Carolina Nonpoint Source Workgroup, made up of state and federal agencies involved in regulation or research associated with nonpoint source pollution. Information on the North Carolina Section 319 Grant Program application process is available online as well as descriptions of projects and general Section 319 Program information.

The Little Tennessee Watershed Association was granted an award in 2010 for watershed restoration planning in the Upper Cullasaja Watershed. The project involves review of past data and collection of new baseline data to be analyzed and combined into an approved nine element watershed restoration plan.

WaDE

In the Little Tennessee River basin, wastewater from many households is not treated at wastewater treatment plants associated with NPDES discharge permits. Instead, it is treated onsite through the use of permitted septic systems. Wastewater from some of these homes illegally discharges directly to streams through what is known as a "straight pipe". In other cases, wastewater from failing septic systems makes its way to streams or contaminates groundwater. Straight piping and failing septic systems are illegal discharges of wastewater into waters of the State.

The discharge of untreated or partially treated sewage can be extremely harmful to humans and the aquatic environment. Pollutants from illegally discharged household wastewater contain chemical nutrients, disease pathogens and endocrine disrupting chemicals. Special study requests in the Little Tennessee River Basin led to an increase in number of streams sampled for bacteria and have led to several new stream impairments. As of 2012, there are 58 stream miles (11 streams) and 171 acres of Fontana Lake Impaired because of high fecal coliform bacteria levels. The economies of the counties in this basin are highly dependent upon river recreation, especially for tourists and seasonal residents. Reducing bacterial contamination is crucial for supporting a tourist economy. In order to protect human health and maintain water quality, straight pipes must be eliminated and failing septic systems should be repaired.

The NC Wastewater Discharge Elimination (WaDE) Program was actively helping to identify and remove straight pipes (and failing septic systems) in the western portion of North Carolina. This program used door-to-door surveys to locate straight pipes and failing septic systems, and offered deferred loans or grants to homeowners who had to eliminate the straight pipes by installing a septic system. This program was cut from the State budget and is no longer in operation.

As of 2009, WaDE surveys in the Little Tennessee Basin resulted in 215 wastewater violations.

County	Project Area	Septic Survey Completed	Violations	Repairs
Macon	Nanatahala	447	44	18
Swain	Upper Nantahala	266	53	32
Swain	Alarka	104	28	6
Graham	Tulula	435	90	55

The following maps show areas surveyed by the WaDE program.