

**Texas AgriLife Research  
Texas Water Resources Institute**

**Bacterial Source Tracking to Support the Development and Implementation of Watershed  
Protection Plans for the Lampasas and Leon Rivers  
FY 2010 - State General Revenue Nonpoint Source Grant Program  
TSSWCB Project No. 10-51**

Quarter no. 1 From 9/1/10 Through 11/31/10.

**I. Abstract**

Work for this quarter consisted mostly of communication and planning between agencies to bolster progress on the project. A first draft of the QAPP was completed and submitted to TSSWCB for review in late September, and the lab at AgriLife-TP endeavored to update all of their QA documentation, resulting in their pending NELAC accreditation for EPA Method 1603. Involved agencies have participated in several meetings to discuss project goals, objectives, and responsibilities, as well as expectations and the project timeline. AgriLife EP, AgriLife-TP, and TWRI attended several steering committee meetings, where there was significant stakeholder input on monitoring station locations, so a great deal of work was put into making sure the station selection was acceptable for the needs of the project. Sampling and data collection will begin as soon as approval for the QAPP has been achieved.

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

**TASK 1: Project Administration and Coordination**

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 March, June, September, and December. QPRs shall be posted to the project website and distributed to all project partners. (Start Date: August 2010; Completion Date: July 2012)*

The following actions have been completed during this reporting period:

- A. TWRI submitted the first QPR for this project on December 15, 2010.

**25% Complete**

Subtask 1.2: *TWRI will perform accounting functions for project funds and will submit appropriate Reimbursement Forms to TSSWCB at least quarterly. (Start Date: August 2010; Completion Date: July 2012)*

The following actions have been completed during this reporting period:

- A. As of December 15, 2010, TWRI has received no invoices for the project.

**0% Complete**

Subtask 1.3: *TWRI will host coordination meetings, conference calls, or TTVN meetings with the TSSWCB, AgriLife-TP, and AgriLife-EP, and include as appropriate BRA, at least quarterly to discuss project activities, project schedule, communication needs, deliverables, and other requirements. TWRI will develop lists of action items needed following each project coordination meeting and distribute to project personnel. These coordination meetings may be held concurrently with TSSWCB project 06-12 or project 07-11 coordination meetings. (Start Date: August 2010; Completion Date: July 2012)*

The following actions have been completed during this reporting period:

- A. The initial meeting for the project was held on September 3, 2010. TSSWCB, AgriLife-TP, and TWRI met in Temple to discuss project goals and expectations with AgriLife-EP, who participated via TTVN.
- B. TSSWCB, AgriLife, TP, BRA, and TWRI participated in a project coordination meeting in Waco on October 7, 2010 to further discuss the stakeholder recommendations for monitoring sites in both watersheds.
- C. TWRI hosted a conference call with the Texas AgriLife Soil and Aquatic Microbiology Laboratory, AgriLife-EP, and TSSWCB on November 30, 2010 regarding the use of either 3-way or 6-way splits in the ongoing BST analysis in all related TSSWCB projects, including the Leon and Lampasas BST work. It was determined that more known-source sampling may need to be done in order in each watershed to expand local *E. coli* libraries to improve the accuracy when 6-way splits are requested.

**25% Complete**

Subtask 1.4: *TWRI, and AgriLife-TP and AgriLife-EP as appropriate, will attend and participate in public meetings as appropriate in order to communicate project goals, activities, and accomplishments to affected parties. Such meetings may include, but are not limited to, Clean Rivers Program Brazos River Basin Steering Committee meetings, Clean Rivers Program Brazos River Coordinated Monitoring meetings, Lampasas River Watershed Partnership Steering Committee and Work Groups meetings, Leon River WPP Working Committee and Focus Groups meetings, and TCEQ Leon River Bacteria TMDL Advisory Group meetings. (Start Date: August 2010; Completion Date: July 2012)*

The following actions have been completed during this reporting period:

- A. AgriLife-TP attended the Leon River Steering Committee meeting in Hamilton on October 22, 2010 to discuss the placement of monitoring sites.
- B. AgriLife-EP, AgriLife-TP, and TWRI attended the Lampasas River Steering Committee meeting in Lampasas on November 18, 2010 to give committee members an overview of what they can expect from the BST analysis and to discuss placement of monitoring sites.

**25% Complete**

Subtask 1.5: *TWRI, in collaboration with AgriLife-TP and AgriLife-EP, will develop and disseminate project informational materials, including, but not limited to, flyers, brochures, news releases, and other appropriate promotional publications. As appropriate, TWRI will include information at the project in the tx H<sub>2</sub>O, New Waves e-letter, and AgriLife News. AgriLife-TP*

*and BRA may solicit informational material from TWRI and AgriLife-EP from time to time for inclusion in Leon River and Lampasas River stakeholder newsletters and other publications, and Clean Rivers Program Basin Highlights Reports or Basin Summary Reports. All announcements, letters and publications will be provided to the TSSWCB for review and comment prior to dissemination. (Start Date: August 2010; Completion Date: July 2012)*

The following actions have been completed during this reporting period:

- A. TWRI developed the one-page fact sheet for the project in early September.

