I. Abstract

This quarter, TWRI and Texas AgriLife Extension Service (Extension) participated in the Copano Bay TMDL meeting in Refugio. In addition, TWRI attended the Association of Texas Soil and District Director’s Annual Meeting and the November Meeting of the Texas State Soil and Water Conservation Board to communicate project activities with project participants. The project website has been visited by an average of 17 unique visitors a month to date further communicating project activities to the public. The Extension Assistant continued to assemble existing data on animal numbers and distribution in the watershed and hopes to obtain approval from Extension, TPWD, NRCS, and the Welder Wildlife Foundation on the final numbers next quarter. Extension finalized its evaluation of the livestock bacteria loading chart from the TCEQ stakeholder presentation and had no recommendations for more appropriate coefficients for use in the Copano Bay watershed. Extension obtained TCEQ sampling data from 1969 to present for six Texas bays, including Copano Bay, and compiled bacterial level information into line graphs. The Extension Assistant has completed the literature review on existing education programs; however, other compiling will be done as new reports are released or as existing information leads in new directions. The Extension Assistant also developed an outline of the education curriculum for horse and livestock and drafted a horse owner BMP education booklet. A number of education programs have been completed this quarter including a Feral Hog Management Symposium, Earth Science Field Day, rangeland symposium, and other outreach activities. Finally, Extension secured a grant to conduct a project on "Cattle Grazing Distribution Patterns Using GPS/GIS Technology” in spring 2008.

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. On December 3, the TWRI Project Manager and Extension Assistant attended the Copano Bay TMDL meeting in Refugio to answer questions about the education project and provide a poster and fact sheets to those in attendance.

30% Complete
Subtask 1.2: TWRI will prepare electronic quarterly reports and submit them to the TSSWCB. All progress reports will also be provided to all project participants and placed on the project website maintained by TWRI.

The following actions have been completed during this reporting period:
   a. TWRI submitted Year 1, Quarter 3 Progress Report on October 15, 2007.

30% 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:
   a. TWRI attended the Association of Texas Soil and District Director’s Annual Meeting at the Waco Convention Center on October 22-23.
   b. TWRI attended the November 29th State Board Meeting in Temple.

30% Complete

Subtask 1.4: TWRI will submit appropriate Reimbursement Forms.

The following actions have been completed during this reporting period:
   a. As of the last billing period which ended on October 31, 2007, $24,633.05 or 11.6% of federal project funds had been expended.
   b. An invoice will be submitted next quarter covering November - January.

12% Complete

Subtask 1.5: 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 Copano Bay watershed.

The following actions have been completed during this reporting period:
   a. The Copano Bay Water Quality Education website went online in August 2007. It can be found at http://copanobay-wq.tamu.edu/.
   b. The website was viewed by:
      • 2 unique visitors in August 2007 (not reported last quarter)
      • 16 unique visitors in September 2007 (not reported last quarter)
      • 22 unique visitors in October 2007
      • 10 unique visitors in November 2007
      • 21 unique visitors in December 2007
   c. The website will be continually updated as new data and information are obtained.

30% Complete
Subtask 1.6: TWRI and TCE will develop a final project report and submit to TSSWCB.

The following actions have been completed during this reporting period:
   a. No activity.

   **0% Complete**

**TASK 2: Compile Existing Information**

Subtask 2.1: TCE will hire an Extension Assistant to compile existing information, develop education curriculum, and lead all outreach and education program efforts.

The following actions have been completed during this reporting period:

   **100% Complete**

Subtask 2.2: TCE will assemble and assess existing data on livestock, deer, and feral hog numbers and distribution in the watershed.

The following actions have been completed during this reporting period:
   a. This quarter, the Extension Assistant continued to assemble existing data on livestock, deer, and feral hog numbers and distribution in the watershed.
   b. The Extension Assistant continues to search for more up-to-date cattle, goat, poultry, swine, and wildlife data.
   c. The Texas Parks and Wildlife Department is assisting the Extension Assistant with additional data collection.
   d. Next quarter, the Extension Assistant hopes to obtain approval from Extension, TPWD, NRCS, and the Welder Wildlife Foundation on the final numbers.

