

**Lone Star Healthy Streams  
FY 06 CWA 319(h)  
TSSWCB Agreement No. 06-05-07-02**

Quarter no. 2 From 4/1/07 Through 6/30/07

**I. Abstract**

Garrett Norman was hired this quarter to serve as the Lone Star Healthy Streams Extension Assistant. TCE has integrated discussion of the effects of grazing animals on bacteria levels in water bodies and BMPs designed to minimize these impacts into educational programs. As a result of this, 590 producers have already been introduced to this important issue. In addition to this, an article appearing in the May 2007 issue of *The Cattleman* magazine discussed the evaluation and demonstration of BMPs that will be conducted by this project, further increasing the awareness of producers throughout Texas and the Southwest. Additional educational programs and presentation of a poster at the 15<sup>th</sup> National NPS Monitoring Conference is planned for next quarter to continue raising awareness regarding the bacteria issue and BMPs. The Welder Wildlife Refuge, 2S Ranch, and USDA-ARS have all agreed to cooperate in the BMP demonstration and evaluation. Monitoring will begin upon approval of the QAPP, which was submitted to the TSSWCB on June 13.

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

**TASK 1: Project Coordination and Administration**

*Subtask 1.1: TWRI, in coordination with TCE, will organize a Project Steering Committee to coordinate project efforts with all project participants. This Committee will be composed of TSSWCB, SWCDs, TCE, TAES, TWRI, NRCS, TDA, FSA, GLCI, and producer groups such as TFB and TSCRA. This Committee will meet at least semi-annually to select a pilot watershed for evaluation of BMPs and the education program; provide input into curriculum development, program delivery and CEU processes; discuss project status, provide input on demonstration/BMP evaluation efforts, and coordinate project activities.*

The following actions have been completed during this reporting period:

- a. A list of potential committee members was drafted during the first quarter; however, no action was taken on this subtask this quarter. A letter will be prepared next quarter inviting participation on the committee and scheduling the first semi-annual meeting.

**5% Complete**

*Subtask 1.2: TWRI will prepare electronic quarterly reports for submission to the TSSWCB. All progress reports will be provided to the Steering Committee [Final report provided under Task 4].*

The following actions have been completed during this reporting period:

- a. TWRI submitted Year 1, Quarter 2 Progress Report on July 16, 2007.

**17% Complete**

*Subtask 1.3: TWRI will 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. On May 18, TWRI, TAES, and TCE met to discuss the BMP evaluations.
- b. On May 23, TWRI and TAES met to discuss utilizing *Bacteroides* to quantify loadings from cattle versus other species as part of the BMP evaluations.

**17% Complete**

*Subtask 1.4: 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:

- a. No activity this quarter.

**17% Complete**

*Subtask 1.5: TWRI will submit appropriate Reimbursement Forms.*

The following actions have been completed during this reporting period:

- a. Two invoices were submitted to the TSSWCB this quarter.

**17% Complete**

*Subtask 1.6: TWRI will develop (Months 1-3), host and maintain (Months 3-36) an internet website for the dissemination of information.*

The following actions have been completed during this reporting period:

- a. Work has been initiated to develop an internet website for the project. A shell has been developed for the project website: <http://twri-dev.tamu.edu/lonestar/>. Work will continue on the website next quarter.

**8% Complete**

## **TASK 2: Compile Existing Information**

*Subtask 2.1: TCE will hire a LONE STAR HEALTHY STREAMS Extension Assistant to assist with and coordinate a review of the literature of the state of current knowledge regarding the effects of grazing animals on bacterial levels of riparian areas and associated water bodies and BMPs designed to minimize these impacts. Further, the Extension Assistant will lead all future LONE STAR HEALTHY STREAMS Program efforts.*

The following actions have been completed during this reporting period:

- a. Garrett Norman was hired as the Lone Star Healthy Streams Extension Assistant.
- b. The Extension Assistant has been conducting a review of the existing literature regarding BMPs that help reduce livestock bacteria levels in water bodies. The review of the literature continues. The information will soon be transformed into Power Point presentations for dissemination to the public in future educational programs. The information will also be made available via the Forages and TWRI web sites.

**17% Complete**

*Subtask 2.2: TCE will organize internal TCE Planning Team consisting of TCE personnel specializing in animal production systems and associated environmental issues.*

The following actions have been completed during this reporting period:

- a. Mark McFarland and Nikki Dictson have agreed to serve on the internal TCE Planning Team.