**25% Complete**

*Subtask 1.6: TWRI will develop (Month 1-3), host and maintain (Months 4-24) a project website for dissemination of project materials. The project website will be linked to the project 06-12 website <http://www.brazos.org/LeonRiverWPP.asp> maintained by BRA and to the project 07-11 website <http://www.lampasasriver.org/> maintained by AgriLife-TP. (Start Date: August 2010; Completion Date: July 2012)*

The following actions have been completed during this reporting period:

- A. TWRI finished preliminary development of the project website in late September and is awaiting approval from TSSWCB before publication and addition of further updates.

**70% Complete**

*Subtask 1.7: TWRI will work with AgriLife-TP and AgriLife-EP to prepare Technical Reports on collected water quality data and BST results (one for the Leon River watershed and one for the Lampasas River watershed). A draft of these reports will be submitted to TSSWCB for review prior to finalizing the documents. These reports will be permanently housed in the TWRI online Reports Database. (Start Date: August 2010; Completion Date: July 2012)*

The following actions have been completed during this reporting period:

- A. No activity to report this period.

**0% Complete**

**TASK 2: Quality Assurance**

*Subtask 2.1: TWRI, with assistance from AgriLife-EP and AgriLife-TP, will develop a QAPP for activities in Tasks 3 and 4 consistent with EPA Requirements for Quality Assurance Project Plans (QA/R-5) and the TSSWCB Environmental Data Quality Management Plan.*

*Consistency with Title 30, Chapter 25 of the Texas Administrative Code, Environmental Testing Laboratory Accreditation and Certification, which describes Texas' approach to implementing the National Environmental Laboratory Accreditation Conference standards, shall be required.*

*All monitoring procedures and methods prescribed in the QAPP shall be consistent with the guidelines detailed in the TCEQ Surface Water Quality Monitoring Procedures, Volume 1: Physical and Chemical Monitoring Methods for Water, Sediment, and Tissue (RG-415) and Volume 2: Methods for Collecting and Analyzing Biological Assemblage and Habitat Data (RG-*

416). (*Start Date: August 2010; Completion Date: October 2010*)

The following actions have been completed during this reporting period:

- A. TWRI, with assistance from AgriLife-EP and AgriLife-TP, compiled the first draft of the QAPP and submitted it to TSSWCB for comment on September 22, 2010.
- B. AgriLife-TP updated laboratory QA manuals and completed bi-annual NELAC testing requirement to maintain laboratory accreditation for EPA Method 1603.

**80% Complete**

*Subtask 2.2: TWRI, AgriLife-TP, and AgriLife-EP will implement the approved QAPP. TWRI will submit revisions and necessary amendments to the QAPP as needed. (Start Date: November 2010; Completion Date: July 2012)*

The following actions have been completed during this reporting period:

- A. No activity to report this period.

**0% Complete**

### **TASK 3: Water and Fecal Sample Collection**

*Subtask 3.1: AgriLife-TP, with assistance from project personnel on TSSWCB projects 06-12 and 07-11 and in consultation with AgriLife-EP, will conduct sampling site reconnaissance at the prospective sample sites (see tables in Project Narrative for proposed sites) to determine the suitability of sample collection at these locations.*

*TWRI in collaboration with AgriLife-TP will submit Station Location Requests (SLOCs) to TCEQ, as needed, to obtain TCEQ station numbers for new monitoring sites. (Start Date: August 2010; Completion Date: October 2010)*

The following actions have been completed during this reporting period:

- A. AgriLife-TP scouted the Lampasas Watershed prospective monitoring locations on September 14-15, and October 18 and 28, 2010. Each location was evaluated for access and measurability. GPS coordinates and current road designations were verified. Recommendations based on Steering Committee and AgriLife-TP evaluations were submitted to TSSWCB.
- B. AgriLife-TP scouted the Leon Watershed prospective monitoring location on October 11 and 18, 2010. Each location was evaluated for access and measurability. GPS coordinates and current road designations were verified. Recommendations based on Steering Committee and AgriLife-TP evaluations were submitted to TSSWCB.
- C. TWRI finished preparing the needed SLOC requests for the Lampasas River monitoring stations and submitted them to TSSWCB for review on November 30, 2010.

