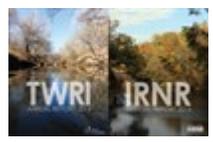


# Conservation Matters

THE TEXAS LAND, WATER AND WILDLIFE CONNECTION

## [New institute annual reports](#)



Continuing to work together towards the conservation of land, water and wildlife, the [Texas A&M Institute of Renewable Natural Resources](#) (IRNR) and the [Texas Water Resources Institute](#) (TWRI) both experienced growth and had positive impacts in 2014.

IRNR and TWRI received a total of \$9,968,278 in funding in 2014 and administered 57 research and Extension projects. Time spent by institute personnel on educating the public in water and natural resource issues through presentations, workshops and conferences totaled more than 22,000 hours. The institutes continue to collaborate on a wide range of research and outreach efforts and share the expertise of more than 60 full-time professional and support staff.

For a complete overview of the institutes' recent accomplishments, read IRNR's full Annual Report at [irnr.tamu.edu/about](http://irnr.tamu.edu/about) and TWRI's at [twri.tamu.edu/about](http://twri.tamu.edu/about).

## [AMI water utilities workshops coming to cities across Texas](#)



The Texas Water Resources Institute (TWRI), Texas A&M Engineering and Johnson Controls Inc. are hosting advanced metering infrastructure (AMI) system workshops for water utilities in cities throughout Texas in coming months.

The first four workshops will be held in May:

- San Marcos: **May 6**, Meadows Center for Water and the Environment, 601 University Drive
- Waco: **May 7**, city of Waco water office, 425 Franklin Ave.
- Weslaco: **May 13**, AgriLife Center, 2415 E Hwy. 83.
- Robstown and Corpus Christi: **May 14**, Texas A&M AgriLife Extension Service office, 710 E. Main Ave., Suite 1, Robstown.

All of the workshops are free and from 10 a.m.–2 p.m. Participants should preregister for the workshops at [nrt.tamu.edu/ami](http://nrt.tamu.edu/ami), and lunch will be provided to those who preregister. Seating is limited to 45 people.

**Dr. Allen Berthold**, TWRI research scientist, said the trainings are open to municipal employees interested in learning more about various aspects of AMI system technology. The technology uses water meters to wirelessly transmit hourly household water usage information to water utilities and then potentially to water users through a customer website.

“Efficient household water use is crucial to meeting Texas’ future water demands,” Berthold said. “Using AMI system technology can help water utilities be more efficient by detecting and managing leaks and encouraging water conservation by residents.”

**Craig Hannah**, engineering manager for Johnson Controls' municipal utility solutions team, said training topics include AMI system components, transmitting options, network topology, mobile automatic meter reading versus fixed-base AMI, line-of-sight communications, comparisons of AMI systems for water-only utilities, health and privacy concerns, installing AMI, a business case and lessons learned.

"The trainings will provide utilities considering the adoption of an AMI system with different viewpoints and key factors that they should consider," Hannah said.

"Participating in this training is a great opportunity to not only learn about various topics related to AMI systems, but also to network with other utilities and gain some insight into their key considerations and lessons they have learned thus far," Berthold said.

Berthold will also present information on a current AMI technology research project of Texas A&M AgriLife Research, Texas A&M AgriLife Extension Service, TWRI and Texas A&M Engineering.

"This project aims to measure changes in water consumption as a result of making hourly water use available to residents," he said.

The full schedule of all ten upcoming workshops, training details and registration are available at [nrt.tamu.edu/ami](http://nrt.tamu.edu/ami). Contact Berthold at 979.845.2028 or [taberthold@ag.tamu.edu](mailto:taberthold@ag.tamu.edu) for more information.

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## [Soil and Water Stewardship Week is April 27-May 4](#)



The Texas Water Resources Institute (TWRI) and Texas A&M Institute of Renewable Natural Resources (IRNR) have partnered with the Association of Texas Soil and Water Conservation Districts, Texas Wildlife Association, Texas State Soil and Water Conservation Board and 13 other organizations to highlight the important connection between voluntary land stewardship and sustaining water availability as part of [Soil and Water Stewardship Week, April 27-May 4](#).

