

**Environmental Management of Grazing Lands
TSSWCB Agreement No. 06-14-07-14**

Quarter no. 1 From 1/1/07 Through 3/31/07

I. Abstract

The project was kicked-off this quarter following the initiation of the contract on December 27, 2006. Following contract initiation, the budget was allocated to TWRI and accounts set up on January 22, 2007. Work this quarter primarily focused on purchasing needed sampling equipment, identifying cooperators for the BMP evaluation, publicizing the project, and reviewing literature. Meetings were held to coordinate *Environmental Grazing Management* with the *Lone Star Healthy Streams* and *Education Program for Improved Water Quality in Copano Bay* projects. The Welder Wildlife Refuge has graciously agreed to allow TCE to utilize three existing sub-watershed sites for the BMP evaluation. The project has been publicized through the development of a one-page fact sheet and other TWRI publications, a poster presentation at a national water conference, and an interview for an article for the upcoming May issue of "The Cattleman" magazine. Next quarter, efforts will focus on finalizing the identification of cooperators for BMP evaluation, refurbishing the sub-watershed sites, installing monitoring equipment, and continuing the literature review.

II. Overall Progress and Results by Task

TASK 1: Project Coordination and Administration

Subtask 1.1: TWRI will prepare electronic quarterly reports for submission to the TSSWCB.

The following actions have been completed during this reporting period:

- a. TWRI submitted Year 1, Quarter 1 Progress Report on April 13, 2007.

25% Complete

Subtask 1.2: TWRI will participate in meetings and teleconferences with the TSSWCB project manager, as needed, to review project status, deliverables, etc.

The following actions have been completed during this reporting period:

- a. No activity this quarter.

25% Complete

Subtask 1.3: TWRI will submit appropriate Reimbursement Forms.

The following actions have been completed during this reporting period:

- a. No activity this quarter.

25% Complete

Subtask 1.4: TWRI will coordinate this project with the Lone Star Healthy Streams project and related USDA-ARS efforts at Riesel.

The following actions have been completed during this reporting period:

- a. Efforts made to coordinate this project with the Education Program for Improved Water Quality in Copano Bay Project and Environmental Grazing Management Project have proven very beneficial in increasing the effectiveness and efficiency of all projects involved.
- b. On February 15, a coordination meeting was held between TWRI and TCE in Corpus Christi to request the assistance of TCE Corpus Christi staff with proposed monitoring on the Welder Wildlife Refuge. TCE Corpus Christi staff agreed to assist with equipment maintenance and runoff collection.
- c. On February 26, TWRI, TCE, and TAES met with the Welder Wildlife Refuge to discuss the project and request the use of three existing sub-watersheds for monitoring the effects of grazing management on bacteria runoff. The Welder Wildlife Refuge agreed to participate in the project.
- d. On March 28, TWRI met with USDA-ARS to discuss equipment needs for the project, analysis methods used, and coordination with monitoring activities at Riesel.

25% Complete

Subtask 1.5: TWRI will prepare a final report for submission to the TSSWCB summarizing the existing information on environmental management of grazing lands and describing results of the first year of the evaluation.

The following actions have been completed during this reporting period:

- a. No activity.

0% Complete

TASK 2: Compile Existing Information

Subtask 2.1: TCE and TWRI will coordinate a review of literature of the state of current knowledge regarding environmental management of grazing lands.

The following actions have been completed during this reporting period:

- a. A review of publications addressing the environmental management of grazing lands has been initiated. To date, 26 publications have been reviewed and briefly summarized.

25% Complete

TASK 3: Evaluation of Proper Grazing Management

Subtask 3.1: Purchase equipment as outlined in budget.

The following actions have been completed during this reporting period:

- a. GPS collars to evaluate the impacts of BMPs on cattle behavior have been ordered.
- b. Lab supplies to support evaluation of E. coli at Riesel have been ordered.
- c. The order of the ISCO samplers, bubble flow meters, and rain gauges is currently being prepared.

