

Grassroots Conservation in Turkey Creek, LA

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Voluntary Conservation Measures through Locally Led Resource Assessment

The Ouachita River Basin extends from central Arkansas southward into central Louisiana, where the Ouachita empties into the Black River. Except for the prominent Macon Ridge, an isolated narrow strip of loess soil,

the entire Ouachita basin in northeast Louisiana is of geologically recent alluvial deposition and is quite fertile. The LA portion of the Ouachita basin encompasses some of the most productive agricultural land on the North American

continent, and has been intensively utilized for this purpose since the early 19th century (Figure 1).

In the 1960s and '70s as row crop and forage agriculture equipment, production methods, and agronomic crop plant

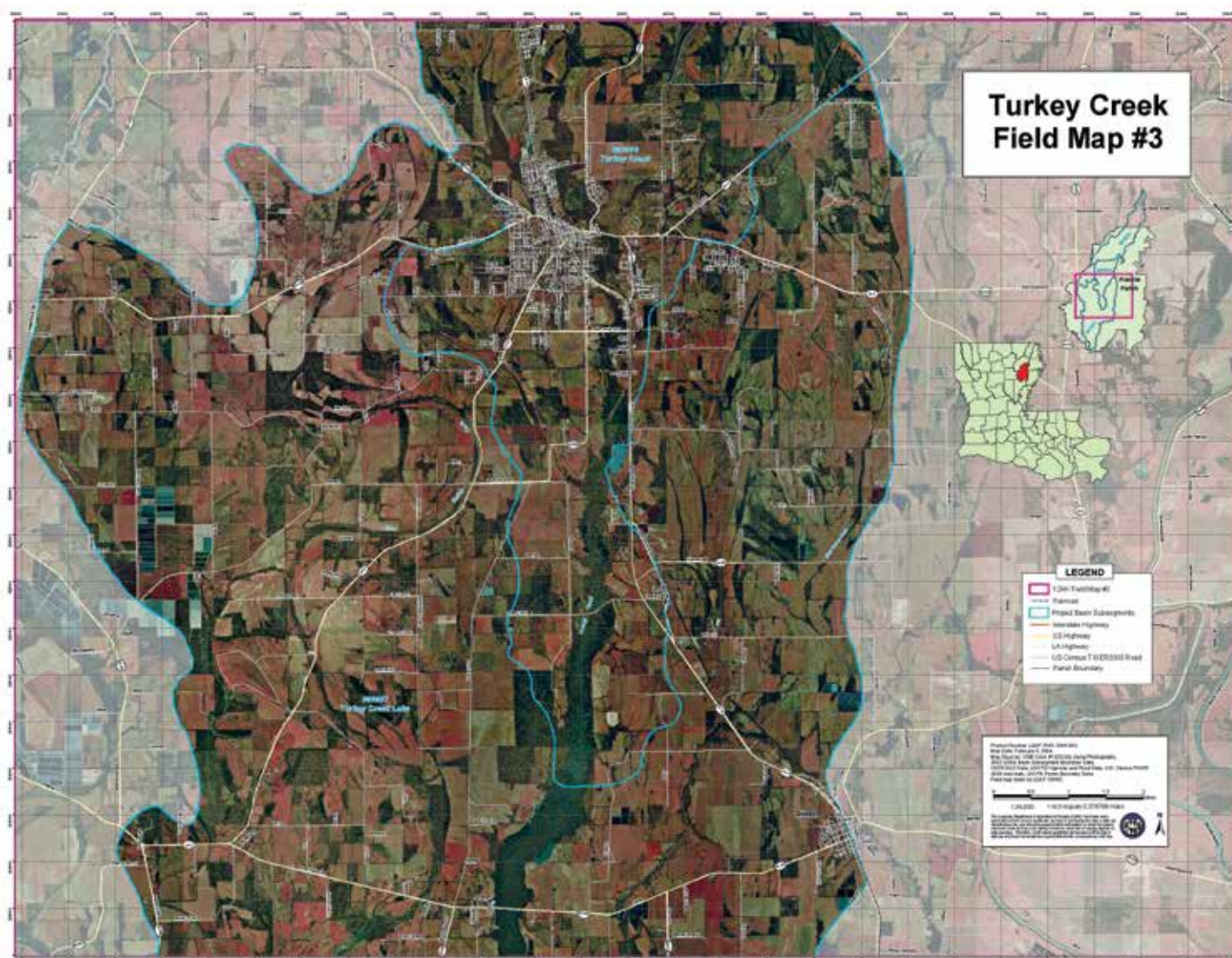


Figure 1. Turkey Creek Watershed, Ouachita River Basin, Franklin Parish, Louisiana. Image created by A. Venuto, LDEQ.

cultivars/varieties became more efficient, and markets more demanding, agriculture acreages were extended to include many drained and cleared bottomland hardwood areas, eliminating the moderating influences of previously expansive floodplain woodlands and riparian areas. This broadened row crop landscape, along with the intensified land-use regime, resulted in localized surface water quality degradation and impairments throughout the lower Ouachita basin.

