

**Watershed Protection Plan Development for Buck Creek
FY 06 CWA 319(h)
TSSWCB Project No. 06-11**

Quarter no. 3 From 7/1/2007 Through 9/30/2007 .

I. Abstract

The second stakeholder meeting of The Watershed Protection Plan Development for Buck Creek project was held on September 11th in Memphis. Approximately 55 stakeholders were in attendance and the project was well received. Many questions were answered about the creek and the project. At the request of some landowners in the watershed, a presentation on water quality standards that apply to Buck Creek were discussed. The Research Technician from Vernon has also submitted all of the required paper work to TPWD and Texas A&M for trapping and releasing wildlife. Practice runs were conducted in collecting samples, preserving them for shipping to El Paso to conduct BST analysis. These trial runs were done to ensure that the proper methods were being used and to ensure that these methods were working properly. These tests showed that the methods used were effective. The QAPP for collecting samples and conducting BST analysis has been approved by EPA and sampling can now begin.

II. Overall Progress and Results by Task

TASK 1: Project Coordination and Administration

Subtask 1.1: *Conduct quarterly TTVN meetings as appropriate with project participants to discuss project activities, project schedule, lines of responsibility, communication needs, and other requirements.*

The following actions have been completed during this reporting period:

- a. A quarterly TTVN meeting was held July 2nd. During this meeting we discussed the project and how we will proceed from here on out.
- b. Another TTVN meeting will be scheduled and held next quarter.

15% Complete

Subtask 1.2: *TWRI will prepare electronic quarterly reports. All progress reports will also be provided to TAES and TCE project cooperators and participants, Hall-Childress, Collingsworth, and Donley SWCD directors and will be placed on the project website.*

The following actions have been completed during this reporting period:

- a. Submitted Year 1, Quarter 3 report to TSSWCB on 10-2-07.

18% Complete

Subtask 1.3: *Representatives from TWRI will attend meetings with the TSSWCB project manager and other meetings, as needed, to review project status, deliverables, etc.*

The following actions have been completed during this reporting period:

- c. TWRI and TSSWCB have met several times to discuss the project, its workplan and deliverables. Meetings between all project participants have also been held to discuss these subjects.

18% Complete

Subtask 1.4: *TWRI will submit appropriate Reimbursement Forms.*

The following actions have been completed during this reporting period:

- a. Appropriate reimbursement forms have been submitted to the TSSWCB.

15% Complete

Subtask 1.5: *TWRI will attend all stakeholder meetings as described in Task 6.*

The following actions have been completed during this reporting period:

- a. TWRI Project Manager, Lucas Gregory attended the second stakeholder meeting for the project in Memphis on September 11th. A brief overview of the project and its approach was presented to the stakeholders. A discussion was also held about water quality standards and their application in Buck Creek. The last item of business was to discuss the formation of a steering committee.

16% Complete

TASK 2: Quality Assurance Project Plan Development

Subtask 2.1: *TWRI will develop a QAPP that will detail project goals and objectives relating to water quality monitoring activities; identify the data needed to fulfill those objectives; list field and laboratory methods; describe procedures and schedules to be followed; and specify a data management structure and the quality assurance protocols.*

The following actions have been completed during this reporting period:

- a. The QAPP has been submitted to EPA for their review and was approved the last week of September.

100% Complete

Subtask 2.2: *Provide annual revisions to the QAPP and amendments, as necessary, to the TSSWCB and EPA.*

The following actions have been completed during this reporting period:

- b. No activity to report at this time.

0% Complete

TASK 3: Sanitary Survey of Buck Creek Watershed

Subtask 3.1: *TAES will acquire available literature, data, and information germane to describing the contributions, both spatially and temporally, and sources of bacterial loading in Buck Creek. The data analyses will include discussion of temporal (inter-annual, seasonal) and spatial trends in water quality, an evaluation of potential sources, and an identification of data gaps. This task will include an explanation of how BST methods provide useful data to assist in water quality management efforts where bacterial contamination is a concern.*

The following actions have been completed during this reporting period:

- a. Work on this project is underway. The Research Technician is continually in contact with landowners in the watershed and is constantly learning new information regarding potential bacteria sources in the watershed.