   **90% Complete**

Subtask 2.3: TCE will investigate published bacteria loading coefficients from cattle and other livestock to determine the most appropriate coefficients for use in the Copano Bay watershed.

The following actions have been completed during this reporting period:
   a. Extension evaluated the livestock bacteria loading chart from the TCEQ stakeholder presentation and had no recommendations for more appropriate coefficients for use in the Copano Bay watershed.

   **100% Complete**
Subtask 2.4: TCE will perform a comparison of the bacteria levels present in Copano Bay to other coastal areas in Texas to evaluate the most realistic endpoint.

The following actions have been completed during this reporting period:
   a. Extension obtained TCEQ sampling data from 1969 to present for six Texas bays and compiled bacterial level information into line graphs.

100% Complete

Subtask 2.5: TCE will perform an evaluation of the historical bacterial levels in Copano Bay to assess any potential trends or changes that have occurred.

The following actions have been completed during this reporting period:
   a. Extension obtained TCEQ sampling data from 1969 to present for Copano Bay and compiled bacterial level information into line graphs.

100% Complete

TASK 3: Develop Bacterial Education Programs for Horse Owners

Subtask 3.1: The TCE Extension Assistant will conduct a review of the literature to determine the state of current knowledge regarding the effects of horses on bacterial levels in water bodies and BMPs designed to minimize these impacts. TCE will assess and inventory education/training materials within TCE and related materials developed through similar efforts in other states addressing bacteria from horses.

The following actions have been completed during this reporting period:
   a. The Extension Assistant has searched internet sources, Extension sources, and environmental sources for information pertaining to livestock and the environment, manure management, pasture management, stocking rates, pathogenic nature of manure, and programs in place in other states.
   b. The Extension Assistant has chosen several existing Extension publications for distribution to horse owners concerning composting, small acreage landowner issues, pasture health, and other issues.
   c. Other compiling will be done as new reports are released or as existing information leads in new directions.

99% Complete

Subtask 3.2: TCE will facilitate the modification necessary to integrate existing materials from subtask 3.1 above into the education program.

The following actions have been completed during this reporting period:
   a. The existing materials within Extension will be made available and referenced in the horse owner education program materials and seminars.

100% Complete
Subtask 3.3: TCE will develop a core horse management educational component that provides producers 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 horse operations.

The following actions have been completed during this reporting period:
   a. The Extension Assistant developed an outline of the education curriculum for horse and livestock.
   b. The Extension Assistant drafted a horse owner BMP education booklet.

75% Complete

Subtask 3.4: TCE will integrate and coordinate the horse management educational program with the proposed FY06 projects, Lone Star Healthy Streams Program and Educational Programs Focused on Fecal Coliform Bacteria and Nutrient Runoff on Dairy Operations in the Leon Watershed, to provide the state with a comprehensive program for addressing bacteria from the major sectors of agriculture.

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 appropriate mechanism which enables individuals to take credit for participation in the education and training program.

The following actions have been completed during this reporting period:
   a. No activity this quarter.

0% Complete

TASK 4: Education and Outreach

Subtask 4.1: TCE will conduct educational and outreach programs in the Copano Bay watershed. TCE will coordinate with local SWCDs, TAES, NRCS, and others to deliver and evaluate the educational program. Specific educational programs to be delivered include:

- Urban Rancher Programs for small landowner
- Lone Star Healthy Stream Programs for cattlemen
- Wildlife management programs for landowners
- Horse management curriculum developed through this project for horse owners
- General water quality education for the general public
The following actions have been completed during this reporting period:

a. The Coastal Bend Feral Hog Management Symposium was held on October 11 at the Welder Wildlife Refuge. Information was provided to the 59 participants on a number of subjects including how hogs impact water quality and methods to reduce this problem.

b. On October 30, 2007, the Refugio County Extension Office conducted a program for 100 Refugio County 8th grade students and adults concerning watershed management and point and nonpoint source pollution for the Refugio County Earth Science Field Day. The Extension Assistant assisted.

