Pecos River Basin Assessment Program
FY04 CWA Section 319(h)
TSSWCB Project No. 04-11

Quarter no. 5 From 10/01/05 Through 12/31/05

I. Abstract

Insufficient rainfall has resulted in the absence of flow in tributaries throughout the basin. As a result, soil sampling, measurements of river cross-sections, and observation of riparian vegetation were made in November 2005 in coordination with personnel from Texas Clean River's Program to assess saline water sources entering the Pecos. Preliminary analysis of salt loading in the basin and water salvage resulting from saltcedar control has begun to expedite completion of the project upon approval of the QAPP submitted to the TSSWCB and EPA this quarter.

Team members are currently producing a multi-layered interactive map of the Pecos River basin. Collection of historical water quality, irrigation delivery, rainfall, lake level, and groundwater monitoring data continued. Work also continued on the development of a historical fact sheet. Finally, an annual report was completed describing the accomplishments of the first year of the project.

II. Overall Progress and Results by Task

TASK 1: Basin Assessment

Subtask 1.1: Aerial Photography, Delineation, and Characterization

The following actions have been completed during this reporting period:

a. The aerial photography portion of this subtask has been completed, and the images have been used to support activities in other subtasks.
b. Team members are currently producing a multi-layered interactive map of the Pecos River basin from its source waters to its confluence with the Rio Grande. This has recently been added to this subtask, and will decrease the percent completed figure that was previously reported.

90% Complete

Subtask 1.2: Historical Water Quality, Irrigation Delivery, Rainfall, Red Bluff Lake Levels, and Groundwater Monitoring

The following actions have been completed during this reporting period:

a. Much of this subtask focused on data gathering and compiling reports and information sources that will benefit project participants. Some of the data that were gathered during this quarter includes the following:

- AQUATOX model training
- 1899 Irrigation Data from USDA
- USDA-ARS Riparian Buffer Effectiveness field tool and model
- TPWD publications information on vegetation, birds, desert springs fishes, golden algae, prairie dogs, waterways analysis, etc.
- National AG Statistics Website
- USDA State Marketing Profiles Link
- Web links to Water Quality Information Center at National Agricultural Library
- Information on EPA's Watershed Academy web cast training for Water Quality Protection

50% Complete

Subtask 1.3: Aquatic Life and Habitat Inventory

The following actions have been completed during this reporting period:

a. Work on this subtask is scheduled to begin in 2006.

5% Complete

Subtask 1.4: Identify and Characterize the Volume and Quality of Tributaries and Springs

The following actions have been completed during this reporting period:

a. Tributaries previously identified were checked for measurable quantities of water to be sampled on two occasions. Insufficient rainfall, and consequently absence of flow, has prevented any successful water sampling.

25% Complete

Subtask 1.5: Identify and Characterize Saline Water Sources Entering the Pecos River

The following actions have been completed during this reporting period:

a. The final site visit involving soil sampling, measurements of river cross-sections, and observation of riparian vegetation was made in November 2005 along with personnel from Texas Clean River's Program. The data are being analyzed and will be incorporated into the Reconnaissance report.

95% Complete

Subtask 1.6: Simulate Flow and Salinity of the Pecos River for Evaluating River Management Options

The following actions have been completed during this reporting period:

a. A preliminary analysis of salt loading into Red Bluff Reservoir was made, and testing of a simple model to estimate outflow salinity from inflow data was initiated for Red Bluff.
b. A preliminary analysis of flow and salinity data between Red Bluff and Girvin has also begun. This analysis indicates that the reach between Red Bluff and Girvin is made of two distinct hydrological features: large seepage above Pecos, and saline water intrusion into the Pecos below Coyanosa.
c. Preparations were made to initiate stream flow and salt routing simulation using the SWAT as the starting model. The current modification focuses on the introduction of two-dimensional seepage components.

25% Complete

Subtask 1.7: Economic Modeling of the Pecos River Basin and Assessment of Saltcedar Control Activities

The following actions have been completed during this reporting period:

a. The principle investigator for this subtask has been called up for active duty in the Army National Guard, and will not return until 2007. As such, work on this subtask will be postponed until his return.