10% Complete

Subtask 3.2: *TAES will perform an aerial assessment of watershed will be utilized along the main channel of Buck Creek to identify and characterize stream channel locations, vegetation dynamics, current land use, and potential bacteria sources to the creek. The area will be flown twice during the project to assist in determining possible contributions. This information will be supplemented with a review of current DOQQ photography. Information from this subtask will be crucial in the development of implementation strategies in the Watershed Protection Plan.*

The following actions have been completed during this reporting period:

- a. No activity to report at this time.
- b. This will take place in the fall or winter when foliage is at its lowest level.

0% Complete

Subtask 3.3: *TAES will conduct an inventory of existing land use patterns in the Buck Creek watershed utilizing available imagery.*

The following actions have been completed during this reporting period:

- a. No activity to report at this time.

0% Complete

Subtask 3.4: *TAES will conduct a survey of the watershed to identify the potential sources of fecal matter to Buck Creek. Wildlife and domestic animal sources of observed scat can be identified. Concentrated waterfowl areas and bird rookeries or bat colonies may be identified. The utilization of waterways by wildlife, as well as dogs, cats, and other domestic animals will also be assessed. Human influences are also typically identified, including malfunctioning septic systems and sewer overflows.*

The following actions have been completed during this reporting period:

- b. Preliminary work related to this subtask has been initiated. Motion activated wildlife cameras have been installed at multiple locations to identify what species of wildlife or other animals pass by these locations on a somewhat frequent basis and to assess their viability for trapping live animals.

5% Complete

TASK 4: Micro-Watershed Monitoring and Sampling

Subtask 4.1: *TAES will perform routine sampling (grab sampling) at six locations (Sites 3, 4, 10a, 10b, 10c, 11) on Buck Creek.*

The following actions have been completed during this reporting period:

- a. Sampling was not conducted during this quarter due to the QAPP not being approved. The QAPP was approved during the last week of the quarter and as a result, no sampling was conducted. Sampling will begin early in the next quarter.

0% Complete

Subtask 4.2: *TAES will collect a minimum of 8 rain event/high flow grab samples from the Buck Creek sites over the course of the study.*

The following actions have been completed during this reporting period:

- a. Sampling was not conducted during this quarter due to the QAPP not being approved. The QAPP was approved during the last week of the quarter and as a result, no sampling was conducted. Sampling will begin early in the next quarter.

0% Complete

Subtask 4.3: *TAES will perform quarterly sampling (grab sampling) at seven tributary sites within the Buck Creek watershed when flow is present.*

The following actions have been completed during this reporting period:

- a. Sampling was not conducted during this quarter due to the QAPP not being approved.

The QAPP was approved during the last week of the quarter and as a result, no sampling was conducted. Sampling will begin early in the next quarter.

0% Complete

Subtask 4.4: *TAES will compile and analyze the sampling data. Data will be for informational and assessment purposes due to the limited data previously collected.*

The following actions have been completed during this reporting period:

- a. No data analysis has occurred to date.

0% Complete

TASK 5: Bacterial Source Tracking

Subtask 5.1: *Stage 1 BST Assessment. Monthly targeted water grab sampling of creek segments at greatest risk for fecal pollution loading, as identified through the sanitary survey, will be performed for a period of six months (TAES-Vernon). Approximately 50 E. coli isolates from 50 different water samples will be analyzed using ERIC-PCR and RiboPrinting and compared with known isolates from the previously developed TAES-El Paso Texas E. coli source library to determine the need for the development of a local Buck Creek source library for Stage 2 of the BST work (TAES-El Paso). Enterococcus faecium human-specific enterococcal surface protein (esp) gene PCR will be performed by TAES-El Paso to determine if creek segments are being impacted by human or animal fecal pollution. Depending on the results of the Stage 1 BST work, the number of water and source isolates and the types (sewage or animal) of source samples listed below for Stage 2 may change.*

The following actions have been completed during this reporting period:

- a. Sampling will not begin until the QAPP has been approved. The QAPP has been submitted to the EPA for their approval and will be completed early in October.
- b. Some preliminary work has been done to ensure that methods that will be used in the BST analysis are working properly and to ensure that preservation practices to be used in shipping samples to El Paso for BST analysis are effective.

