

**Texas AgriLife Research  
Texas Water Resources Institute**

**Water Quality Monitoring in the Buck Creek Watershed and Facilitation of Buck Creek  
Watershed Partnership**

**FY 10 CWA 319(h)  
TSSWCB Project No. 10-06**

Quarter no. 8 From 10.1.2012 Through 12.31.2012

**I. Abstract**

Work conducted this quarter includes continued stakeholder engagement through the delivery of the Buck Creek Watershed Partnership newsletter. Flow in the creek has once again ceased as the drought continues to impact this region of Texas. No water samples were collected this quarter due to ongoing drought conditions and the abnormal irrigation of winter wheat fields.

In conjunction with this project, the Buck Creek WPP is still undergoing the publishing process. TWRI addressed a final round of comments from TSSWCB this quarter and the WPP is now being published.

The Water Body Restoration Efforts of the Buck Creek Watershed Partnership were described and submitted to TCEQ for consideration in their 2013 Texas Environmental Excellence Awards in the Pollution Prevention category. Applications will be reviewed and finalists and winners will be notified early next quarter.

**II. Overall Progress and Results by Task**

**TASK 1: Project Coordination and Administration**

Subtask 1.1: *TWRI will prepare electronic quarterly progress reports (QPRs) for submission to the TSSWCB. QPRs shall document all activities performed within a quarter and shall be submitted by the 15<sup>th</sup> of January, April, July and October. QPRs shall be posted on the project website and distributed to all project partners.*

The following actions have been completed during this reporting period:

- a. Submitted Year 2, Quarter 4 report to TSSWCB on January 15, 2013.

**92% Complete**

Subtask 1.2: *TWRI will perform accounting functions for project funds and will submit appropriate Reimbursement Forms to TSSWCB at least quarterly.*

The following actions have been completed during this reporting period:

- a. As of January 15, 2013, a total of \$98,902 or approximately 86% of project funding has been expended.

**90% Complete**

Subtask 1.3: *TWRI will host coordination meetings, conference calls, or TTVN meetings, as appropriate, with project partners in order to efficiently and effectively achieve project goals, coordinate efforts and summarize activities and achievements made throughout the course of this project. TWRI will develop lists of action items needed following each project coordination meeting and distribute to project personnel.*

The following actions have been completed during this reporting period:

- a. TWRI maintained contact with project staff this quarter. No formal meetings were held.

**92% Complete**

**TASK 2: Quality Assurance Project Plan Development**

Subtask 2.1: *TWRI will develop a QAPP for activities in Task 3 consistent with EPA Requirements for Quality Assurance Project Plans (QA/R-5) and the TSSWCB Environmental Data Quality Management Plan.*

The following actions have been completed during this reporting period:

- a. The QAPP was approved on April 12, 2011.

**100% Complete**

Subtask 2.2: *TWRI will submit revisions and necessary amendments to the QAPP as needed.*

The following actions have been completed during this reporting period:

- a. The annual QAPP revision was approved by EPA on 10.16.2012.
- b. Task complete.

**100% Complete**

**TASK 3: Water Quality Data Collection and Analysis**

Subtask 3.1: *AgriLife Vernon will conduct routine water quality monitoring collecting water samples, field parameters (DO, pH, temperature, specific conductance) and streamflow. Samples will be collected once monthly from 7 sampling sites in the Buck Creek watershed (Sites 3, 5, 6, 10A, 10C, 11, and 13). Total number of samples budgeted for collection through this subtask is 126; however, the number actually collected will likely be lower due to the ephemeral nature of the creek.*

The following actions have been completed during this reporting period:

- a. The effects of the drought are still being felt on Buck Creek.
- b. The creek was once again dry for the entirety of the quarter. Pools that usually hold water were also dry or nearly dry.
- c. Further enhancing the drought is irrigation of nearby winter wheat fields. These grass

crops are usually not irrigated and allow shallow groundwater to feed Buck Creek.

