

CONSERVATION

A PUBLICATION OF THE HIGH PLAINS WATER DISTRICT
FALL 2015 • ISSUE 2

CONNECT



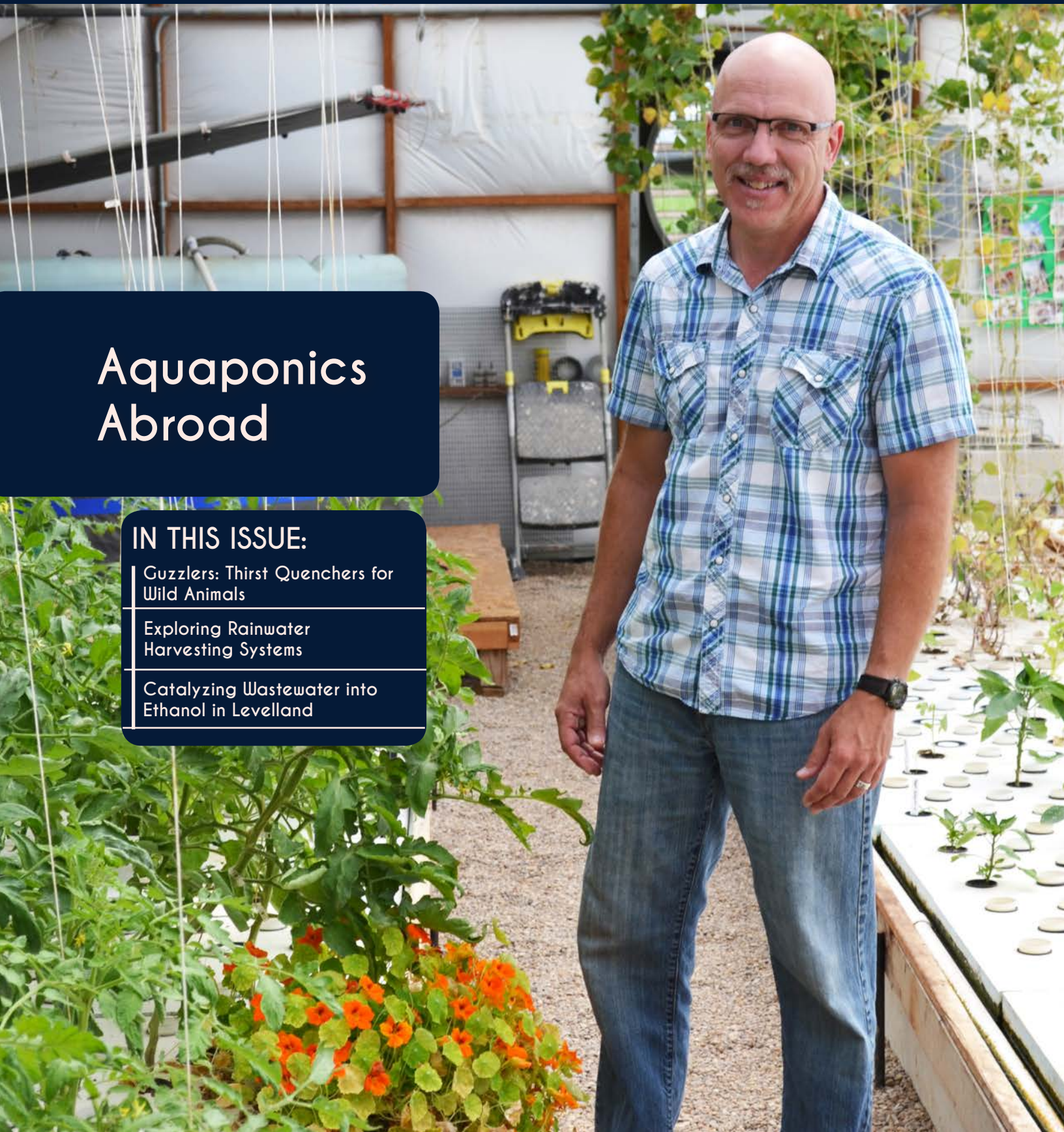
Aquaponics Abroad

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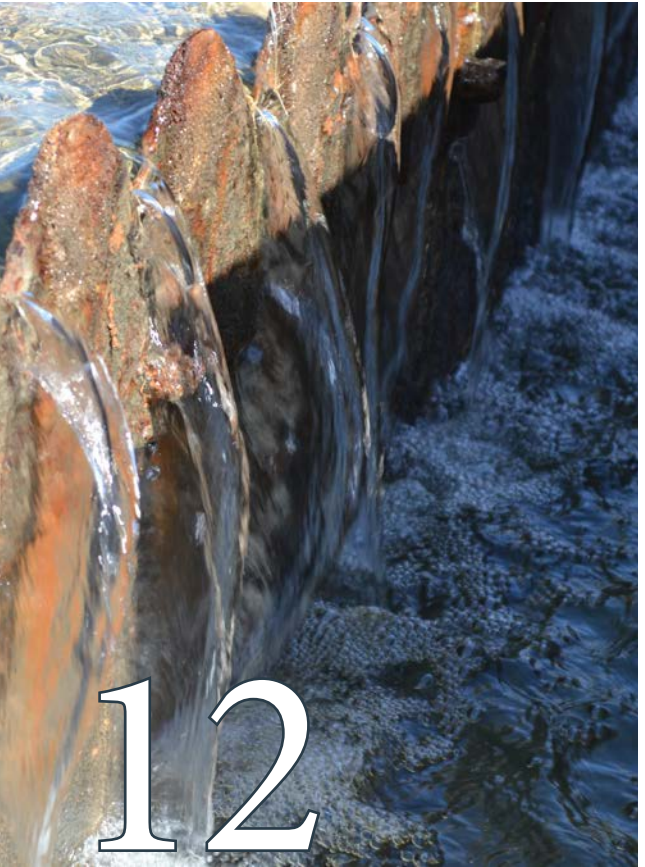




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Permit Group

Supervisor - Juan Peña
Field Technician - Greg Holder
Field Technician - Andrés Villarreal

Editor: Adeline Fox

Contributors:

Kody Bessent - HPWD staff
Carmon McCain - HPWD staff
Megan Moore - HPWD intern
Quenna Terry - USDA-NRCS
Vikram Baliga - TAMU AgriLife Extension

2930 Ave. Q
Lubbock, TX 79411
www.hpwd.org
806.762.0181

ON THE COVER:

Jimmy Heisler stands inside the
aquaponics greenhouse in Canyon, Texas.

Photo by Adeline Fox



Letter from the President

This year the High Plains Underground Water Conservation District No. 1 (HPWD) has dedicated many resources toward promoting conservation. The HPWD Board of Directors and staff have worked together and accomplished quite a few goals which benefit the residents of the district. We have implemented new programs and improved our response time to customer requests for water well permits and groundwater data.

The HPWD Board has recently funded eight groundwater research/demonstration projects totaling more than \$80,000. HPWD received a total of seventeen proposals which were reviewed by a committee of eight members. It is encouraging to know that there is so much interest in groundwater conservation. Additionally, we are fortunate that a number of different topics are addressed in the projects which were funded. Some of the topics include: playa lake management and education, landscape irrigation, Dockum aquifer depth-salinity relationships, installation