2% Complete

Subtask 5.2: *Samples of fecal matter and/or domestic sewage will be collected from the major potential sources of fecal matter in the watershed. These sources will include domestic animals, wildlife, and human sources. In all, 100 known source samples from the Buck Creek watershed will be collected and processed for E. coli isolation and archival by TAES-Vernon. Bacterial cultures of E. coli isolates will be archived for future analyses and dissemination to other laboratories. E. coli isolates will be sent to the TAES-El Paso laboratory for BST analyses and*

selection of isolates for inclusion in the source library. It is anticipated that over 300 E. coli colonies from source samples will be screened by ERIC-PCR. Approximately 100 of those isolates will be selected for ribotyping BST analysis and inclusion in the source identification library. All sample collection, processing procedures and documentation will be specified in the QAPP.

The following actions have been completed during this reporting period:

- a. No activity to report at this time.

0% Complete

Subtask 5.3: Ambient water sampling, analysis and isolation of E. coli will be conducted by TAES – Vernon. Ambient water samples will be collected from at least 4 sites in the Buck Creek watershed on ten dates over a 1-year period. These dates would likely include at least five dry weather events and at least three post-rainfall events. Approximately five water samples would be collected on each date from each site; and ten samples from the vicinity of the Clean Rivers Program monitoring site. E. coli in water samples will be enumerated using USEPA Method 1603 by the TAES-Vernon laboratory. Following enumeration, TAES-Vernon will isolate E. coli from the samples and archive cultures. Bacterial cultures of E. coli isolates will be archived for future analyses and dissemination to other laboratories. E. coli isolates will be sent to the TAES-El Paso laboratory for ERIC-PCR and RiboPrinting BST analyses and source identification. The TAES-El Paso laboratory technician will coordinate sample shipment or collection (when necessary) with TAES-Vernon.

The following actions have been completed during this reporting period:

- a. No activity to report at this time.

0% Complete

Subtask 5.4: ERIC-PCR and RiboPrinting fingerprints of approximately 500 E. coli isolates from ambient water samples will be analyzed and compared to source library isolates using Applied Maths BioNumerics software by TAES El-Paso.

The following actions have been completed during this reporting period:

- a. No activity to report at this time.

0% Complete

Subtask 5.5: TAES-El Paso will compile and analyze the BST data. Water isolates will be identified to cattle, other livestock, avian and non-avian wildlife, domestic sewage, and pet sources. Results will help identify the sources needed to be addressed by the Watershed Protection Plan.

The following actions have been completed during this reporting period:

- a. No activity to report at this time.

0% Complete

TASK 6: Stakeholder Coordination and Education

Subtask 6.1: *The Vernon Research Tech II will receive training on watershed protection plan development and serve as the watershed coordinator for Buck Creek.*

The following actions have been completed during this reporting period:

- a. The Research Technician began taking an online short course through the EPA's Watershed Academy regarding watershed protection plan development.

10% Complete

Subtask 6.2: *The Vernon Research Tech II/Watershed Coordinator, with assistance from TWRI and TCE, will assemble a stakeholder group to provide input and assist in the development of a Watershed Protection Plan. The stakeholder group will be made up of landowners, elected officials, agency representatives, industry groups, and others as appropriate. Potential agency representatives and industry groups include soil and water conservation districts, county commissioners and judges, Texas State Soil and Water Conservation Board, Red River Authority, Texas Commission on Environmental Quality, Texas Cooperative Extension, Texas Agricultural Experiment Station, Texas Water Resources Institute, Texas Parks and Wildlife Department, Natural Resources Conservation Service, Farm Services Agency, Texas Cattle Feeders Association, and Texas Farm Bureau. Participation by all that may be affected will be encouraged throughout the process.*

The following actions have been completed during this reporting period:

- a. The second meeting of the assembled stakeholder group was held on September 11th in Memphis, TX. Approximately 55 people were in attendance, the majority of which were landowners. Other groups represented at the meeting were TPWD, TSSWCB, TDA, USDA-NRCS, TCFA, TAES-Vernon, TWRI and Salt-Fork, Donley and Hall-Childress SWCDs.
- b. The formation of a steering committee and technical advisory group was discussed at this meeting. It was decided that this would be the most feasible approach to making decisions related to Buck Creek. The steering committee will consist of 6 SWCD board members, 2 from each SWCD represented in the watershed and 4 landowners that are not on SWCD boards. The technical advisory group will consist of agency personnel that are willing and desire to participate in the group. Members of both committees will be determined during the next quarter and will be presented at the next stakeholder meeting.