**25% Complete**

*Subtask 3.2: AgriLife Vernon will conduct biased flow water quality monitoring collecting water samples, field parameters (DO, pH, temperature, specific conductance) and streamflow during 6 storm events. Samples will be collected from 7 sampling sites in the Buck Creek watershed (Sites 3, 5, 6, 10A, 10C, 11, and 13). Total number of samples budgeted for collection through this subtask is 42.*

The following actions have been completed during this reporting period:

- a. No activity to report at this time.

**10% Complete**

*Subtask 3.3: AgriLife Vernon will enumerate E. coli colonies in water samples collected in subtasks 3.1 and 3.2 using EPA Method 1603. E. coli counts will be recorded electronically and in hard copy format.*

The following actions have been completed during this reporting period:

- a. No activity to report at this time.

**25% Complete**

*Subtask 3.4: AgriLife Vernon will assess nitrate levels in water samples collected in subtasks 3.1 and 3.2 using EPA Method 353.2. Nitrate concentrations will be recorded electronically and in hard copy format.*

The following actions have been completed during this reporting period:

- b. No activity to report at this time.

**25% Complete**

*Subtask 3.5: AgriLife Vernon will record and store all water quality data in electronic and hard copy formats. TWRI will transfer quarterly monitoring data from activities in Task 3 to TSSWCB for inclusion in TCEQ SWQMIS. Data will be transferred in the correct format using the TCEQ file structure, along with a completed Data Summary, as described in the most recent version of TCEQ Surface Water Quality Monitoring Data Management Reference Guide. Data Correction Request Forms will be submitted to TSSWCB whenever errors are discovered in data already reported. TWRI will also provide necessary information on this monitoring regime to RRA for inclusion in the Coordinated Monitoring Schedule.*

The following actions have been completed during this reporting period:

- c. No activity to report at this time.

**55% Complete**

*Subtask 3.6: AgriLife Vernon will develop a Technical Report that summarizes data collection and analysis results.*

The following actions have been completed during this reporting period:

- a. No activity to report at this time.

**0% Complete**

#### **TASK 4: Maintain Stakeholder Communication**

Subtask 4.1: *TWRI and AgriLife Vernon will collaborate to develop and publish 4 semi-annual newsletters that provide updates on water quality data collection efforts and progress toward implementing the WPP and other relevant information. The newsletter shall be distributed as most appropriate to individual landowners and entities in the watershed.*

The following actions have been completed during this reporting period:

- a. The Buck Creek Watershed Partnership newsletter was delivered in December. See attached for a copy of this newsletter.
- b. Task complete.

**100% Complete**

Subtask 4.2: *AgriLife Vernon or TWRI as appropriate will provide information to RRA for inclusion in the Clean Rivers Program Basin Summary Report and Basin Highlights Report. TWRI and/or AgriLife Vernon shall participate in RRA-sponsored meetings of the Clean Rivers Program Basin Steering Committee and Coordinated Monitoring meetings.*

The following actions have been completed during this reporting period:

- a. No new activity to report this quarter.

**50% Complete**

Subtask 4.3: *TWRI will ensure that the currently existing Buck Creek website (<http://buckcreek.tamu.edu/>) will be updated periodically to reflect accurate and current information regarding the project, WPP, implementation and other activities.*

The following actions have been completed during this reporting period:

- a. TWRI continues to maintain and update the project website.
- b. This quarter the website received 203 visits with 71% of those being new visits

**96% Complete**

Subtask 4.4: *TWRI and AgriLife Vernon will host and facilitate meetings of the Buck Creek stakeholders. Meetings will be held at a minimum of once annually for a total of 2 planned meetings. These meetings will be held to provide updates on the status of monitoring efforts, progress in identifying implementation funding, and movement towards water quality restoration.*

The following actions have been completed during this reporting period:

- a. Task complete.