**17% Complete**

*Subtask 2.3: TCE will assess and inventory education/training materials within TCE and related materials developed through similar efforts in other states addressing bacteria from grazing cattle. In order to make the program more thorough, educational materials addressing nutrient and sediment runoff from grazing lands and proper grazingland management will also be assessed and inventoried.*

The following actions have been completed during this reporting period:

- a. No activity this quarter.

**10% Complete**

### **TASK 3: Develop Bacterial Education Programs for Beef Cattle Producers**

*Subtask 3.1: TCE will facilitate the modification necessary to integrate existing materials from subtask 2.3 into the LONE STAR HEALTHY STREAMS Program.*

The following actions have been completed during this reporting period:

- a. No activity this quarter.

**0% Complete**

*Subtask 3.2: TCE will develop a core land/grazing management educational component that provides growers with state-of-the-art production technology training on fundamental BMPs and strategies which can be employed to protect and conserve water resources from bacterial and other NPS contamination originating from grazing lands.*

The following actions have been completed during this reporting period:

- a. No activity this quarter.

**0% Complete**

*Subtask 3.3: TCE will integrate and coordinate the Lone Star Healthy Streams Program with the Texas Master Watershed Steward program to provide producers with a more comprehensive environmental education curriculum incorporating basic training in watershed form and function, watershed management, sources of nonpoint source (NPS) pollution and BMPs and strategies which can be employed to protect and conserve water resources.*

The following actions have been completed during this reporting period:

- a. Mark McFarland and Nikki Dictson have agreed to serve on the internal TCE Planning Team which will facilitate integration and coordination of the Lone Star Healthy Streams Program with the Texas Watershed Steward program.

**17% Complete**

*Subtask 3.4: TCE will establish a continuing education component that enables acquisition of CEUs in both environmental and production management.*

The following actions have been completed during this reporting period:

- a. No activity this quarter.

**0% Complete**

*Subtask 3.5: TCE will develop and provide a certificate of completion, or other mechanism enabling individuals to take credit for participation in education program.*

The following actions have been completed during this reporting period:

- a. No activity this quarter.

**0% Complete**

#### **TASK 4: Education Program Testing and Delivery**

*Subtask 4.1: TCE will test the educational program in the pilot watershed selected by the Project Steering Committee. TCE will coordinate with local SWCDs and others, such as the NRCS, to deliver and evaluate the educational program.*

The following actions have been completed during this reporting period:

- a. Although the educational program has not been developed, TCE has begun to integrate discussion of the effects of grazing animals on bacteria levels in water bodies and BMPs designed to minimize these impacts into educational programs. Below are the meetings (and number of attendees) that TCE presented information on ground cover and its importance to (1) plant vigor, (2) animal performance, (3) water capture, (4) reduction in overland flow and subsequent loss of top soil, nutrients, and bacteria:
  - April: PALMAN (38); Jefferson Co. (50); O.D. Butler Field Day (40); Grayson Co. (40); Limestone Co. (25); Travis Co. (20); Montgomery Co. (12). **April Total = 221.**
  - May: Jefferson, Chambers, Hardin Cos. (35); Freestone Co. (12); Bastrop Co. (40); Burleson Co. (12); Bell Co. (75). **May Total = 174.**
  - June: Veterinary Food Animal Conference in Brazos Co. (50) and Stiles Farm Field Day in Williamson Co. (145). **June Total = 195.**

**10% Complete**

*Subtask 4.2: To increase Program availability, Web-based and related local “on-demand” program delivery tools (i.e., CD, videos, worksheets) will be developed for both core and CEU components.*

The following actions have been completed during this reporting period:

- a. No activity this quarter.

**0% Complete**

*Subtask 4.3: Evaluate changes in producer knowledge and awareness of important production and environmental issues.*

The following actions have been completed during this reporting period:

- a. No activity this quarter.

**0% Complete**

*Subtask 4.4: Utilizing participants surveys, identify and address any barriers to producer participation and successful implementation of the program.*

The following actions have been completed during this reporting period:

- a. No activity this quarter.

**0% Complete**

*Subtask 4.5: Make appropriate modifications to the program to facilitate greater producer participation and adoption of recommended BMPs.*

The following actions have been completed during this reporting period:

- a. No activity this quarter.

**0% Complete**

**TASK 5: Evaluate And Demonstrate Value-Added BMPs To Reduce Bacteria Contamination Of Streams And Water Bodies From Grazing Lands**

*Subtask 5.1: TWRI will develop a Quality Assurance Project Plan (QAPP) that will detail project goals and objectives, the data needs to fulfill those objectives, lists field and laboratory methods, procedures and schedules to be followed, and specify a data management structure and quality assurance protocols. The QAPP will be developed using guidelines in EPA QA/R-5, "EPA Requirements for Quality Assurance Project Plans".*

The following actions have been completed during this reporting period:

- a. The QAPP was submitted to the TSSWCB on June 13, 2007 for review.