22% Complete

Subtask 6.3: *The stakeholder group will meet quarterly, or as needed. These meetings will be held within the Buck Creek watershed to solicit input on the development of the watershed plan. In addition, the status of monitoring and assessment efforts will be presented in the context of how a watershed plan will promote recovery or proper functions of the Buck Creek watershed.*

The following actions have been completed during this reporting period:

- a. The second stakeholder meeting was held in Memphis on September 11th. During this meeting, results from the Phase I project were briefly presented, water quality standards that apply to Buck Creek were discussed, the formation of the steering committee and technical advisory group were discussed and the next meeting time and location were set.
- b. The next meeting will actually be a day long workshop of the Texas Watershed Stewards program given by Texas Cooperative Extension. This meeting will be held in Wellington on January 24th. This workshop will help to emphasize the importance of the watershed management approach and will highlight what roles and functions that a watershed plays.

15% Complete

Subtask 6.4: *As appropriate, educational programs will also be provided in conjunction with the stakeholder meetings. Informational programs on topics such as principles of watershed hydrology, primary nonpoint source pollution types, and agricultural BMPs for protecting water quality (i.e. alternative watering, riparian management issues, livestock and wildlife management, grazing management, shade development, feeding strategies, cross fencing, and prescribed burning) will also be provided.*

The following actions have been completed during this reporting period:

- a. The Texas Watersheds Stewards program has been scheduled for January 24th in Wellington. This program will highlight the goals and principles of watershed management.

5% Complete

Subtask 6.5: *The Vernon Research Tech II/Watershed Coordinator will also meet semi-annually with each SWCD to discuss the status of the project and obtain any input the SWCDs have to offer regarding the project and watershed protection plan.*

The following actions have been completed during this reporting period:

- a. No activity to report at this time.

0% Complete

Subtask 6.6: *TWRI will develop (Months 1-3), host and maintain (Months 3-36) an internet website for the dissemination of information on educational, monitoring and demonstration activities taking place across the Buck Creek watershed. Website delivery of information will be the most time and cost effective way to disseminate information to interested people or groups.*

The following actions have been completed during this reporting period:

- a. The website has been developed and will be updated at least quarterly with project updates. Any and all information related to the project will be available on the project website. <http://twri.tamu.edu/buckcreek/>

95% Complete

TASK 7: Watershed Protection Plan

Subtask 7.1: *TAES and TWRI will develop a Watershed Protection Plan for Buck Creek based on criteria set forth in the FY04 guidelines. Findings from Tasks 3-5 and stakeholder input obtained from Task 6 will be utilized to develop the plan.*

The following actions have been completed during this reporting period:

- a. No activity to report at this time.

0% Complete

Subtask 7.2: *TSSWCB, TCE, RRA, and local SWCDs will assist with composition, editing, and publication of the final watershed protection plan, as needed.*

The following actions have been completed during this reporting period:

- a. No activity to report at this time.

0% Complete

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

- The Research Technician has been working to complete all needed paperwork with TPWD and Texas A&M to conduct trap and release activities with area wildlife.
- The Research Technician has also been in contact with all of the landowners who are going to allow the technician to conduct live trapping on their property. The landowners will sign an agreement that allows the Research Technician access to their property and the Technician will sign a wavier that states the landowners will assume no responsibility for liability if any injury or mishap occurs during these trips.

IV. Projected Work for Next Quarter

The following will be accomplished during the coming quarter:

- Sampling will begin during the next quarter now that the QAPP has been approved by EPA.
- The steering committee and technical advisory group will be established during the next quarter.
- Work will also take place to finalize details for the Texas Watershed Stewards program training course that will be given January 24th.