This year's theme for the statewide campaign is "Land Stewardship: Providing Water for Texans."

"How landowners manage their resources on private lands directly impacts the water resources available for public use," said **Dr. Roel Lopez**, IRNR's director.

"Responsible and sustainable land stewardship increases the ability of open land to absorb rainfall, replenish aquifers and ensure that water drains slowly and steadily into springs, streams, rivers and lakes, reducing run-off and helping to prevent flooding," Lopez said.

"With this campaign the different organizations hope to bring more awareness and support to voluntary land stewardship," said **Dr. Kevin Wagner**, TWRI's associate director.

Wagner said effective stewardship practices include prescribed grazing management by ranchers, the use of cover crops by farmers, wildlife habitat enhancement and the targeted removal of invasive brush species.

"Voluntary land stewardship is an efficient, cost-effective, and sustainable way to 'create' more water for homes, businesses, recreation, agriculture and wildlife," said **Jan Thompson**, member of the stewardship committee for the Association of Texas Soil and Water Conservation Districts.

Thompson said soil and water conservation performed in urban areas can also help supplement land stewardship efforts in rural ones.

“Urban Texans can become involved by practicing effective land stewardship at home, and in their neighborhoods, schools, and businesses,” Thompson said. “Small efforts, such as using plants in our home landscaping that require little water, can add up to major water conservation when practiced by millions of people across the state.”

Other partnering organizations in the public awareness campaign include Ducks Unlimited, Texas A&M Forest Service, Texas Parks and Wildlife Department, Texas Association of Dairywomen, South Texans’ Property Rights Association, Texas HORSE, Texas Deer Association, Plains Cotton Growers, Inc., Texas Poultry Federation, Texas Corn Producers, Taking Care of Texas, Trinity Waters and Texas Pork Producers are also partners in the campaign.

The partners developed a white paper on land stewardship, and it can be read [here](#).

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### [IRNR San Antonio office has moved](#)

The Texas A&M Institute of Renewable Natural Resources’ (IRNR) [San Antonio location](#) has moved and is now at 1919 Oakwell Farms Parkway, Suite 100, San Antonio, Texas 78218.

For more information, contact IRNR at 210.277.0292 or [irnr@tamu.edu](mailto:irnr@tamu.edu).

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### [Two open TWRI positions](#)

The Texas Water Resources Institute (TWRI) is actively seeking qualified individuals to fill two job openings.

The [research assistant](#) position, located in College Station, will lead TWRI’s water quality monitoring efforts throughout the state. Applicants may view this posting by going to

The [extension assistant](#) position, located in Weslaco, will lead educational programs for ag producers in South Texas on water quality best management practices.

All applications must be submitted through [greatjobs.tamu.edu](http://greatjobs.tamu.edu). Contact [twri@tamu.edu](mailto:twri@tamu.edu) for more information.

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### [Dove study finds no difference in lead and steel shot loads](#)



A recently published Texas Parks and Wildlife Department (TPWD) study examining the lethality of lead shot versus nontoxic shot for mourning dove found no difference in hunter outcomes between lead and steel shot loads.

“From the hunter’s perspective, we found no difference in the harvest metrics, meaning birds bagged, birds missed and birds wounded,” said [Dr. Brian Pierce](#), a research scientist for the [Texas A&M Institute of Renewable Natural Resources](#) and part of the research project.

Since 1991, federal law has prohibited hunters from using lead ammunition on waterfowl because ingested lead shot was linked to toxicosis. Scientific research at that time had shown that ducks were being poisoned by eating lead shot.

Because there is evidence that doves consume lead shot and groups are calling for similar regulations to be applied to migratory game birds such as doves, TPWD needed scientific data on the efficiency of using nonlead ammunition for mourning doves, Pierce said.

Since changing to nonlead ammunition could potentially affect a large group of hunters, TPWD conducted the study “to have information to provide to the public, particularly Texas hunters, as to whether nontoxic ammunition was going to be as efficient for harvesting birds as the ammunition they are currently using,” Pierce said. “We needed to know those answers for the hunting public and for management of the bird.

“The study was done proactively because no other lethality study has been done on shot shell ammunition of this pellet size or on birds of this size,” he said.

