

# TWRI 2018

## ANNUAL REPORT

Helping Texans make every  
drop count since 1952

# WHO WE ARE

The Texas Water Resources Institute (TWRI) has helped solve Texas' water issues through research, education and outreach for 66 years.

Established in 1952, TWRI became the state's official water resources institute in 1964. Today, we are one of 54 institutes within the National Institutes for Water Resources, supported by the U.S. Geological Survey.

We provide science-based, community-supported solutions for the state's pressing water quantity and quality challenges through internal expertise and external collaborations.

Engaging with local stakeholders and the water resources community in Texas, we provide:

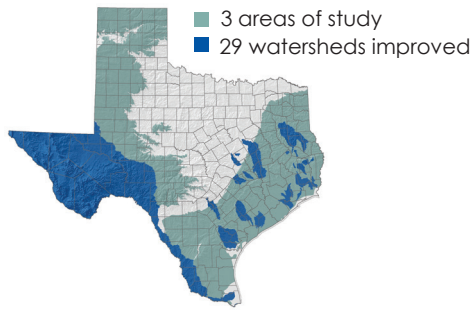
- project development and management
- stakeholder engagement
- watershed and aquifer assessment and planning
- bacterial source tracking
- water conservation research
- geospatial analysis
- professional training
- public outreach

We connect research teams and communities to multidisciplinary expertise by serving as a gateway to a national network of water institutes, the Texas A&M University System and other universities and water resources organizations.

We are 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 University.

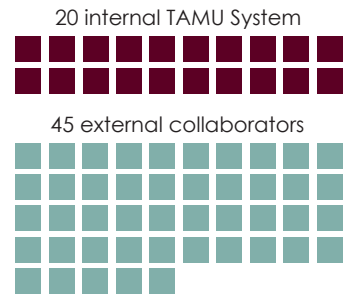
TWRI also collaborates with all Texas A&M System units engaged in water resources research and outreach, maintaining strong collaborations with the Texas A&M College of Engineering, the Water Management and Hydrological Science Program in the College of Geosciences, the Institute for Science, Technology and Public Policy in the Bush School of Government and Public Service and the Texas A&M Law School in Fort Worth.

# IMPACTS & ENGAGEMENTS



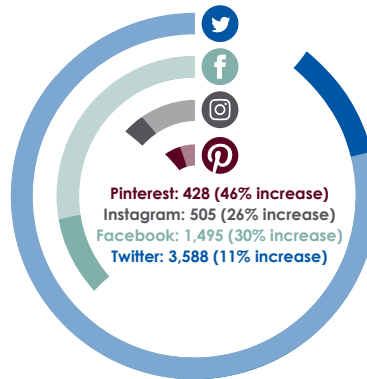
**\$4,988,968**  
— in new external grants —

## Project collaborations



65 total collaborators on 70 projects

## Social media followers



6,016 total followers (18% increase)

**59**  
news releases



**72**  
media mentions



**124**  
presentations to



**8,167**  
people in attendance



**19**  
students supported



**6,725**  
Facebook users engaged



**113,258**  
Facebook users reached



**39**  
publications



**4,771**  
txH<sub>2</sub>O magazine subscribers



**5,461**  
newsletters subscribers



# WHAT WE DO

## RESTORING & PROTECTING

Our Water Quality Improvement Program works with stakeholders to use sound science and public participation to restore impaired water bodies and proactively protect unimpaired watersheds across Texas, while also protecting human health.

## SUSTAINING & ENHANCING

Our Water Sustainability Program centers on increasing the value and the smarter use of municipal, industrial and agricultural water supplies to meet the increasing demand from Texas' growing population.

## ENGAGING & EDUCATING

Our Water Resources Outreach and Training Program serves interested citizens, students and water professionals to enhance their understanding of critical water issues and management practices.

## PROGRAM HIGHLIGHTS

### WATERSHED-BASED PROTECTION PLANNING

As a leader in restoring and protecting Texas watersheds, TWRI helps improve water quality through watershed-based plan development and implementation assistance. We have the expertise to gather and characterize watershed data; identify and evaluate pollutant loadings; and raise awareness through education and outreach. We help stakeholder groups develop a plan, secure funding for implementation and work with them to carry out the implementation plan.