of an irrigation system for agricultural research, Dockum aquifer test hole for City of Abernathy, soil moisture monitoring technology, economic analysis of Dockum irrigation well installation and operation, and an evaluation of precision mobile drip irrigation. We are also proud that these advancements have been accomplished in a fiscally sound manner, as the HPWD will operate below budget during FY 2015.

Since last year, we have certainly devoted much time and effort to this mission. A number of cooperators and partners have helped us in this goal, demonstrating that West Texans are serious about conservation. HPWD is grateful for the assistance of our residents as we work together and make the best use of our groundwater resources.

The HPWD Board appreciates your support as we continue the work of promoting groundwater conservation. If you have questions or need additional information concerning HPWD programs, please contact our office at 806-762-0181. We value your comments and suggestions.



Lynn Tate
HPWD Board President



Above photos courtesy of Muleshoe Wildlife Refuge.

STORY & PHOTOS BY ADELINE FOX

GUZZLERS: THIRST QUENCHERS FOR WILD ANIMALS



A guzzler provides wildlife with a supplemental water source. They are built to capture rainwater, which then flows into a collection tank. Guzzlers come in all shapes and sizes. Depending on the type of wildlife, system capacities will vary. Most systems have a capacity of 500 gallons to ensure adequate wildlife water supply during drier months. The typical guzzler is built as a free-standing structure in areas of quiet pasture land to attract roaming wildlife. Since late 2010, Texas wildlife has often struggled to find adequate water sources because of drought.