The study used volunteer hunters and observers in the field portion, conducted in Brown, Coleman and McCulloch counties in Central Texas. Hunters fired more than 5,000 shots, using three different shot shells, one lead and two steel. Neither the hunters nor observers knew the ammunition types being used. The ammunition was specifically manufactured for the study and identical in appearance.

“Hunters were unable to distinguish the ammunition type being used in the field, and we detected no relationship between ammunition type and level of hunter satisfaction,” Pierce said.

The researchers chose steel shot because steel is representative of shot sizes available commercially and is the cheapest.

“We used steel in particular because if there is a disparity due to pellet type, it is more likely to occur in steel rather than any other nontoxic type available,” he said.

Steel has the lowest density among available nontoxic pellet types, and if pellet density is the dominant factor influencing ammunition performance, then a difference is more likely to be detected using steel shot than any other commercially available nontoxic pellet type, Pierce said.

Recent dove hunter surveys indicate that some hunters believe nontoxic shot to be inferior to lead, according to a TPWD [news release](#) on the study.

“There continues to be a spirited national discussion on the use of lead and other types of shot and these results help inform one aspect of the conversation,” said **Corey Mason**, a TPWD wildlife biologist and an author of the study, in the news release.

Other authors of the study are **Thomas Roster**, an internationally recognized shotgun ballistics expert, and **Michael Frisbie** and **Jay Roberson** of TPWD.

For more information, read the TPWD [news release](#). For a detailed article on the study, read the paper, [A Comparison of Lead and Steel Shot Loads for Harvesting Mourning Doves](#), published in *The Wildlife Society Bulletin*.

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### [TWRI awards two U.S. Geological Survey graduate research grants](#)

The [Texas Water Resources Institute](#) (TWRI) has awarded [U.S. Geological Survey \(USGS\) graduate research grants](#) to two students for March 2015 – February 2016.

The grant recipients are:

- **Adam Landon**, Water Management and Hydrological Science Program at Texas A&M University. Advisors: **Dr. Ronald Kaiser**, Water Management and Hydrological Science; **Dr. Gerard Kyle**, Department of Recreation, Park and Tourism Sciences. Research: *Evaluating the efficacy of a long-term residential water conservation program in College Station, TX.*
- **Dora Frances Sullivan-González**, Department of Environmental and Water Resources Engineering, University of Texas at Austin. Advisors: **Drs. Lynn Katz** and **Desmond Lawler**, Department of Civil, Architectural and Environmental Engineering; **Dr. Benny Freeman**, McKetta Department of Chemical Engineering. Research: *Hollow fiber membrane air stripping for the removal of carbonate species in produced water from hydraulic fracturing.*

TWRI administers this program with funds from USGS, through the [National Institutes for Water Resources](#). Since 2001, TWRI has awarded more than \$645,000 in USGS grants to support 120 students in water-related fields. This program is supported by funding received from USGS through the Water Resources Research Act of 1984.

TWRI's USGS Graduate Research Program will begin accepting applications for March 2016 – February 2017 in fall 2015. The program is open to graduate students at all universities in Texas. For more information, see [twri.tamu.edu/what-we-do/educate/scholarships/usgs/](http://twri.tamu.edu/what-we-do/educate/scholarships/usgs/).

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### [Meet a Scientist: Anish Jantrania](#)



Despite the critical need to treat and reuse wastewater, many water consumers are unaware of the process, according to [Dr. Anish Jantrania](#) of Texas A&M AgriLife Extension. Transforming complex wastewater science into easily applied information is his mission.

“We all agree that water is important, but people tend to shy away from it because the whole subject matter is very complex,” said Jantrania, a wastewater specialist at the [Texas A&M AgriLife Research](#)

[Blackland Research and Extension Center](#) in Temple.

At the center, Jantrania is focusing on creating Extension and research programs about wastewater systems that are tailored to a variety of audiences. He teaches classes and seminars to homeowners, service providers, designers and others about on-site wastewater systems, such as septic systems, aerobic systems and decentralized wastewater systems.