Strictly regarding the agriculture-induced impairments, conservation practices and technical assistance made available to farmers and landowners through the federal Farm Bill Conservation programs were able to begin moderately addressing this concern in often fragmented locales across the region. In this manner, the local Northeast Soil & Water Conservation District (SWCD), through Farm Bill program assistance made available through the USDA-Natural Resources Conservation Service (NRCS), brought their long-standing private landowner relationship into focus, further establishing the premise that voluntary conservation programs can indeed be effective, and with effective outreach and opportunities for adequate assistance, private landowners will become deliberately engaged in natural resource conservation and sustainability efforts.

LDEQ Identifies and Quantifies Impairments

In 1999, the Louisiana Department of Environmental Quality (LDEQ) conducted monthly water quality sampling across the representative spectrum of surface water parameters in several watersheds within Louisiana's upper Ouachita River Basin in northeast Louisiana. In 2000, one of these, the Turkey Creek watershed, was added to Louisiana's Clean Water Act (CWA) section 303(d) list of impaired waters for not fully meeting its designated use of fish and wildlife propagation (FWP) due in part to high concentrations of total dissolved solids (TDS). Based on these data combined with historical data, USEPA Region 6 developed Total Maximum Daily Loads (TMDLs) for fecal coliform for the upper portions of the Turkey Creek watershed. Suspected sources of these impairments were agriculture, natural conditions, and unknown sources.

Turkey Creek was listed on both the 1998 and the October 28, 1999 court-ordered 303(d) lists as not fully supporting the water quality standard for primary contact recreation use (i.e., swimming). Approximately 62 percent of the Turkey Creek watershed is utilized for cropland and pasture lands. Accordingly, this watershed was targeted for best management practices (BMP) to adequately reduce the TDS loading within the upper portions of the watershed.

Defining and Developing the Land-Use Prescription

To effect the changes necessary to achieve required coliform reductions in Turkey Creek, the Northeast SWCD and the NRCS, with many years of experience interacting with its constituent public, was the conduit to the agricultural landowners in the Turkey Creek watershed sought to deliver targeted conservation technical and financial assistance. The LA Dept. of Agriculture & Forestry/Office of Soil & Water Conservation (LDAF) provides administration and coordination to the statewide SWCD program in Louisiana, and for all agricultural water quality conservation efforts, works closely with LDEQ to assess and deliver agricultural NPS reduction programs as effectively as possible. With this federal-state-local-private partnership in place and LDEQ's sampling and monitoring programs providing a target for the approach and a gauge of effectiveness, CWA Section 319 funds were allocated to the Turkey Creek effort. With surface water quality conditions and trends provided by LDEQ, administrative assistance, financial assistance, and program guidance from the LDAF, and technical assistance from the NRCS, the Turkey Creek Special Water Quality 319 Watershed Protection Project was implemented locally by the Northeast SWCD during the period of 2004-2009. With LDEQs sampling data in hand, and the Northeast SWCDs knowledge of predominant land uses in the watershed, the LDAF developed a list of agricultural BMPs to be implemented to achieve the TMDL.

Outreach-First Steps toward Success

Although much planning and preparation precede the availability of CWA 319 project funding, the inaugural event of most successful watershed programs is targeted outreach. For Turkey

Creek, an outreach effort was conducted to increase the awareness of nonpoint source pollution problems and issues associated with agricultural activities within the watershed. The LDAF, the Northeast SWCD, and the NRCS and the LSU Ag center conducted the NPS education effort for farm operators and other area land-users.

In the producer-oriented outreach program, fliers were issued locally to notify landowners of CWA Section 319 funds being available for conservation assistance to correct surface water impairments made known during previous SWCD Locally Led conservation meetings. The initial program fliers included an invitation to attend a SWCD-led BMP workshop and project orientation. This workshop included presentations by the Northeast SWCD Chairman, LDAF and NRCS technical specialists, and LDEQ water quality specialists to clarify the extent of impairments, environmental/agricultural impacts resulting from these impairments, and methods of remediation. To accent the agricultural landowner outreach effort, community outreach is also regularly conducted by the SWCD using school and community oriented outreach such as through material provided via the National Association of Conservation Districts Stewardship Program.