**100% Complete**

### **III. Related Issues/Current Problems and Favorable or Unusual Developments**

- Drought continues to grip the region and the creek is once again dry.
- The Water Body Restoration Efforts of the Buck Creek Watershed Partnership were summarized and submitted to TCEQ for consideration in the 2013 Texas Environmental Excellence Awards competition in the Pollution Prevention Category. The review process will continue through the spring with finalists and winners notified at the end of the next quarter.
- The Buck Creek Watershed Protection Plan is almost through the layout and formatting process and will be printed and delivered to EPA for acceptance.

### **IV. Projected Work for Next Quarter**

The following will be accomplished during the coming quarter:

- a. Continue sampling as weather permits.
- b. Begin work on drafting the project final report that summarizes monitoring and data analysis; or the lack thereof.

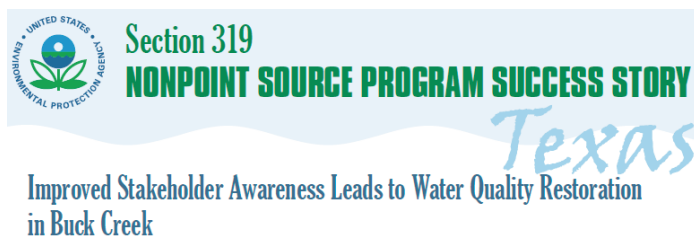
# Buck Creek Watershed Partnership

December 2012 Newsletter

<http://buckcreek.tamu.edu>

## Nonpoint Source Program Success Story

Buck Creek was listed as impaired for elevated levels of bacteria and has been on the 303d list of impaired waters since 2000. Through unified efforts from the Texas State Soil and Water Conservation Board (TSSWCB), the Texas Water Resources Institute (TWRI), Texas A&M AgriLife Research, the Red River Authority, local soil and water conservation districts, and stakeholders and landowners in the watershed, a 28-mile segment of the creek has been removed from the 303d list.



### Improved Stakeholder Awareness Leads to Water Quality Restoration in Buck Creek

**Waterbody Improved** High levels of *Escherichia coli* bacteria, primarily from wildlife, livestock and humans, in Buck Creek prompted the Texas

Watershed restoration efforts have contributed to reductions in bacterial loading. Awareness created through educational events that guided local stakeholders through the watershed planning process and implementation of best management practices (BMPs) have successfully helped restore water quality in Buck Creek. Water quality monitoring data show the long-term *E. coli* geometric mean in Buck Creek now complies with the state's water quality standards, decreasing from 262.08 colony forming units (cfu)/100mL (1997-2005) to 31.07 cfu/100mL (2002-2009). The success of this initiative could not have occurred without the support of everyone in the watershed.

To view the entire Buck Creek success story, visit [http://buckcreek.tamu.edu/media/342377/final\\_published\\_buck\\_creek\\_success\\_story\\_9.4.2012.pdf](http://buckcreek.tamu.edu/media/342377/final_published_buck_creek_success_story_9.4.2012.pdf) or read the AgriLife Today story at <http://today.agrilife.org/2012/10/10/landowners-lead-successful-buck-creek-restoration-in-panhandle-rolling-plains/>

## WPP in Final Stages of Completion

The Buck Creek Watershed Protection Plan (WPP) is now completed and has been reviewed by the TSSWCB. The WPP is currently in the publishing process and will be released following EPA's acceptance of the document. It is anticipated that the release of the WPP will be in early 2013.

## Buck Creek Water Quality Update

The State of Texas recently released its Draft 2012 Texas Water Quality Inventory for public review and comment. As reported in this assessment, Buck Creek continues to exhibit improved water quality trends.

In the 2010 Texas Water Quality Inventory, the portion of the creek from House Log Creek downstream to the Oklahoma border had an *E. coli* geometric mean of 97.6 cfu/100mL, and in 2012, this number further improved to 69.8 cfu/100mL. Moving upstream of House Log Creek, Buck Creek had recorded *E. coli* geometric means of 44.2 and 36.6 cfu/100mL in 2010 and 2012, respectively. To put these in perspective, the state's water quality standard for *E. coli* is 126 cfu/100mL.