Jantrania received a bachelor's from the University of Udaipur in India, a master's from The Ohio State University and a doctorate from Clemson University, all in agricultural engineering. He also holds a master's in business administration from West Virginia University.

“I was interested in water from day one,” said Jantrania, who has more than 25 years of experience in wastewater treatment in various locations. He began his career in wastewater treatment in 1989 at West Virginia University, where he worked with small-scale water and wastewater systems. Throughout his career, Jantrania has focused on water reuse and on-site wastewater systems.

Currently, Jantrania travels across Texas to deliver presentations about on-site wastewater systems, but he is looking to expand the center's educational tools. In particular, Jantrania wants to create individualized and easy-to-use online resources for the public.

“There are more than 2 million homes in Texas that are not connected to the public sewer,” he said. “All of these homeowners sometimes have questions. They are curious. They need to be reached out to. They need a place to go to.”

Specifically, Jantrania is developing a project known as [Sustainable and Integrated Water Infrastructure](#) (SIWI). The project will take a holistic approach to creating a more sustainable water infrastructure, focusing on reusing water in a way that protects public health and meets water demands, he said. Jantrania is also interested in reusing wastewater as drinking water in a safe and cost-effective way. “Right now we do a good job of cleaning up wastewater and putting it back in the environment safely, but we need to make that extra effort to bring it back into our drinking water loop.”



*Dr. Anish Jantrania*

SIWI will also focus on putting new technologies into practice. Real-world application has not caught up with the available technology, he said. “What is needed for the next 30, 40, 50 years is here today in terms of science and technology.”

Jantrania said current water infrastructure relies too heavily on the availability of rainwater. Storing and returning recycled wastewater to the ground would help mitigate water shortages, he said.

“Conservation is always good, but you can conserve only so much,” he said. “That’s where reuse, reclamation and desalination concepts come in handy.”

Educating people and helping them with their water needs is what Jantrania said he enjoys most about his job. “I enjoy talking to people, trying to understand their problems and helping them find solutions,” he said.

Looking at the future of water issues, Jantrania is optimistic.

“I have two choices, either to get depressed and feel like ‘We’re going to have a terrible situation!’ or be positive and work toward educating people for a better future. I’m choosing the second route.”

To learn more about Jantrania’s work, see this AgriLife Today [news release](#).

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## [RFP: Annual Army Corps of Engineers Institute for Water Resources grants](#)

The U.S. Army Corps of Engineers [Institute for Water Resources](#) (IWR), in cooperation with the [National Institutes for Water Resources](#) (NIWR) requests proposals for grants to support applied investigations in select topic areas related to water resources issues in the United States.

Grant proposals may request up to \$200,000 in federal funds, but proposals for lesser amounts are encouraged. There is no matching funds requirement for these awards. Proposals must be submitted by email to the NIWR-designated Water Resources Research Institute or Center, which for Texas researchers is the [Texas Water Resources Institute](#) (TWRI). The government’s obligation under this program is contingent upon the availability of funds.

All proposals must be submitted in PDF format by [email](#) to TWRI by **July 13** to be reviewed, approved and submitted to IWR.

The RFP is available [online](#). For more information regarding the submission process, contact **Danielle Kalisek** at 979.845.2781 or [dmkalisek@tamu.edu](mailto:dmkalisek@tamu.edu). Questions or comments concerning the review process or this RFP may be addressed to **Dr. Joe Manous** at 703.428.7074 or [Joe.Manous@usace.army.mil](mailto:Joe.Manous@usace.army.mil).

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## [SELECT model offers cost-effective way to identify areas for needed management](#)



A spatial model provides a cost-effective way to identify priority areas for implementing voluntary best management practices in an impaired South Texas watershed, according to results from a Texas A&M AgriLife Research and Texas Water Resources Institute (TWRI) study recently published in the [Texas Water Journal](#).

“The Spatially Explicit Load Enrichment Calculation Tool, or SELECT, was able to highlight areas of highest concern for bacterial contamination, which provides guidance for individuals and entities that implement best management practices where they would be the most effective,” said **Dr. Kevin Wagner**, TWRI associate director and a study author.

Wagner said because pathogens are the principal cause of water body impairments in Texas and across the United States, inexpensive and easy-to-use tools are needed to help develop restoration strategies and prioritize application of limited resources.