c. On December 7, 2007, Refugio, Goliad, and Bee Counties conducted a rangeland symposium for 27 area producers. The symposium focused on watershed management, herbicide and pesticide usage, and IPM programming. The Extension Assistant also provided an overview of the Copano Bay Education Program at the symposium.

d. The Extension Assistant instituted a survey in the watershed through a cooperation with area feed stores to get an idea of how livestock owners are managing their land and animals. Through this effort, Extension hopes to establish a relationship with feed stores who will help in efforts to reach producers and see what areas of management need to be addressed as a priority. Results of the survey should be available next quarter.

e. Extension participated in two horse owner programs (in Karnes-Wilson and Lavaca-DeWitt Counties) that were outside of the target area. However, the Copano Bay Project was introduced, along with its mission and objectives for horse owners, and why the subject was important to them. In addition, methods of small landholder management and horse management to improve water quality (or reduce bacteria load) and improve or enhance watersheds within these properties and horse owning units were also discussed. There were over 150 in attendance at both meetings. In Karnes and Wilson counties, Extension reached owners of over 75 horses. Over 85% indicated some increase in knowledge in all areas. Both sessions included talks on feeding and nutrition, grazing management and fecal management, mostly developed from the work of the Extension Assistant in this project.

30% Complete

Subtask 4.2: TCE will conduct result demonstrations and associated Ag Tours to show changes in livestock behavior and estimated reductions in bacterial runoff resulting from implementation of various value-added BMPs to area landowners and producers. GPS collars will be used to track livestock movement in correspondence with implementation of various BMPs to demonstrate changes in livestock behavior.

The following actions have been completed during this reporting period:

a. Extension secured a grant for $3500 from the Grazinglands Conservation Initiative – Texas Coalition to conduct a project on “Cattle Grazing Distribution Patterns Using GPS/GIS Technology”. This project will be conducted in the spring of 2008 on the Welder Wildlife Refuge and McCan Ranch, both in the Copano Bay watershed.
b. Drs. Lyons and Hanselka are Co-PIs on the Grazinglands Conservation Initiative project and the Extension Assistant will assist.

c. The Extension Assistant has assisted with the installation of sampling equipment on the Welder Wildlife Refuge through the Lone Star Healthy Streams Project to demonstrate the effect of grazing management on bacteria levels in runoff.

30% Complete

Subtask 4.3: TCE will provide one-on-one assistance to landowners and producers on water quality issues and measures for improving them. When appropriate, TCE will facilitate communication between landowners and local soil and water conservation districts and the NRCS to encourage conservation plan development and participation in available cost-share programs.

The following actions have been completed during this reporting period:

a. No activity to report this quarter.

30% Complete

Subtask 4.4: TCE will distribute educational material and publications to landowners in the watershed through BMP exhibits, county programs, Ag Tours, and other educational programs.

The following actions have been completed during this reporting period:

a. BMP’s related to fertilizer application was discussed in a November newsletter that reached over 550 producers in Nueces County.

30% Complete

Subtask 4.5: TCE will utilize local media to promote events, and publications to promote various BMPs to landowners and natural resource professionals.

The following actions have been completed during this reporting period:

a. No activity to report this quarter.

30% Complete

Subtask 4.6: Utilizing participants’ surveys, TCE will 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 to report this quarter.

30% Complete
III. Related Issues/Current Problems and Favorable of Unusual Developments

- The name of Texas Cooperative Extension (TCE) was changed to Texas AgriLife Extension Service (Extension), effective January 1, 2008.

IV. Projected Work for Next Quarter

- TWRI will schedule a meeting with project participants next quarter to discuss project activities, commitments, and timeline.
- TWRI will prepare and submit the Year 1, Quarter 4 Progress Report on January 15, 2008.
- The website will be continually updated as new data and information are obtained.
- The Extension Assistant will seek approval from Extension, TPWD, NRCS, and the Welder Wildlife Foundation on the final animal numbers for the watershed.
- The Extension Assistant will continue assembling the education program.
- The Extension Assistant will finalize the feed store survey results.
- The *Cattle Grazing Distribution Patterns Using GPS/GIS Technology* project will be conducted in on the Welder Wildlife Refuge and McCan Ranch.