However, recent rainfall has benefited the High Plains. The Muleshoe Wildlife Refuge in Bailey County has constructed a system that provides a supplemental water source for thirsty wildlife.

GUZZLERS IN THE TEXAS PANHANDLE

Jude Smith is a project leader at the High Plains National Wildlife Refuge Complex (HPNWRC) in Muleshoe. This is the first federal wildlife refuge in

Texas, which started as a migratory bird haven. In fact, five to 10 percent of the world's lesser sandhill crane population visits HPNWRC during the winter months.

In addition to lesser sandhill cranes, the refuge also provides a year-round haven for mule deer, coyotes, quail and many other wildlife species. In order to combat the lingering drought conditions of 2011, Smith and a small group from the Youth Conservation Corps built a gallinaceous guzzler, or a rainwater catchment and collection system for wildlife.

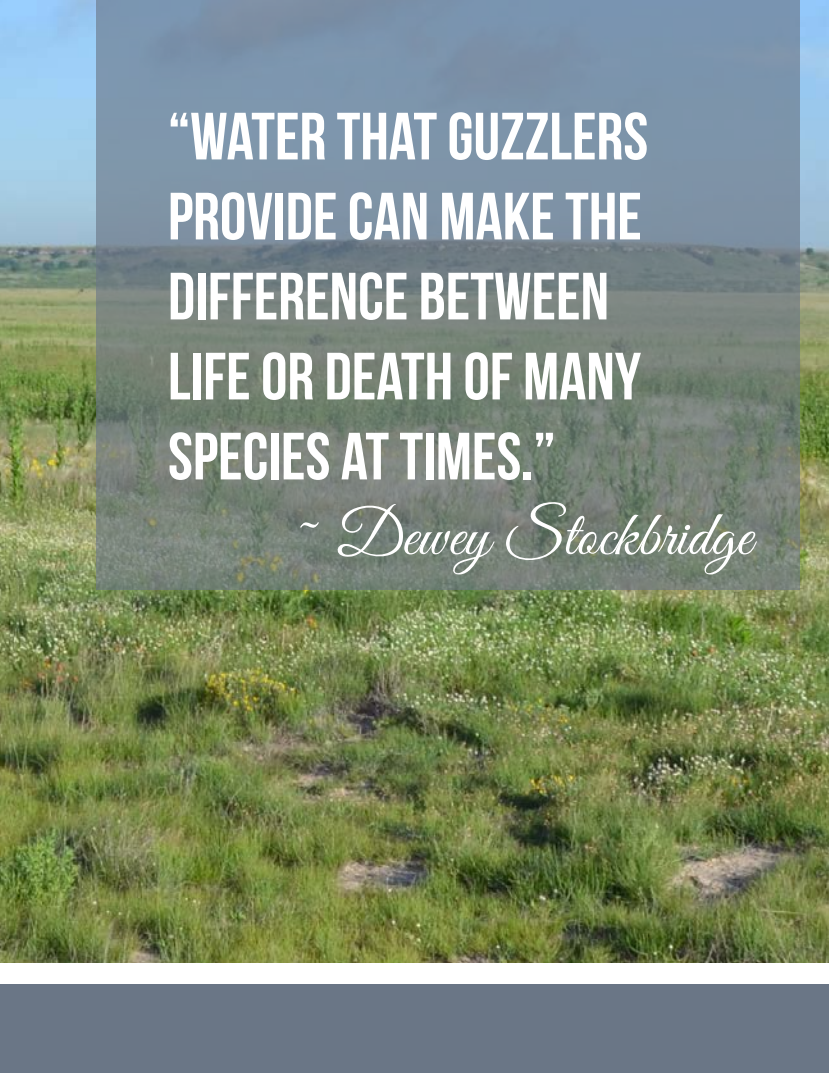
"The guzzler mimics a small spring," Smith says. "We have two tanks that can hold about 250 gallons of water each."

The design is simple and effective. A roof surface is needed to intercept rainfall and create runoff. Since there are no existing buildings in the pasture, a freestanding structure is required. Water is collected from the roof surface and drains into a gutter with a screen covering.

From there, the rainwater travels into storage tanks.

“WATER THAT GUZZLERS PROVIDE CAN MAKE THE DIFFERENCE BETWEEN LIFE OR DEATH OF MANY SPECIES AT TIMES.”