The paper is the result of an AgriLife Research and institute project conducted in the Copano Bay watershed, which contains the Mission and Aransas rivers that are impaired for bacteria, according to the state’s 2012 list of impaired waters.

The project’s goal was to help local watershed stakeholders develop a strategy to address bacterial contamination.

Researchers in Texas A&M’s Department of Biological and Agricultural Engineering and the Spatial Sciences Laboratory developed SELECT. The tool uses available data to rank potential sources and identify critical areas in a watershed, primarily using land use, population census, agricultural census data and data from wastewater plant discharges in the watershed, according to **Dr. R. Karthikeyan**, Biological and Agricultural Engineering associate professor, a developer of SELECT and an author on the paper.

“Simulation results using SELECT highlighted subwatersheds within the individual Aransas and Mission rivers watersheds that have the highest potential to contribute E. coli and Enterococcus amounts based on land-use distribution and the eight potential sources assessed,” Karthikeyan said.

“However, the amount of bacteria actually reaching the streams depends on several environmental factors including proximity to the creek, bacteria die-off, geomorphology, connectivity of stream network, temperature and other factors,” he said.

The potential sources evaluated were cattle, horses, goats, sheep, deer, feral hogs, dogs and humans through on-site sewage facilities and wastewater treatment plants.

Of the eight sources evaluated, the source ranking highest for potential E. coli and Enterococcus loads in both river watersheds was cattle, while septic systems, dogs and deer were the next highest contributors.

Other authors of the paper were **Kyna Borel**, Biological and Agricultural Engineering research assistant, and **Dr. Allen Berthold**, a TWRI research scientist.

Berthold said the study identified a number of limitations of SELECT, including that SELECT does not factor direct deposits of fecal material into the stream, which can have a major impact on instream bacteria concentrations.

“It’s important to note that SELECT was not able to fully estimate wildlife contributions because of the unavailability of wildlife data,” Berthold said.

He said this is significant as recent studies in similar rural watersheds led by the institute throughout Texas suggest wildlife contribute 42 to 65 percent, while cattle and other domestic animals supply only 14 to 29 percent.

“We are working with Biological and Agricultural Engineering researchers to improve the tool’s ability to evaluate wildlife contributions, bacteria transport and actual bacteria concentrations that reach a stream,” Berthold said.

Wagner said despite the tool’s limitations, its results have proven extremely helpful to the institute and local stakeholders working on the Copano Bay plan to concentrate on implementing voluntary practices in those areas where they are likely to have the greatest impact to improve water quality.

To read the Texas Water Journal paper, go to [texaswaterjournal.org](http://texaswaterjournal.org). The Texas Water Journal is an online, peer-reviewed journal published in cooperation with TWRI.

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### [Affordable private water well screenings coming to Llano, Goldthwaite](#)



The [Texas Well Owner Network](#) will offer water well screenings in May for Llano and Mills counties to give residents the opportunity to have their well water tested.

The screenings are presented by the Texas A&M AgriLife Extension Service offices in these counties in partnership with the [Texas Water Resources Institute](#).

“Private water wells should be tested annually,” said **John W. Smith**, AgriLife Extension program specialist.

He said individuals submitting well water samples should use only sampling bags and bottles from their AgriLife Extension office and should properly follow instructions to ensure accurate results. A \$10 per sample fee will be collected when bags and bottles are picked up by participants.

Dates, times and locations for the screenings are:

- **May 11** from 8:30-9:30 a.m. at the St. James Lutheran Church, Schorlemmer Hall, 1401 Ford St. in Llano. Sample bags and bottles can be picked up at the AgriLife Extension office for [Llano County](#), 1447 State Highway 71, Unit E in Llano. A meeting explaining screening results will be held at 6 p.m. **May 12** at the St. James Lutheran Church, Schorlemmer Hall.
- **May 13** from 8:30-10 a.m. at the AgriLife Extension office for [Mills County](#), 1011 4th St., which is in the basement of the Mills County Courthouse in Goldthwaite. Sample bags and bottles can also be picked up at the AgriLife Extension office. A follow-up meeting to explain screening results will be held at 6 p.m. **May 14** at the Mills County State Bank, 1101 Parker St. in Goldthwaite. Lisa Prcin, the Lampasas River Watershed coordinator, will also discuss ongoing programs.

