TWRI

ANNUAL REPORT 2014

Texas Water Resources Institute

make every drop count

TWRI.TAMU.EDU

WHO WE ARE

Securing and maintaining ample, clean water is one of the most significant challenges facing Texas today. We need strategic and innovative solutions for the serious water supply and water quality issues across the state. Economic growth, ecological sustainability, public health and continued food production depend on sustainable water supplies.

Established in 1952 and designated in 1964 as the water resources institute of Texas by the Legislature and Governor, the Texas Water Resources Institute (TWRI) at Texas A&M University has helped solve pressing water issues for more than 60 years.

As one of 54 institutes in the National Institutes for Water Resources funded by the U.S. Geological Survey, we are charged with not only working within Texas A&M, but collaborating with other universities, departments, research and extension centers and various organizations to offer holistic and effective approaches to addressing the critical water resources issues of our time.

WHAT WE DO

Our work centers around 3 program areas:

- Water Quality Improvement
- Water Sustainability and Security
- Water Resources Outreach and Training

LOCATIONS

As a unit of Texas A&M AgriLife Research, the Texas A&M AgriLife Extension Service and the College of Agriculture and Life Sciences at Texas A&M, our faculty and staff are located at 2 offices: College Station and Weslaco.

2 INSTITUTES, 1 MISSION

Since land and water activities are intrinsically linked, TWRI is closely allied with the Texas A&M Institute of Renewable Natural Resources to address a wide range of natural resource and water issues. The 2 Institutes share resources and the expertise of more than 60 full-time professionals and support staff. Working together, we accomplish what a single principal investigator or department could not normally do alone.

$2,958,748

TOTAL TEXAS WATER RESOURCES INSTITUTE FUNDING IN 2014

2014 HIGHLIGHTS

In 2014, the Institute continued to further its mission with numerous productive activities and achievements.

- Our watershed programs continued to grow and gain greater recognition.
  - Watershed services were expanded to include not only bacterial source tracking and watershed assessment and planning, but also watershed monitoring.
  - The U.S. Environmental Protection Agency accepted the Buck Creek Watershed Protection Plan, culminating a 10-year collaboration. The plan led to the restoration of Buck Creek.
  - The TWRI-led Bacterial Source Tracking team received the 2014 College of Agriculture and Life Sciences Dean's Outstanding Achievement Award for Interdisciplinary Research.

- We supported local invasive species control efforts by transitioning our Caddo Lake Giant Salvinia Eradication production facility of giant salvinia weevils to local stakeholders.

- Our Texas Watershed Planning Short Course was recognized as a 2014 Texas Environmental Excellence Award finalist in the education category.

- Recognizing the importance of water to Texas, AgriLife Leadership sought to strengthen the expertise of TWRI by initiating a nationwide search for a highly qualified institute director.

WATER QUALITY IMPROVEMENT

Our *Water Quality Improvement Program* helps stakeholders identify, develop and implement effective management strategies to address local water quality concerns. Throughout Texas, we assist communities with water quality evaluations, watershed assessments and watershed-based plans.

We partner with AgriLife Extension to successfully engage the public in identifying and implementing effective strategies and to demonstrate and evaluate innovative best management practices. We work with AgriLife Research to evaluate watershed conditions using modeling and water quality monitoring and assessment.

PROJECT HIGHLIGHT: WATER QUALITY MONITORING AND WATERSHED PLANNING

Monitoring the water quality of Texas' streams, rivers and lakes is an important component of managing the state's water. Our water team has the expertise and experience needed to provide communities and organizations reliable water quality monitoring data they need to identify and better understand potential causes and sources of local water quality impairments. We collect water quality data, conduct watershed surveys and analyze information.

Our water team is a statewide leader in watershed planning and implementation. With more than 4 decades of combined experience, the team can efficiently guide communities in developing science-based and stakeholder-supported plans necessary for restoring local water bodies.

Project Impacts

- Monitored 18 sites in the Navasota River, Arenso Creek and Carters Creek watersheds
- Led stakeholder-driven watershed planning in 7 watersheds: Arroyo Colorado, Attoyac Bayou, Copano Bay, Matagorda Bay, Navasota River, Lake O' the Pines and Upper Llano River

WATER SUSTAINABILITY AND SECURITY

Our *Water Sustainability and Security Program* centers on securing municipal and agricultural water supplies. Increased demand coupled with declining supplies threatens the state's water resources, and prolonged drought and invasive species add further pressure to existing water supplies.

To secure water for the future, Texas needs new technologies, increased conservation, policy innovations and diverse sources of water. We collaborate with researchers and Extension professionals throughout the state and nation and work with all levels of governmental agencies to provide science-based solutions to these problems and the education and outreach required to ensure execution of those solutions.

PROJECT HIGHLIGHT: AUTOMATED METERING INFRASTRUCTURE

Efficient household water use is crucial to meeting Texas' future water demands.

TWRI and Texas A&M Engineering have partnered with several utilities through the *Achieving Household Water-Use Efficiency Using Automated Metering Infrastructure (AMI)* project to provide detailed water use information to residential users. Using AMI technology, also known as smart meters, utilities can read water meters from a central location and make this hourly residential water use data available to enrolled residents via a web portal developed by the project team or via email. This data better informs residents of their water usage, detects potential leaks and encourages water conservation.