~ Dewey Stockbridge



ADVANCING



Credit: Elephant Mountain Wildlife Management Area

The MWR guzzler attracts many species.



A float valve sits at the base of the tanks and controls the water level in the concrete drinking trough.

Guzzlers certainly catch a lot of water with small amounts of rain, Smith recounts.

“When we first put it up in 2012, we would get a quarter inch of rain and if the rain fell just right, we would collect about 100 gallons of water.”

GUZZLERS IN THE BIG BEND REGION

Every guzzler is constructed to fit the needs of the local wildlife. For example, 350 miles away in the Big Bend region of Texas, guzzlers have a unique design. Elephant Mountain Wildlife Management Area Biologist Dewey Stockbridge explains a guzzler called the slick rock.

“Slick rock guzzlers are built in an area where water naturally drains, we just use a small concrete wall (header dam) to slow the water down,” Stockbridge says, “and allow the majority of it to drain into a pipe placed at the bottom of the concrete wall.”

According to a Texas Parks and Wildlife Department report, the average annual precipitation for the Big Bend region varies from less than 8 inches to 16 inches. Wildlife in this area includes Desert Mule Deer, Desert Bighorn Sheep, Pronghorn Antelope and many other species. One system, named the Black Gap Guzzler, maintains wildlife drinking water with only eight inches of rainfall.

“In remote areas of the Chihuahuan Desert, such as Black Gap Wildlife Management Area located near Alpine, the supplemental water that guzzlers provide can make the difference between life or death of many species at times,” Stockbridge says.

Whether wildlife roams the prairies of the High Plains or treks the mountains of the Big Bend, guzzlers provide a year-round freshwater source for large and small wildlife. ■

After the last round of winter weather, a car arrives at Mighty Wash Auto Clean in a Lubbock location.

The driver makes a selection and the dirt and grime on the vehicle will soon be a thing of the past.

Once in the car wash, the driver might pause to think about the multi-colored soap being applied to the car or the sound of the rotating brushes.

Yet few drivers, if any, give a second thought about the amount of water used to wash their cars.

Operations Manager Matt Riker has worked for Mighty Wash since 2012. New car washing technologies are released each year. Mighty Wash is always trying to be among the first to adopt them.

“People have the misconception that a car wash uses an extreme amount of water. We are as efficient as we can be with current technology,” he said.

Riker said it takes an average of 70-80 gallons of water to clean one car. Mighty Wash uses 30 gallons of freshwater and 40 gallons of reclaimed water.

While the gallons used might seem high to some, Riker points out that a household garden hose has a maximum capacity of about 10 gallons per minute. If a person washed their car at home without a shut-off spray nozzle, they could potentially use more water than the car wash.

The first half of the car wash (pre-wash and wash) uses reclaimed water. High pressure nozzles spray the water to remove dirt and grime from the vehicle. The dirty water then drains to a pit containing a series of five tanks.

SPLISH, SPLASH YOUR CAR IS TAKING A BATH

STORY & PHOTOS BY ADELINE FOX



MIGHTY WASH MASCOT

MIGHTYWASH
ONLY USES
30 GALLONS
OF FRESHWATER
PER CAR

Water flows through each tank allowing sediments to settle at the bottom. By the time the water reaches the fifth tank, it is almost ready for reuse. The reclaimed water is then filtered to remove any remaining sediments and is stored in three other tanks for future use. The final part of the car wash uses freshwater for rinsing. “Our final rinse is a spot-free method using a reverse osmosis (R.O.) system,” Riker said.

Water reuse and recycling are not new for car washes. Riker says water conservation has been on the industry’s mind for quite some time.

“The car wash industry is always looking for ways to cut down on water and run more efficiently,” he said.

In fact, one company, WaterSavers™, recognizes car washes which are technologically advanced and adopt new conservation methods.

According to the WaterSavers™ website, qualifying car washes use 40 gallons of freshwater or less per vehicle—this is less than the typical home clothes washer, which can use up to 45 gallons of water per load of laundry.

The Mighty Wash locations in Lubbock and Midland/Odessa are among car washes participating in the certification program. Additional locations may be found at carwash.org/watersavers/locations. ■



Diamond
Ethanol

CATALYZING WASTEWATER INTO ETHANOL

STORY & PHOTOS BY MEGAN MOORE

Drought conditions during the last few years have catalyzed creative water-saving solutions for many industries relying on water to manufacture their products. Diamond Ethanol, managed by Conestoga Energy Partners, LLC., has teamed up with the City of Levelland to use treated wastewater in order to save groundwater resources.