Samples will be screened for common contaminants, including total coliform bacteria, E. coli, nitrates and high salinity.

For more information for the Llano County screening, call 325.247.5159; for the Mills County screening, call 325.648.2650. To learn more about programs offered through the Texas Well Owner Network or to find additional publications and resources, go to [twon.tamu.edu](http://twon.tamu.edu).

Support for the Texas Well Owner Network is provided through Clean Water Act nonpoint source funding from the Texas State Soil and Water Conservation Board and the U.S. Environmental Protection Agency.

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## [Urban Riparian Symposium brings together riparian professionals](#)



within them.

Even in cities, amidst the tall buildings, fast cars and busy people, there are still natural resources that need protection — particularly urban riparian areas, according to [Nikki Dictson](#), Texas Water Resources Institute (TWRI) Extension program specialist. These vegetative buffers found along rivers and streams are complex ecosystems that include the land, plants, animals and network of streams

Riparian and natural resource professionals discussed current innovations and issues in riparian restoration and management at the Urban Riparian Symposium **Feb. 11-13** in Austin. The symposium was hosted by TWRI, [Texas Riparian Association](#), the city of Austin, Texas Parks and Wildlife Department, Texas A&M Forest Service and Upper Trinity Regional Water District and included more than 55 presentations, 11 posters and three workshops.

Natural resource and water agencies' staff, river authorities' staff, policy makers, managers, landscape architects and engineers were among the 213 professionals attending, said Dictson, who organized the symposium. She said having professionals of various backgrounds helped make the event a success.

"Successful riparian projects require expertise from many different disciplines, so our goal was to help bring them all together to collaborate and discuss at one meeting," Dictson said.

Keynote speaker [Dr. Peter Groffman](#), a microbial ecologist with the Cary Institute of Ecosystem Studies, covered the impacts of urbanization on riparian soils and hydrology. Other presenters discussed management of riparian areas, policies associated with protecting riparian areas, outreach and education, restoration projects and case studies, Dictson said.

"We wanted to have interactions and discussions on urban riparian issues that everyone is facing, to discuss how these projects could become more effective, efficient and successful in Texas," she said.

Dictson said the 30-minute moderated discussion sessions, which occurred after concurrent sessions, led to productive conversations about lessons learned, data gaps, outreach and management strategies. This also led to more networking opportunities and interaction between researchers and practitioners, she said.

In addition to presentations, the symposium also facilitated a poster session, receptions and workshops. The workshops covered grant writing for urban riparian projects, managing riparian restoration in urban areas and managing vegetation in stream restoration projects.

To learn more, visit the Texas Riparian Association [website](#).

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## [Groundwater and conservation discussions dominate water symposium](#)



Water conservation and the management and science of groundwater dominated the discussions at a recent water symposium at Texas State University.

The Texas Tribune hosted the day-long event **March 10** that included panels on state water funding, groundwater, water conservation and the poor quality of drinking water along the Texas-Mexico border.

The first panel discussed water planning and funding in light of Proposition 6, the constitutional amendment that approved the legislature-created State Water Implementation Fund for Texas (SWIFT) program to provide financial assistance for projects in the [state water plan](#).

**Carlos Rubinstein**, Texas Water Development Board (TWDB) chairman, said the board authored the rules for the SWIFT fund and opened up the applications four months early. He said 48 projects, totaling more than \$5.5 billion, were submitted for the first window of funding. The board is now in the process of going through the 48 applications, making sure they meet the criteria, such as the projects being in the state water plan.

“Clearly, we will end up with more requests than we can fund,” Rubinstein said. “In the fall, we will issue the bonds for the ones funded.”

**State Rep. Jim Keffer**, House Natural Resources Committee chairman, said water is still a big conversation around the Capitol.

“We got the patient up and breathing last session,” he said, referring to the passage of Proposition 6. “But now we have to exercise him and make sure he is going to be healthy,” he said. “I think that is the vision after Prop 6.”