The drought in the area has undoubtedly impacted water quality. Since December 2010, only six water quality samples have been collected on the creek. The geometric mean of these six samples was 96.2 cfu/100mL, and it should be noted that each of these samples was collected within several days of a rain event.

## Rolling Plains Field Day

The Rolling Plains Summer Crops Field Day was held on July 17 at the Texas A&M AgriLife Research Station at Chillicothe, 1340 Farm-to-Market Road 392, south of Chillicothe. The theme was "Maximizing Nutrient and Water-Use Efficiencies."

The day consisted of presentations by various AgriLife Research scientists from the Texas A&M AgriLife Research and Extension Center at Vernon, a field tour led by Dr. Paul DeLaune, AgriLife Research environmental soil scientist at Vernon, and soil health and fertility presentations by USDA Agricultural Research Service and Natural Resources Conservation Service scientists. Topics included irrigation scheduling technologies, optimizing fertilizer application to maximize profits, no-till and cover cropping methods, soil health and nitrate availability in soils and well water.



Dr. Nithya Rajan, Texas A&M AgriLife Research agronomist, discusses irrigation scheduling technologies.

## Texas Well Owner Network Training Program to Be Offered March 2013

Private water wells are the source of drinking water for many Texans. Owners of these wells are independently responsible for maintaining their wells and monitoring well water quality to protect the health of their families. The Texas Well Owner Network (TWON) program, in partnership with the TSSWCB, the TWRI and other partner agencies is offering a six-hour educational program on well water quality screening, water treatment, septic system maintenance, groundwater sources and well maintenance. As part of the training, well screenings for fecal coliform bacteria, total dissolved solids, nitrates, arsenic and radioactivity will be conducted for \$10 per sample and will provide information useful to well owners for better managing their water supplies.

The TWON program is scheduled for March 28, 2013 in the Club Room of the Wellington Auditorium, 802 10th Street in Wellington. Meeting registration will begin at 8:30 a.m. and the workshop will begin at 9 a.m. A BBQ sandwich lunch can be purchased for \$5 at the door. Light refreshments will be provided at registration.

Prior to the event, participants should pick up a sample bag and sampling instructions from the Childress, Collingsworth, Donley, Hall or Wheeler County AgriLife Extension Offices. Contact information for each office can be found at <http://agrillifeextension.tamu.edu/>. Then, at the top left, click on 'locations,' which brings up a drop box listing all of the counties. It is very important that only sampling bags from the agents be used and all instructions for proper sampling followed to ensure accurate results. Samples should be brought to the training along with your \$10 to cover the water analysis. Results will be sent to you several days later.

See <http://twon.tamu.edu/> for details about the program, or contact Drew Gholson, the program director, at 979-845-1461.

## Competitor for Environmental Excellence Awards

Annually, the Texas Commission on Environmental Quality recognizes individuals and organizations for their dedication to environmental causes. The Texas Environmental Excellence Awards spotlight the state's highest achievement in environmental preservation and protection.

In past years, TWRI has been selected as the winner for multiple initiatives, such as the Arroyo-Colorado Watershed Partnership (2012), the Rio-Grande Basin Initiative (2008) and the Fort-Hood Range Re-vegetation Project (2006). This year, the Buck Creek Watershed Partnership and the water quality restoration efforts taking place in Buck Creek were nominated in the category of pollution prevention.



The coordinated effort to mitigate elevated *E. coli* levels through bacterial monitoring, source identification and the development of the Buck Creek Watershed Protection Plan led to the reduction in bacteria levels seen in the creek and resulted in Buck Creek being billed as a water quality success story. These coordinated efforts and the local initiative to restore water quality are, in our opinion, certainly worthy of a Texas Environmental Excellence Award.

Winners and finalists will be named in early to mid-March 2013. The awards will be presented in May 2013 at the annual TCEQ awards banquet.

For more on the Texas Environmental Excellence Awards and to see past winners of this award, visit <http://teea.org>.

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