**90% Complete**

*Subtask 3.2: AgriLife-TP will conduct routine, ambient monitoring at 15 sites in the Leon River*

*watershed and 15 sites in the Lampasas River watershed monthly, collecting field, flow, and bacteria parameter groups. See tables in Project Narrative for proposed sites. The QAPP, as detailed in Task 2, will precisely identify sites.*

*Sampling period extends over 12 months. Total number of sample events scheduled for collection through this subtask is 360.*

*Field parameters are pH, temperature, conductivity, and dissolved oxygen. Flow parameters are flow collected by gage, electric, mechanical or Doppler, including severity. Bacteria parameters are E. coli. (Start Date: November 2010; Completion Date: October 2011)*

The following actions have been completed during this reporting period:

A. No activity to report this period.

**0% Complete**

*Subtask 3.3: AgriLife-TP will enumerate E. coli colonies in water samples collected through subtask 3.2 using US EPA Method 1603. Enumeration results will be recorded in hard copy and electronic format. (Start Date: November 2010; Completion Date: October 2011)*

The following actions have been completed during this reporting period:

A. No activity to report this period.

**0% Complete**

*Subtask 3.4: AgriLife-TP will store Method 1603 modified mTEC plates at 4°C for shipment to AgriLife-EP. AgriLife-TP will coordinate the shipment of these samples with AgriLife-EP such that they are received in El Paso within 3 days following enumeration. (Start Date: November 2010; Completion Date: October 2011)*

The following actions have been completed during this reporting period:

A. No activity to report this period.

**0% Complete**

*Subtask 3.5: AgriLife-TP will collect approximately 100 known source fecal samples from the Lampasas (50) and Leon (50) Rivers watersheds. Fecal samples will be stored at 4°C and shipped to AgriLife-EP for E. coli isolation and analysis. AgriLife-TP will coordinate the shipment of these samples with AgriLife-EP such that they are received in El Paso within 3 days of collection. Sources of fecal samples will be selected in coordination with AgriLife-EP and the Leon and Lampasas Rivers watersheds coordinators. (Start Date: November 2010; Completion Date: October 2011)*

The following actions have been completed during this reporting period:

A. No activity to report this period.

**0% Complete**

*Subtask 3.6: AgriLife-TP will collaborate with TWRI and AgriLife-EP to develop technical*

*reports that present results of data collection and stream flow monitoring in each watershed.*

*AgriLife-TP will participate in appropriate Leon and Lampasas Rivers stakeholder meetings to present results from data collection activities. (Start Date: November 2011; Completion Date: July 2012)*

The following actions have been completed during this reporting period:

A. No activity to report this period.

**0% Complete**

*Subtask 3.7: TWRI, with assistance from AgriLife-TP, 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 BRA for inclusion in the Coordinated Monitoring Schedule. (Start Date: November 2010; Completion Date: January 2012)*

The following actions have been completed during this reporting period:

A. No activity to report this period.

**0% Complete**

#### **TASK 4: Bacterial Source Tracking**

*Subtask 4.1: AgriLife-EP will conduct library-dependent BST on approximately 180 water samples (5 isolates per water sample) collected in the Lampasas River watershed and 180 water samples (5 isolates per water sample) from the Leon River watershed utilizing ERIC-RP (a total of approximately 1,800 E. coli isolates). Likely human and animal sources of the E. coli will be identified using the Texas E. coli BST Library. Water samples for this subtask shall be those collected by AgriLife-TP through subtask 3.2. (Start Date: November 2010; Completion Date: January 2012)*

The following actions have been completed during this reporting period:

A. No activity to report this period.

**0% Complete**

*Subtask 4.2: AgriLife-EP will isolate E. coli from 100 known source fecal samples received from AgriLife-TP (Subtask 3.5). Approximately three isolates from each fecal sample will be screened using ERIC-PCR and approximately 200 isolates will be selected for RP and inclusion in the Texas E. coli BST Library. (Start Date: November 2010; Completion Date: January 2012)*

The following actions have been completed during this reporting period:

A. No activity to report this period.

**0% Complete**

*Subtask 4.3: AgriLife-EP will collaborate with TWRI and AgriLife-TP to develop technical reports (1 for each watershed) detailing the results of BST conducted on water samples received from both the Lampasas and Leon Rivers. AgriLife-EP will participate in appropriate Leon and Lampasas Rivers stakeholder meetings to present BST results. (Start Date: February 2012; Completion Date: July 2012)*

The following actions have been completed during this reporting period:

A. No activity to report this period.

**0% Complete**

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

No activity to report this period.

**IV. Projected Work for Next Quarter**

**Begin BST sample collection**

Pending approval of the QAPP submitted to TSSWCB, AgriLife-TP can begin sampling and shipping of collected samples to AgriLife-EP for BST analysis.

**Submission of SLOC Requests**

SLOC requests for both new and changed sites have been prepared by TWRI in conjunction with AgriLife-TP and submitted to TSSWCB for review. Once the requests have been deemed acceptable by TSSWCB, TWRI will submit the SLOC requests to TCEQ for final review and inclusion into the SWQMIS database operated by TCEQ.

**Other Projected Work**

- Submit the third quarterly progress report
- Participate in project coordination and update meetings