The panelists also emphasized the need to find new sources of water to meet the state’s needs.

“We know we have a tremendous amount of brackish water underneath our state, and the technology is there to use it and is getting better,” Keffer said. “Desalination is a huge part of our future.”

**Sid Miller**, Texas Commissioner of Agriculture, said the state has many options to consider for new sources of water: desalination, off-channel storage, salt dome storage and rainwater catchments.

Changing mindsets as to landscaping and water conservation is one way to make these changes, Keffer said. “We have to do what we can to teach and education everyone we can that we are in a drought situation, and we may be in a drought situation because of our population growth for a long, long time.”

Panelists also agreed that science needs to be the driving force behind groundwater management.

Keffer said groundwater conservation districts have to do their job of protecting their aquifer and their district, but “any decisions have to depend on science, not whim, not politics. We can’t afford hoarders in this state for a resource that we use.”

Speaking on the second panel, which focused on groundwater management, **Billy Howe**, Texas Farm Bureau state legislative director, emphasized the importance of the “fair share” language in the Texas Supreme Court’s 2012 decision in *Edwards Aquifer Authority v. Day*.

He said groundwater conservation districts set the desired future conditions based on groundwater modeling, similar to how the Railroad Commission of Texas sets allowables for oil and gas production.

“Once they set desired future conditions of annual production for area, each landowner who is capable of taking groundwater from their land has the right to their fair share of that desired future condition,” he said.

**State Rep. Jason Isaac** said he would like to see the groundwater management change from groundwater conservation districts, based on political boundaries, to districts organized based on aquifers.

“You can still have local control by having local representation on a board that manages each aquifer,” Isaac said. “I don’t think it is an effective or efficient plan that all these groundwater conservation district are decided by political boundaries rather than water.”

**Dianne Wassenich**, San Marcos River Foundation executive director, said: “It’s both politically and scientifically difficult to consider Texas moving to aquifer-based groundwater management.” She pointed to the Edwards Aquifer Authority as a great example for groundwater management.

When looking to new sources of water, such as brackish groundwater, **Kyle Frazier**, Texas Desalination Association executive director, said that coming up with a definition for brackish groundwater was impossible last legislative session and he isn’t too hopeful for the current session.

“All current big desalination plants are outside of a groundwater conservation district, and that’s not by chance,” Frazier said. “That is the only way they could make them work.”

All four panelists from the groundwater segment voiced support for TWDB to be able to finish mapping and modeling groundwater, including brackish, throughout the state.

**Carole Baker**, Texas Water Foundation executive director, **Laura Huffman**, Texas state director of The Nature Conservancy, **Ken Kramer**, former director of the Lone Star Chapter of the Sierra Club, and **Robert Puente**, San Antonio Water System (SAWS) president and chief executive officer, comprised the water conservation panel.

The panelists agreed that the state has many options for conserving water and emphasized the need for widespread adoption of simple conservation measures. Baker said that although there are areas of Texas doing aggressive conservation, “we have a lot of areas where people have no concept of why we are asking them to conserve.”

[Research](#) by the Texas Water Foundation found increased public awareness of water conservation in regions where utilities have spent money on education, Baker said, citing the North Texas Municipal Water District, which increased awareness from 10 to 52 percent in 10 years through education.

“We really need to expand how we think about the word conservation all over the state,” Huffman said, adding that reducing water consumption in energy production is one area where the state can save.

Acknowledging that there are new technologies that will help the state conserve, Kramer cautioned that those technologies should “not take away the importance of the simple things we are not doing, such as requiring rainwater systems in new construction.”

Citing his utility’s example of simple conservation measures, Puente said SAWS offers incentives to homebuilders to put down 4 inches of topsoil before planting grass, which helps the soil hold water. The utility has also shut down one of its wastewater treatment plants because of the water conservation efforts of the utility and its customers.

Baker said Texas, California and Florida lead the nation in water conservation. The state has come a long way in requiring conservation plans and implementation plans, but enforcement of those plans is also important, she said.