Beginning with one of the first watershed protection plans (WPP) in Texas, the Arroyo Colorado WPP, we have helped develop 9 stakeholder-driven WPPs and are currently working on 4 more. We have also authored total maximum daily loads (TMDLs) and TMDL Implementation Plans in 7 watersheds. In 2018, we worked in 29 watersheds in some stage of watershed planning or plan implementation. Much of this work was funded by the Texas State Soil and Water Conservation Board and the Texas Commission on Environmental Quality.

### OGALLALA AQUIFER PROJECTS

TWRI is a partner in two U.S. Department of Agriculture (USDA)-funded projects—the Ogallala Aquifer Program and the Ogallala Water Coordinated Agricultural Project (CAP)—that are examining ways to extend the life of the aquifer and sustain agriculture and the rural economy.

Our fall 2018 issue of *txH2O* highlighted research and outreach activities of both Ogallala projects.

In 2018, we also participated in the Ogallala Water Summit, hosted by the Ogallala Water CAP and the Kansas Water Office. Over 200 water management professionals and stakeholders from all 8 Ogallala-region states attended to build cross-state relationships, encourage information exchange and identify opportunities. TWRI led the development of a white paper presented at the summit that assessed the Ogallala Aquifer in Texas from an integrated physical-management-policy perspective and outlined future efforts needed to help sustain agricultural systems in the Ogallala region in Texas.

### TEXAS WATERSHED PLANNING PROGRAM

Our Texas Watershed Planning Program provides needed training and sustainable proactive approaches to managing water quality throughout the state to watershed coordinators and other water resources professionals.

The multi-day Texas Watershed Planning Short Course provides guidance on stakeholder coordination, education and outreach; meeting Environmental Protection Agency's 9 key elements of a WPP; data collection and analysis; and tools available for plan development. The only watershed planning short course in the state, it has educated more than 284 water professionals—including almost every watershed coordinator in Texas—through 10 courses over 10 years, ensuring watershed protection efforts are adequately implemented and improving water quality restoration efforts statewide.

The program has also hosted 19 biannual Texas Watershed Coordinator Roundtables and 31 other courses designed to increase watershed professionals' expertise.



# EXPANDING OUR IMPACT

## WORKING INTERNATIONALLY TO MAKE EVERY DROP COUNT

### NEW PARTNER: UNITED NATIONS FOOD AND AGRICULTURE ORGANIZATION

TWRI represents the Texas A&M System with the United Nations Food and Agriculture Organization (FAO) through a Memorandum of Understanding. We participate in an international task force—FAO Adaption to Water Scarcity in Agriculture (WASAG) Task Force—that is tackling the challenge of better using water in agriculture to ensure food security.

With Texas A&M System's expertise in transboundary groundwater resources, we are also working with FAO to advance the scientific understanding of transboundary groundwater systems that cross multiple jurisdictions to improve water management and security.

### TRANSBOUNDARY AQUIFER SCIENCE AND MANAGEMENT

We continue to lead the Texas A&M Transboundary Groundwater Science, Management and Governance initiative, a collaborative effort with the Bush School of Government and Public Service, the School of Law and the College of Geosciences. We also participate in the Transboundary Aquifer Assessment Program (TAAP) along the U.S. and Mexico border. In 2018, our director chaired the American Water Resources Association conference, "The Science, Management and Governance of Transboundary Groundwater," centered on discussing the newest developments in transboundary groundwater research and practices and innovative approaches for developing sustainable governance and management systems. One of our senior research scientists is a recognized expert in transboundary science, publishing peer-reviewed papers and facilitating discussions at numerous conferences.

### EXPANDING RESEARCH PROGRAMS

For the last few years, TWRI has successfully collaborated with other universities in obtaining USDA National Institute of Food and Agriculture's Agriculture and Food Research Initiative (AFRI) grants, the nation's leading competitive grant program for agricultural sciences. TWRI is a subcontractor for the Ogallala Water CAP led by Colorado State University and is the lead on the Rio Grande AFRI, "Diversifying the Water Portfolio for Agriculture in the Rio Grande Basin." The Rio Grande team is investigating alternative water sources, new crops, management practices and improved water conservation to sustain agriculture in the basin. We are also a subcontractor on a new University of Florida-led project, "SmartPath: Grower-directed Convergence of Nanotechnology and Smart Decision Analytics for Irrigation Water Quality Management Related to Pathogens." This project will test new technology to encourage producers to use alternatives to fresh water by using new smart irrigation systems.

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