8% Complete

Task 2: Educational Programming

Subtask 2.1: Publish Written Informational Materials to Educate Private Landowners, Stakeholders, and Policy Makers about the Pecos River basin and the effects of saltcedar

The following actions have been completed during this reporting period:

a. Work has continued toward the development of a historical fact sheet that will present information about how water use and water quality in the Pecos River basin have evolved since the beginning of Anglo-American settlement in the early 1800s.

40% Complete

Subtask 2.2: Educational Meetings of Interested Parties for Input and Organizational Support

The following actions have been completed during this reporting period:

a. The project was presented to ranchers from Ward, Ector, and Crane counties at a Rangeland Watershed Monitoring Workshop in Odessa, TX.
b. The program was briefly discussed and brochures were handed out to over 200 school youths and teachers at Pecos County Ag Day in Fort Stockton, Texas.
c. Plans are underway for holding stakeholder watershed meetings on the lower end of the river. A Pecos River symposium to be held in Fort Stockton, Texas is also in the planning stages. The symposium will include stakeholder involvement and feedback as well as technical sessions on various topics associated with the river.

30% Complete

Subtask 2.3: Develop a Website for Dissemination of Information

The following actions have been completed during this reporting period:

a. Ongoing activities and updates were posted to the project website.

80% Complete

Task 3: Establish a Monitoring Program

Subtask 3.1: Develop a QAPP for Sampling Protocol

The following actions have been completed during this reporting period:

a. The project QAPP was completed. The final version was submitted to TSSWCB, approved, and forwarded to the EPA for their review.

90% Complete

Subtask 3.2: Water Quality Monitoring, including Total Dissolved Solids (TDS), Total Suspended Solids, Potential Hydrogen (pH), Dissolved Oxygen (DO), and Electrical Conductivity (EC)

The following actions have been completed during this reporting period:

a. No water quality samples were taken this quarter due to complications that arose with the contract laboratory used by the Texas Clean Rivers Program.

30% Complete

Subtask 3.3: Quantity and Fate of Water Salvage as a Result of Saltcedar Control

The following actions have been completed during this reporting period:

a. Verified the profile data and identified data gaps.
b. Planned for additional profile data collection and flow measurement upon approval of QAPP.
c. Analyzed water level monitoring data using statistical methods.
d. Presented a paper at American Geophysical Union annual conference.

35% Complete

Task 4: Watershed Protection Plan

Subtask 4.1: Develop Annual Reports and a Final Report Summarizing Basin Assessment, Educational Programming, and Monitoring

The following actions have been completed during this reporting period:

a. The annual report covering activities accomplished during year one has been completed and submitted to TSSWCB.

25% Complete

Subtask 4.2: Produce the Final Watershed Protection Plan for Pecos River Segments 2312, 2311, and 2310

0% Complete

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

- An extension may be needed to allow additional flow data collection and data analysis.

IV. Projected Work for Next Quarter

The following will be accomplished during the coming quarter:

Subtask 1.1 – Work will continue towards the completion of a multi-layered Pecos River basin map.

Subtask 1.2 – Additional research, data links, and information sources will be provided to the team.

Subtask 1.3 – No activities planned.

Subtask 1.4 – Selected tributaries will be sampled if measurable water quantities exist.

Subtask 1.5 – No activities planned.

Subtask 1.6 – Complete the modification of the routing model embedded in SWAT, then begin validation using the USGS data. Begin the formulation of riparian zone simulation.
Subtask 1.7 – No activities planned.
Subtask 2.1 – Continue work on the historical fact sheet. Publish an article in Texas Riparian Newsletter regarding the project.
Subtask 2.2 – Continue planning stakeholder watershed workshops and Pecos River symposium.
Subtask 2.3 – Post updates and documents to the project website.
Subtask 3.1 – Distribute the QAPP to team members upon approval by the EPA.
Subtask 3.2 – Routine water quality samples will be collected as part of monitoring activities carried out through the Texas Clean Rivers Program.
Subtask 3.3 – River bed profile data will be collected at both sites and profiles will be finalized. Pumping tests will be conducted in the boreholes to determine hydraulic properties of the shallow aquifer. Water level monitoring data will be analyzed in order to determine the relationship between surface water and groundwater. An interim report will be prepared.
Subtask 4.1 – No activities planned.
Subtask 4.2 – Using information gathered during the first year of the project, work will begin on the first draft of the Watershed Protection Plan.