The afternoon panelists, **Dr. Wendy Jepson**, Texas A&M University associate professor of geography, **Israel Reyna**, Texas RioGrande Legal Aid branch manager, and **Ruben Villarreal**, Rio Grande City mayor, discussed the water along the Texas-Mexico border and the Texas Tribune series, “[Undrinkable](#).”

For more information, view the Texas Tribune’s [videos of the symposium panels](#).

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[North Texas Municipal Water District, Water My Yard program win Blue Legacy Award](#)



The [North Texas Municipal Water District](#) (NTMWD) has won the Water Conservation Advisory Council [Blue Legacy Municipal Award](#) for the [Water My Yard](#) program.

According to the advisory council's announcement, the "award program recognizes outstanding water conservation efforts and successes of Texans."

The Water My Yard program was created by **Dr. Guy Fipps**, Texas A&M AgriLife Extension Service irrigation engineer, **David Flahive**, AgriLife Extension programmer and system analyst, and **Charles Swanson**, AgriLife Extension irrigation specialist.

The program incorporates data from automated weather stations in certain metropolitan areas in Texas that feed data to [WaterMyYard.org](#), Fipps said. The software uses evapotranspiration rates (ET) to calculate weekly irrigation recommendations specific to areas within a city or residential community. Homeowners and businesses subscribing to the free service receive weekly recommendations on how much to water their yard or landscape based on rainfall amounts, ET and other factors, such as the design of their irrigation system.

NTMWD encompasses 1,600 square miles and provides water services to 1.6 million residents of North Texas, through 13 member cities, according to Fipps.

Most of the water the district relies on comes from Lake Lavon, east of Dallas, Fipps said. But the persistent drought of the last few years and increased demands have dropped lake levels. The result has been mandatory water restrictions, which were particularly severe for landscape irrigation, he said.

"Watering restrictions have varied over the last few years, ranging from two days a week irrigation to one day every two weeks," Fipps said.

At the advice of Fipps and Swanson, the water district purchased and installed seven automated ET weather stations.

"Many municipalities and water utilities have struggled to develop effective programs to address the excessive use of water in landscape irrigation," Fipps said. "Most automatic irrigation systems are improperly programmed and over-irrigate, wasting 20 to 50 percent of the water applied."

Though university research has consistently shown using ET-based irrigation schedules can save significant amounts of water, the system has not been widely adopted by homeowners, he said. The Water My Yard program was designed to make using ET data easy, through an interactive web application, Fipps said.

The [Water My Yard](#) program is available to other cities and communities as well. For information, contact Fipps at 979.845.7454, [g-fipps@tamu.edu](mailto:g-fipps@tamu.edu), or Swanson at 979.845.7454, [clswanson@ag.tamu.edu](mailto:clswanson@ag.tamu.edu).

Read the full AgriLife Today [news release](#) for more details.

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### New IRNR and TWRI publications

[Hydrological Drought Atlas for the State of Texas](#), D. Rajsekhar, V.P. Singh, A. Mishra, TR-474. 2013.

[A Review of Discounting Natural Resources](#), L.R. Dutton, M.E. Rister, R.D. Lacewell, A.W. Sturdivant, TR-473. 2015

[Evaluation of Smart Irrigation Controllers: Year 2013 Results](#), C. Swanson, G. Fipps, TR-469. 2014.

[Building Partnerships for Cooperative Conservation in the Trinity River Basin: Final Report](#), J. Cathey, B. Alldredge, D. Kalisek, K. Wagner, R. Lopez. TR-464. 2014.

[Evaluation of Canal Lining Projects in the Lower Rio Grande Valley of Texas: 2013 Ratings and Analysis](#), G. Bonaiti, G. Fipps, TR-465. 2014.

[Attoyac Bayou Watershed Protection Plan](#). L. Gregory, N. Boitnott, A. Castilaw, TR-458. 2014.

### **Natural Resources Training Courses**

- Introduction to ArcGIS 10, May 12-13
- Texas Riparian and Stream Ecosystem Workshop - Cypress Creek Watershed, May 19
- Texas Riparian and Stream Ecosystem Workshop - Hickory Creek Watershed, May 21
- Texas Riparian & Stream Ecosystem Workshop - Richland Chambers Reservoir Watershed, June 2