**75% Complete**

*Subtask 5.2: TWRI will 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:

- a. No activity this quarter.

**0% Complete**

*Subtask 5.3: TWRI and TCE will identify a cooperator to conduct the BMP demonstration/ evaluation with assistance of the Steering Committee, local SWCD, NRCS, TWRI, and TCE agents.*

The following actions have been completed during this reporting period:

- a. On April 19, TWRI and TCE met with the 2S Ranch in the Plum Creek watershed to discuss their potential participation in the project.
- b. On May 14, TWRI and TCE conducted a site visit to the 2S Ranch to evaluate its suitability for the project. The site was found to be suitable and the ranch agreed to participate.
- c. Three cooperators have agreed to participate in the BMP demonstration and evaluation: (1) the Welder Wildlife Refuge, located in the Copano Bay Watershed, (2) the 2S Ranch located in the Plum Creek watershed, and (3) the USDA-ARS Grassland Soil and Water Research Laboratory near Riesel, located in the Brazos River watershed (above the Navasota River).

**100% Complete**

*Subtask 5.4: TWRI and TCE will assess cattle and other animal behavior to determine the amount of time spent in the stream and riparian area before and after BMP implementation. GPS tracking will be utilized.*

The following actions have been completed during this reporting period:

- a. Quarterly tracking of cattle using GPS collars is scheduled to begin next quarter.

**0% Complete**

*Subtask 5.5: TWRI and TCE will assess water quality before and after BMP implementation. Bacteria will be the focus of this effort and will be monitored bi-monthly. In order to gain a more complete picture of the impacts of BMP implementation on water quality, nutrients and sediment will be assessed at least quarterly as well. Water quality will be assessed for 12 months prior to implementation and then 12 months following implementation.*

The following actions have been completed during this reporting period:

- a. Awaiting approval of QAPP to initiate water monitoring.

**0% Complete**

*Subtask 5.6: In order to gain a more complete picture of the impacts of BMP implementation on stream health, additional assessments such as stream bank stability assessments, aquatic habitat assessments, and benthic macroinvertebrate assessments may also be performed by TWRI and TCE before and after BMP implementation.*

The following actions have been completed during this reporting period:

- a. Awaiting approval of QAPP to initiate stream health assessment.

**0% Complete**

*Subtask 5.7: TWRI and TCE will provide funding to cooperating ranch to implement BMPs to reduce bacteria and other NPS runoff from grazing lands.*

The following actions have been completed during this reporting period:

- a. BMPs will not be implemented on the 2S ranch until one year of sampling has been completed.

**0% Complete**

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

- In order to increase the visibility of the project, TCE has submitted a poster for presentation at the 15<sup>th</sup> National NPS Monitoring Workshop.
- On page 23 of the May 2007 Issue of *The Cattleman* magazine, the evaluation and demonstration of BMPs to be conducted by this project was briefly discussed. The article can be viewed at the following website: <http://thecattlemanmagazine.com/issues/2007/0507/On%20the%20Ground.pdf>. This has greatly increased the awareness of bacteria issues. *The Cattleman* has expressed an interest in following this evaluation and publishing the results and other material produced by the project in order to better inform cattlemen of the bacteria issue throughout Texas and the Southwest.

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

- A letter will be prepared next quarter inviting participation on the Project Steering Committee and scheduling the first semi-annual meeting.
- TWRI will prepare and submit Year 1, Quarter 3 Progress Report.
- TWRI will schedule and conduct a meeting with project participants to discuss project activities and progress as needed.
- TWRI will attend the July 2007 TSSWCB Board Meeting and update TSSWCB staff on the status of the project.
- A workplan revision will be submitted to the TSSWCB to reflect needed changes in the project.
- TWRI will continue to work to improve the website.
- The Extension Assistant will continue work to compile existing educational materials and information on bacteria, nutrient, and sediment runoff from grazing lands.
- The Extension Assistant will continue work to modify existing educational materials and develop a core land/grazing management educational component for inclusion in the Lone Star Healthy Streams Program.
- TCE will continue to incorporate discussion of bacteria water quality issues into educational programs.
- Site setup will begin on the Welder Wildlife Refuge.
- GPS tracking of cattle on the 2S Ranch will be initiated.