Additional commodity-specific BMP field days were made available to the Turkey Creek producers by the LSU Ag Center with NRCS and Northeast SWCD inputs, through which NPS related publications such as BMP manuals are issued. These events are also required for certification as a Louisiana Master Farmer, and as continuing education credits to maintain LA Master Farmer certification status. Another significant instance of conservation outreach and community involvement is the Northeast SWCDs annual Locally Led Conservation meeting, where the public is invited to receive updates from natural resource specialists on current local natural resource conditions and ongoing projects/initiatives, then asked to state their individual natural resource issues and concerns. This is a huge benefit to maintaining valuable stakeholder input. These concerns are recorded, and the group then prioritizes these concerns for the SWCD to include in their long-range work plan, with which they then

work to leverage funding for top priority conservation needs.

Beyond this initial community awareness and orientation, the next level of outreach typical to any prospective participant is one-on-one orientation and instruction on Section 319 project application and ranking. Due to often limited funding and concise project scope, project sign-up periods are generally a brief ten days to two weeks. Applications are ranked according to landowners production management objectives, physical proximity to the affected water body, BMPs planned, and willingness to fully implement a resource management system plan (RMS) as a condition of receiving 319 BMP incentive of cost-share payments. The highest ranked applications are accepted/funded until implementation funds are completely utilized. These applicants sign contracts, obligating a fixed amount of funds per producer per contract. Contract periods are for three years, giving the land owners adequate time to fully implement their RMS plans, in light of often inclement weather during planting, harvest, and fallow periods.

Conservation Best Management Practices

The BMP implementation requirements specific to each contract are based upon NRCS practice standards that may be accessed on their web-based Field Office Technical Guide (FOTG). The BMPs selected for use, and implemented in the Turkey Creek Watershed Project were conservation crop rotation (1,173 acres), conservation tillage (202 acres), critical area planting (11 acres), residue management-seasonal (217.4 acres), fencing (36,453 feet), field borders (225,590 feet), grade stabilization structure (21), grassed waterway (24 acres), irrigation pipeline (32,524 feet), irrigation water management (391.4 acres), precision land forming (1,640 acres), mulching (5.25 acres), pasture and hayland planting (272 acres), pipeline (3,309 feet), prescribed grazing (282 acres), heavy use area protection (1), nutrient management (2,232 acres), pest management (2,232 acres), watering facility (1), and water well (4) (Figures 2, 3, and 4).

Altogether, 35 landowners participated in the Turkey Creek Watershed Project, implementing BMPs



Figure 2. Wheat cover crop on cotton stubble provides many water quality and soil health benefits, such as lessened sheet and rill erosion via soil stability, increased soil organic matter, reduced sediment and nutrient loading, rainfall runoff reduction, and others. Photo by Michael Schooler.



Figure 3. Grade Stabilization Structures, or “pipe drops” are an essential practice for eliminating gully erosion and head cuts along areas of high water flow and velocity, most often adjacent to near natural coulees or other water courses. NRCS file photo.



Figure 4. Field borders help capture runoff from cultivated fields.

on 1,400 acres at a cost of \$1.5 million. Data collected by LDEQ after BMPs were implemented indicate that water quality rapidly improved. Monthly TDS concentration data show that the exceedance rate decreased from 65 percent before BMP implementation to nine percent in 2011/2012 after BMP implementation (Figures 5 and 6). The improvement in water quality following BMP implementation indicates the major source of TDS impairment in Turkey Creek is indeed agriculture. As a result of the BMPs implemented, TDS concentrations are meeting the standard criterion and remain below the 30 percent maximum exceedance rate. Consequently, the 2010 Integrated Report delisted Turkey Creek for TDS. Through collaborative efforts with LDEQ and its partners, all stakeholders will continue to implement and maintain the prescribed BMPs on the agricultural lands to maintain these water quality improvements (Figure 7).

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began work with the Louisiana Department of Agriculture and Forestry in 1998. He worked as a coastal vegetative planting project manager until 2005, then transferred to the Agricultural CWA Section 319 Program working as an agriculture environmental specialist, primarily in the Ouachita River Basin.



Michael Schooler

has been employed with the Louisiana Department of Agriculture and Forestry for over 17 years. Michael worked under the office of Ag Environmental Science as a field unit supervisor for the Boll weevil Eradication Program for four years and then transferred to the Office of Soil and Water Conservation for 14 years thru current working as an agriculture environmental specialist supervisor with the 319 Nonpoint Source program.

