

**Texas A&M AgriLife
Texas Water Resources Institute**

**BST for LBR Tributaries Bacteria Assessment
TSSWCB TMDL Program Funding – FY 2009 Project 09-52**

Quarter no. 5 From 9/1/09 Through 11/30/09

I. Abstract

Work this quarter consisted of isolating and archiving *E. coli* from 79 samples and performing ERIC-RP on 38 *E. coli* isolates. Also, 101 samples were filtered and archived for *Bacteroidales* PCR, and *Bacteroidales* PCR were performed for ruminant and swine markers on 22 samples. A project meeting with project personnel as well as stakeholder meeting are both expected to be conducted during the next quarter. Also, it is expected to complete ERIC-RP of *E. coli* isolates but *Bacteroidales* PCR and BST sample collection and processing will continue.

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 15th of December, March, June and September. QPRs shall be provided to all project partners.

The following actions have been completed during this reporting period:

- a. The fifth quarterly report will be submitted on December 15, 2009.

65% 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. No activity to report this quarter.

0% Complete

Subtask 1.3: TWRI and SCSC will participate in coordination meetings or conference calls with TSSWCB, and any project partners as appropriate, at least quarterly to discuss project activities,

project schedule, communication needs, deliverables and other requirements. Coordination with TSSWCB projects 08-54, Assessment of Contact Recreation Use Impairments and Watershed Planning for Five Tributaries of the Little Brazos River, and 08-55, Modeling Support for Little Brazos River Tributaries Bacteria Assessment, will be especially critical to achieve project goals.

The following actions have been completed during this reporting period:

- a. A project meeting is planned for early next quarter.

65% Complete

Subtask 1.4: In order to communicate project goals, activities, results and accomplishments to affected parties, TWRI and SCSC will participate in public stakeholder meetings as needed. At a minimum, public stakeholder meetings shall consist of an organizational/kick-off meeting (month 2), a source survey design meeting (Subtask 3.4) (month 3), a meeting presenting results from initial data analysis (month 4), Texas Watershed Steward Program workshop (month 6), two project update meetings (months 9 and 15), a meeting presenting data analysis results (month 18), and a meeting presenting final technical reports (month 21).

The following actions have been completed during this reporting period:

- a. A stakeholder meeting is being planned to be conducted during next quarter.

65% Complete

TASK 2: Quality Assurance

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. This task is complete.

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. No activity to report this quarter.

0% Complete

TASK 3: Bacterial Source Tracking

Subtask 3.1: SCSC will conduct library-independent BST on 50-100 water samples per segment utilizing the Bacteroidales PCR genetic test for human, ruminant, horse, and swine markers. The number of samples may be adjusted depending on the size of each watershed in the study area and the complexity of sources as identified in the source survey (Subtask 3.4). Specific genetic markers for various species are continually being developed by the scientific community and as new markers are identified, they should be included in this analysis, as the budget allows. Water samples for this subtask shall be a subset of those collected by BRA through TSSWCB project 08-54.

The following actions have been completed during this reporting period:

- a. Filtered and archived 101 samples for *Bacteroidales* PCR. Performed *Bacteroidales* PCR for ruminant and swine markers on 22 samples.

15% Complete

Subtask 3.2: SCSC will conduct limited library-dependent BST and analyze E. coli isolates from 50-100 water samples (1 isolate per water sample) from across the study area utilizing the ERIC-RP combination method. This will serve to 1) confirm that the sources of E. coli and Bacteroidales are comparable and 2) assess the spatial and temporal adequacy of the Texas Known Source Library in order to determine the need for collection of local known source library samples if intensive library-dependent BST is employed in the future. Water samples for this subtask shall be a subset of those collected by BRA through TSSWCB project 08-54.

The following actions have been completed during this reporting period:

- a. Isolated and archived *E. coli* from 79 samples. Performed ERIC-RP on 38 *E. coli* isolates.

60% Complete

Subtask 3.3: BRA will conduct water quality monitoring in the study area through TSSWCB project 08-54. BRA will provide a subset of collected water samples to SCSC for BST (Subtasks 3.1-3.2).

The following actions have been completed during this reporting period:

- a. No activity to report this quarter.

0% Complete

Subtask 3.4: SCSC will assist BRA in designing a watershed source survey, to be conducted through TSSWCB project 08-54, that better characterizes possible sources of bacteria loadings in the study area. Results from the source survey will be used by SCSC to make appropriate adjustments to the library-independent BST sampling design (Subtask 3.1) and assess the adequacy of the Texas Known Source Library (Subtask 3.2).

The following actions have been completed during this reporting period:

- a. No activity to report this quarter.

0% Complete

Subtask 3.5: BAEN will conduct watershed modeling for the study area through TSSWCB project 08-55. SCSC will work with BAEN to 1) integrate BST results into the model, to the extent possible, and 2) address and reconcile discrepancies between BST and modeling results.

The following actions have been completed during this reporting period:

- a. No activity to report this quarter.

0% Complete

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

- N/A

IV. Projected Work for Next Quarter

- Submit sixth quarterly report
- Participate in coordination and stakeholder meetings
- Continue BST sample collection and processing. Complete ERIC-RP of *E. coli* isolates. Continue *Bacteroidales* PCR.