Photo by Adeline Fox



This flotation device, powered by the windmill system, provides aeration in the ponds.

THE PROCESS

Levelland’s water treatment plant has a pond treatment system. Wastewater from the city enters the plant and flows into a series of three ponds. The solids settle to the bottom where bacteria and enzymes decompose the organic matter. The ponds are aerated by a 1.2 megahertz windmill system to allow aerobic bacteria to treat any other dissolved organic compounds.

The ethanol plant also has a clarifier at the wastewater plant that acts as an extra step in the cleaning process. “The water flows in the clarifier the same way. It acts like a fast-acting pond,” said Amy Northam, Director of Wastewater Services for the City of Levelland.

The clarifier, through the process of reverse osmosis and a series of filter screens, rids the water of any solids still left in the system and then disinfects it with chlorine. Once disinfected, the water is pumped to the ethanol plant where it is used in several components of the ethanol production process.

“The water is used to create steam, and it is used in the processing of the raw grain into alcohol,” said Tom Willis, CEO of Conestoga Energy Partners, LLC.

THE SAVINGS

It is not uncommon for ethanol plants and other industries alike to use treated wastewater rather than depleting freshwater resources.

“In May, we used 5,849,200 gallons of treated wastewater.”

~ Chuck Fryar

“In May, we used 5,849,200 gallons of treated wastewater,” said Chuck Fryar, Diamond Ethanol Plant Manager in Levelland.

The use of technology has allowed Levelland to provide more treated wastewater than originally needed by the ethanol plant. The ethanol plant sells surplus water to Texas oil and gas producers, which helps conserve precious freshwater resources.

“It (the treated wastewater) has surpassed the quality for fracking in oil production set by the Texas Commission on Environmental Quality (TCEQ), so we have been able to save a little more freshwater by selling treated wastewater to oil drilling companies,” Willis said.

For Levelland, providing treated wastewater to the ethanol plant saves millions of gallons of groundwater that would normally be pumped from the Ogallala Aquifer. Levelland also receives water from the Canadian River Municipal Water Authority (CRMWA). Reusing treated wastewater allows Levelland to save both water and money.

Additionally, an estimated 10 million gallons of treated wastewater is used for irrigation on land near the water treatment plant each month. Depending on weather conditions, total wastewater consumption between the ethanol plant and irrigation can add up to 20 million gallons monthly.

By utilizing treated wastewater, both Levelland and Diamond Ethanol have used technology to make strides in saving valuable freshwater resources.

“Everyone should be doing this,” Fryar said. ■



Diamond Ethanol employees, JoeDon Sierra and Curtis Thompson, work in the grain department of the facility.



This is the first step in the filtration process. By now, most solids have been filtered out of the wastewater.

WHITE RIVER LAKE: THEN & NOW

STORY & PHOTOS BY ADELINE FOX

Relying on surface water as a drinking supply can be challenging in a drought. Limited rainfall and continued consumption can put a strain on any reservoir. White River Lake has been significantly impacted by the drought since 2011.

In November 2013, the lake was 35 feet below the spillway. The Texas Water Development Board standards consider the lake “empty” at 32 feet below the spillway. White River Lake no longer had a supply to distribute to its customers. Since 2013, there have been improvements, but managing such a highly variable resource that services four cities’ drinking water is never easy.

WHITE RIVER LAKE OVERVIEW

Developed in 1962, the White River Municipal Water District (WRMWD) was created to provide public drinking water to four cities: Post, Ralls, Crosbyton and Spur. Transporting water to these towns requires about 72 miles of pipeline.

Located in Crosby County 12 miles west of Spur, White River Lake was built to store 33,000 acre-feet of water. For reference, one acre-foot of water is about 325,851 gallons.

WRMWD General Manager, Shane Jones, has worked with White River since 2007 where he served as the water treatment plant manager for eight years before becoming the general manager in 2015. He explains that managing a reservoir is challenging for several reasons.

“We cover a lot of area and have about 72 miles of pipeline to maintain,” Jones says. “We supply drinking water, but we also serve as a recreational facility for the surrounding area.”

PLANNING FOR THE WORST

Servicing such a large area requires careful planning and disaster preparation.