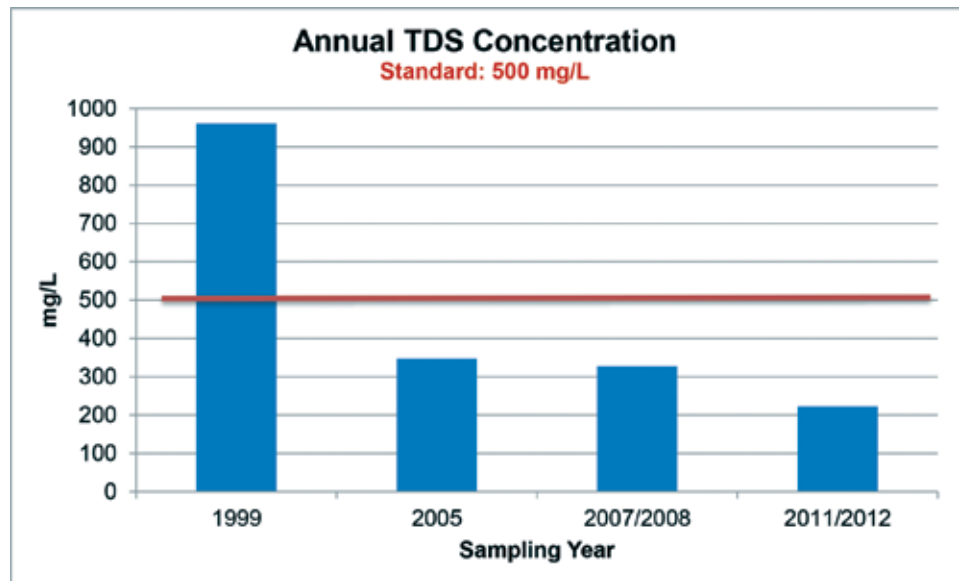


Figure 5. Annual TDS Concentrations in Turkey Creek. BMPs were implemented in 2003.

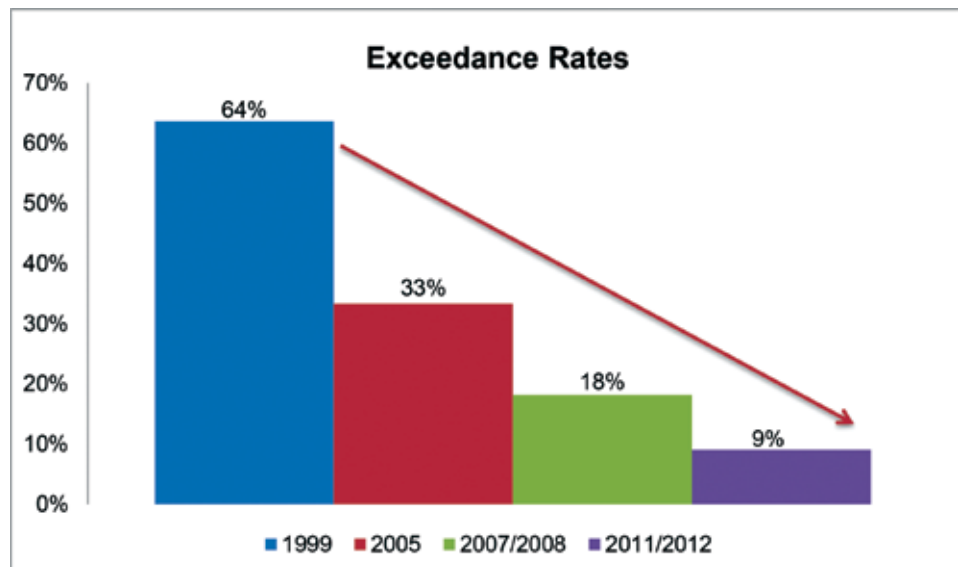


Figure 6. Exceedance Rates for Turkey Creek.

Department of Ag & Forestry/Office of Soil & Water Conservation as an agricultural environmental specialist focusing on CWA Section 319 implementation on agricultural land in southwest Louisiana.



Faran Dietz previously served the USGS Wetland Research Center as research biologist, and the Capital SWCD as water resource specialist. She now works for the LA

Figure 7 (right). Conservation tillage, such as no-till soybeans following wheat harvest, provides many on and off-site conservation benefits, and is often essential to successful natural resource conservation on working cropland. NRCS file photo.