Project Impacts

- Developed a web portal that contains account information and generates daily and weekly email alerts, high usage alerts, leak alerts, neighborhood comparisons, water use estimates, bill estimates and conservation education materials
- Provided water usage data to 800 people through the web portal
- Identified measured predictors of water use among residential users

WATER RESOURCES OUTREACH AND TRAINING

Our *Water Resources Outreach and Training Program* meets the needs of not only interested citizens and landowners, but also water professionals and students.

Research has shown that the more Texans know about their water resources, the more likely they are to participate in water conservation and protection. Our training programs for the public convey best management practices essential to managing our water resources. We also raise public awareness about water resources and the importance of practicing good water stewardship through our publications, social media channels and websites.

Water professionals need to keep abreast of emerging water management tools to address critical water issues, and our courses effectively transfer new science and technology from universities to these professionals. As a leader in watershed planning in the state, we conduct a variety of trainings for water professionals who are working on watershed planning programs and total maximum daily load plans.

PROJECT HIGHLIGHT: TEXAS RIPARIAN PROGRAM

Texas has more than 191,000 miles of streams and rivers with riparian areas — the green vegetation zones adjacent to them. These ecosystems provide significant economic, social and environmental value to the state and play an important role in water issues facing Texas.

Our *Texas Riparian and Stream Ecosystem Education Program* delivers educational workshops to landowners and other citizens to improve their understanding and management of riparian zones. The workshops cover the structure and function of riparian zones and associated vegetation, local technical resources available to assist with their restoration and management, and other best management practices to reduce nonpoint source pollution to these areas.

Project Impacts

- Taught more than 685 stakeholders at 17 workshops
- Sponsored and co-hosted 4 conferences with 665 attendees and coordinated and/or presented at another 5 related workshops/conferences
- Conducted 10 presentations at other programs to more than 836 attendees
- Maintained the TexasRiparian.org website with more than 2,516 subscribers

2014: BY THE NUMBERS

GRANTS AND CONTRACTS

	Funding	Number of grants
Research	$2,585,044	15
Extension	$210,115	1
Total	**$2,795,159**	**16**

FUNDING AGENCIES

Texas A&M AgriLife Research, Texas A&M AgriLife Extension Service, Texas A&M Engineering Experiment Station, Texas Commission on Environmental Quality, Texas General Land Office, Texas State Soil and Water Conservation Board, USDA Agricultural Research Service, U.S. Geological Survey

12,700
Research and Extension contact hours

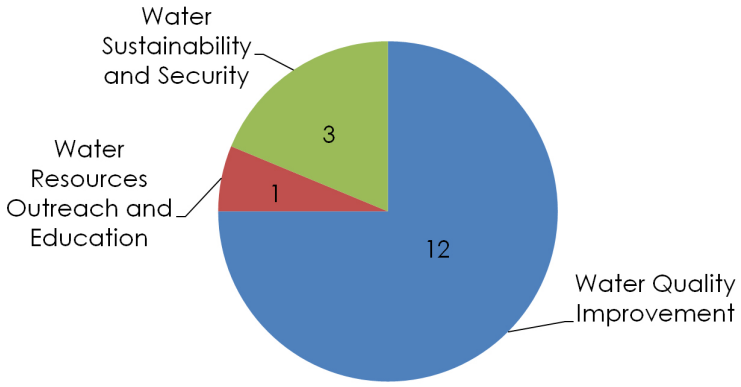
5,414
Attendees at 98 presentations given by staff at 65 events

3,503
txH$_2$O magazine subscribers

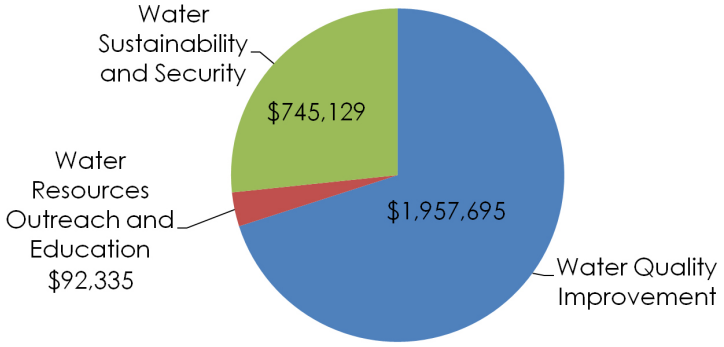
2,414
Conservation Matters subscribers

1,648
TWRI Twitter followers

PROJECTS BY PROGRAM AREA



FUNDING BY PROGRAM AREA



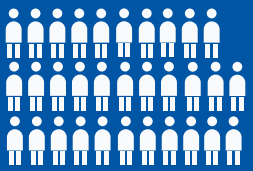
43 NEWS RELEASES

16 PUBLICATIONS

38 STUDENTS SUPPORTED

22 TRAININGS AND WORKSHOPS, WITH 1,186 TOTAL ATTENDEES

66 TWRI AND IRNR STAFF MEMBERS



32 College Station

16 San Antonio

6 In the field

5 Gatesville

5 D.C.

2 Weslaco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AgriLife
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