

arroyo colorado watershed protection

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The Arroyo Colorado, an ancient channel of the Rio Grande, flows 90 miles through Hidalgo, Cameron and Willacy counties in the Lower Rio Grande Valley of Texas. Water flow in the Arroyo Colorado is sustained by wastewater discharges, agricultural irrigation return flows, urban runoff and base flows from shallow groundwater. Elevated levels of fecal coliform bacteria and low dissolved oxygen have severely impacted recreational use of the lower Arroyo Colorado for fishing and swimming. In 2002, the Texas Commission on Environmental Quality (TCEQ) determined in a Total Maximum Daily Load study that a 90 percent reduction of nutrients and biochemical oxygen demand was needed to achieve healthy waters.

The Arroyo Colorado Watershed Partnership (ACWP) was established to help restore the watershed, and in 2007, the partnership published the Arroyo Colorado Watershed Protection Plan (AC WPP) that identified and addressed impairments and concerns in the watershed.

Since 2007, the Texas Water Resources Institute (TWRI) has coordinated the Arroyo Colorado program working closely with the ACWP, TCEQ and Texas State Soil and Water Conservation Board (TSSWCB) to implement projects to improve water quality of the Arroyo Colorado.

Completed Projects

- Education of Best Management Practices in the Arroyo Colorado
- Arroyo Integrated Farm Management Program

- Pesticide Education in the Coastal Zone of the Arroyo Colorado
- Public Service Announcements for the Arroyo Colorado Watershed
- Monitoring of Arroyo Colorado Wastewater Treatment Plants
- SWAT Modeling Simulation of the Arroyo Colorado Watershed
- Arroyo Colorado Watershed Protection Plan Implementation
- Enhancing Water Quality and Dredged Material for the Port of Harlingen (Phase I)
- Arroyo Colorado Agricultural Nonpoint Source Assessment

TWRI is currently coordinating three projects directed toward achieving the goals set in the AC WPP and updating the plan. The updated AC WPP will guide the implementation efforts in the watershed from 2015 into the future.

Cost-Share Education

- Continue education programs and enhance coordination of outreach and education of TSSWCB projects
- Increase the adoption rate of best management practices and water quality management plans by producers
- Reach producers that have not yet participated in technical and financial assistance programs in the Arroyo Colorado watershed



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Sustainability of the ACWP and Continued Implementation of the AC WPP

- Successfully continue implementation of the AC WPP by maintaining local steering committee and work group support and infrastructure
- Assess the increase in local stakeholder knowledge of watershed functions
- Implement tasks and goals outlined in the AC WPP
- Develop a sustainable program to support the AC WPP

Update of the AC WPP

- Review original AC WPP to identify data gaps and emerging issues in the watershed. Once identified, the data gaps and emerging issues will be addressed by incorporating them into AC WPP update.
- Complete SWAT, EDFC & WASP models with the resulting loading reductions incorporated into AC WPP update

Projects Accomplishments

- Projects have resulted in completion of 75 percent of the goals set in the AC WPP.
- Agricultural producers have adopted best management practices resulting in 109,188 acres under water quality management plans.
- Ten Wastewater Treatment Plants (WWTPs) have completed construction on upgrades/expansion to the WWTP infrastructure.
- Three cities, La Feria, San Juan and San Benito, have installed constructed wetlands at their respective WWTP to act as polishing ponds to treat the effluent before entering the Arroyo.

- Twenty-two *colonias*, 2,629 connections and more than 175 residents have been connected to central wastewater systems.
- More than 45,000 individuals have viewed the watershed demonstration model.
- Approximately 7,000 agriculture producers have attended educational meetings and workshops.
- The annual soil testing campaigns, partly funded through an ACWP project, have educated more than 6,200 producers and collected almost 3,900 soil samples.

Collaborators

- Arroyo Colorado Watershed Partnership
- Texas AgriLife Extension Service
- Texas AgriLife Research
- Texas Water Resources Institute
- Texas A&M University – Kingsville
- Texas A&M University Spatial Sciences Laboratory
- USDA Natural Resources Conservation Service
- University of Texas at Brownsville
- University of Texas at Arlington
- Allen Plummer and Associates

Funding Agencies

- Texas State Soil and Water Conservation Board
- Texas Commission on Environmental Quality
- Texas General Land Office
- U.S. Environmental Protection Agency



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