25% Complete

Subtask 3.2: Refurbish and equip three small (1-2 acres) watershed sites on the Welder Wildlife Refuge to measure runoff and collect E. coli samples from three different treatments: (1) no grazing, (2) prescribed grazing, and (3) heavy grazing.

The following actions have been completed during this reporting period:

- a. Work this quarter consisted of planning the activities for next quarter. Next quarter, work will be initiated to refurbish the berms around each 1-ha sub-watershed, fence off the sub-watersheds to control grazing, install the sampling equipment, and run water lines to the two grazed watersheds for the cattle.
- b. Prescribed grazing will be based on 1 animal unit per 14 acres and heavy grazing will be based on a stocking rate of 1 animal unit per 7 acres.

0% Complete

Subtask 3.3: Select ranch for evaluation of grazing management and complementary practices.

The following actions have been completed during this reporting period:

- a. Rachel Bauer and Nikki Dictson have facilitated the scheduling of a meeting with a potential cooperater in the Plum Creek watershed.

25% Complete

Subtask 3.4: Install sampling equipment on selected ranch needed to measure runoff and collect E. coli samples. On the private ranch selected, the effects of grazing management and complementary practices will be assessed over a three year period through the Lone Star Healthy Streams Project.

The following actions have been completed during this reporting period:

- a. No activity.

0% Complete

Subtask 3.5: Collect runoff, rainfall, and E. coli data from Welder Wildlife Refuge and selected ranch.

The following actions have been completed during this reporting period:

- a. No activity.

0% Complete

Subtask 3.6: Obtain data collected by USDA-ARS at Riesel on (1) ungrazed native prairie and (2) grazed improved pasture.

The following actions have been completed during this reporting period:

- b. No activity.

0% Complete

Subtask 3.7: Compare data collected at Riesel, Welder Wildlife Refuge, and selected ranch to identify regional differences and effects of grazing.

The following actions have been completed during this reporting period:

- c. No activity.

0% Complete

TASK 4: Evaluation of Complementary Practices

Subtask 4.1: Install stream sampling equipment on ranch selected in Subtask 3.3 to measure stream flow and rainfall, and collect stream samples for E. coli analysis.

The following actions have been completed during this reporting period:

- a. No activity.

0% Complete

Subtask 4.2: Initiate stream sampling and evaluation of cattle behavior (using GPS collars) to assess background conditions prior to implementation of complementary practices (i.e. alternative water supplies, fencing, etc.) in years 2 and 3 of the evaluation funded through the Lone Star Healthy Streams Project.

The following actions have been completed during this reporting period:

- a. No activity.

0% Complete

TASK 5: Technical Transfer

Subtask 5.1: TCE and TWRI will coordinate with the TSSWCB, NRCS, local SWCDs and others, to deliver current knowledge to landowners on production and environmental management of grazing lands and their associated watersheds to address water quality and other concerns in the state.

The following actions have been completed during this reporting period:

- a. From February 27-31, the TWRI Project Manager participated in the USDA-CSREES National Water Conference presenting the poster titled “Reducing Bacterial Contamination in Texas Watersheds”. Upcoming activities of the Lone Star Healthy Streams project were included on the poster.
- b. The TWRI PI and Project Manager were interviewed by “The Cattleman” magazine on March 13 for an article on bacteria TMDLs. The upcoming education program and BMP evaluation to be conducted through *Lone Star Healthy Streams* were briefly discussed. It is anticipated that the article will be included in the May edition of “The Cattleman”. In addition, the magazine was very interested in including future articles as the educational materials are developed and results of the BMP evaluation are completed.
- c. A one-page project fact sheet titled “Improving Water Quality of Grazing Lands” has been developed by TWRI describing the project’s background, objectives, collaborators, and sources of funding.

25% Complete

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

- N/A

IV. Projected Work for Next Quarter

- Prepare and submit Year 1, Quarter 2 Progress Report.
- Schedule and conduct a meeting with project participants to discuss project activities and progress.
- Compile existing information on bacteria, nutrient, and sediment runoff from grazing lands.
- Complete the identification of cooperators for the BMP demonstration
- Install Equipment