Capabilities

The Water Science Laboratory at the Texas A&M AgriLife | Blackland Research and Extension Center (BREC) is managed by Dr. June Wolfe III. The lab has completed more than $8M in grant projects in its two decade history. Capabilities include: stream flow determination via Acoustic Doppler Current Profiling, qualification and quantification of dissolved nutrients using Ion Chromatography, field determination of physical water quality using multi-parameter probes, culture and enumeration of coliform bacteria including E. coli, sediment concentration determination using gravimetric methods, and environmental data logging using automated measurement, sampling and telemetry systems. Water flow and entrained constituent measurements are used to evaluate erosion, sedimentation, and eutrophication. Water quality and hydrological assessments are used to examine aquatic and terrestrial processes.

Current Projects

The Water Science Lab evaluates sediment and erosion on the Fort Hood Military Reservation. This project has continuously monitored numerous locations on the reservation since 1995 examining vegetation effect, training effect, and management practice effect on erosion. Annual sediment export measurements are included in Fort Hood’s Range and Training Land Assessment program. This long-term data set continues to generate interest and has led to additional projects, domestic and international collaborations, and graduate studies.

The lab is collaborating with the USDA, Agricultural Research Service (Temple, TX) to determine irrigation canal seepage rates and develop a water balance model for the Soil and Water Analysis Tool (SWAT). The SWAT computer simulation model will be used to determine the environmental sustainability of biofuel feedstock in Hawaii.

The Water Science Lab maintains international relationships with several researchers from Shimane University in Matsue, Japan. Past activities have included symposium invitations and a National Science Foundation/Japanese Society for the Promotion of Science fellowship. The lab has an on-going effort evaluating heavy metal distribution patterns in alluvial sediments present in Texas and Japanese rivers.

The Water Science Lab is conducting hydrologic monitoring of the Nature Conservancy’s Clymer Meadow Preserve near Celeste, TX and the 77 Ranch near Corsicana, TX. Instrumented watersheds are used to document hydrologic character of differing prairie communities and management practices. This is an effort in cooperation with Dr. Bill Fox of the Department of Ecosystem Science and Management, Texas A&M University.