“BEING PROACTIVE IS THE ONLY WAY TO FIGHT THE DROUGHT.”

~ Shane Jones



Thinking ahead of a potential crisis, WRMWD constructed an emergency backup well field in 1999, which proved to be vital when White River Lake was at 0.0 percent capacity in 2013. WRMWD moved all cities and other customer supply sources to the well field. Because of the urgency of the situation, infrastructure needed to be updated quickly. WRMWD, along with Garza and Crosby counties, joined together and received a \$2.1 million Disaster Relief Grant from the Texas Department of Agriculture. The grant would pay for rehabilitation of the existing well field and drilling a new well.

“We have 13 operational wells and we only have to use about seven at any given time,” Jones explains.

In addition to having an alternative water source, member cities and other lake customers conserved the water they had. WRMWD observed a 10.64 percent decrease in water use because of customers’ conservation efforts.

“At the beginning of the drought, a lot of people were not happy about the dead or brown grass, but it soon became clear that we had to use less water to ensure we had plenty of water for the necessities.”

WHITE RIVER LAKE TODAY

In March 2015, White River Lake was at 29.76 feet below the spillway, or 3.9 percent full. A year ago, the lake was 34.25 feet low or 0.0 percent full. Recent rains and moisture have helped increase runoff to the lake increasing it to 38.7 percent full in July 2015.

As long as the lake levels are above a certain level, WRMWD can utilize two water sources. In order to diversify supplies, two of the member cities, Ralls and Crosbyton, are supplied with groundwater from the well field. The other two member cities, Spur and Post, are supplied with surface water from White River Lake.

“We as a District have to be proactive in the sense that we do not know how much rain we will receive in any given year,” Jones adds. “We cannot be complacent and focus on the now.”

Future projects include keeping the well field maintained and prepared to operate on a full scale capacity if needed, like it was in 2013. Upgrading aging infrastructure will also be evaluated in hopes of cutting down water loss.

“Being proactive is the only way to fight the drought,” Jones concludes. ■

Harvesting rainwater is certainly not a new idea. Historically, cisterns provided water for rural residents. The practice has been reinvented, but the purpose is the same-- catching rainwater to conserve other water sources.

With this in mind, the High Plains Water District (HPWD) hosted two rainwater harvesting tours this summer. From commercial to residential, each site provided the crowd with different system design and use options.



AMARILLO TOUR

WOLFLIN HOUSE

ABOUT: Two 500 gallon tanks

USE: Landscape

FUN FACT: *This site had a dry and wet conveyance system.

CANYON'S EDGE PLANTS

ABOUT: Native plant nursery in Canyon, Texas

USE: Conducts native plant trials for the local area

FUN FACT: The business began as a hobby in 1989.

MAVERICK BOYS & GIRLS CLUB

ABOUT: One 1,500 gallon tank

USE: Garden

FUN FACT: This tank collects air conditioning condensate. During the summer months, it can fill in three days.

HIGH PLAINS FOOD BANK

ABOUT: Two 10,000 gallon tanks

USE: Landscape and garden

FUN FACT: If the tanks fill to the top, the overflow drains into a small retention pond.

PANHANDLE GREENHOUSES

ABOUT: Six 2,500 gallon tanks and three 5,000 gallon tanks

USE: Greenhouses

FUN FACT: The greenhouses can collect 10,000 gallons of water with just one inch of rain.

DRY CONVEYANCE- A downspout directs rain into the tank. Once the rain subsides, water no longer fills the downspout.

WET CONVEYANCE- A downspout directs rain into underground pipe. When the volume of the pipe exceeds the tank, water begins to fill the tank.

EXPLORING RAINWATER HARVESTING SYSTEMS

Thank you to all who helped with both of these events!

Brian Paiva
Colby & Jessica Patterson
Dennis Howard
Jason Coleman
Jason & Julie Hodges

Jim & Barbara Whitton
Layne Marlow
Lindy Harris
Mike Buxkemper
Neal Hinders

LUBBOCK TOUR

BRIGHT BEGINNINGS

ABOUT: Four 3,000 gallon tanks
USE: Landscape and irrigation
FUN FACT: Rainwater collected from the smaller tanks travels to a large 16,000 gallon storage tank.

SOUTH PLAINS UWCD

ABOUT: One 500 gallon tank
USE: Xeric demonstration garden
FUN FACT: Each plant is labeled to encourage guests to learn about the plants on display.

FREMONT AVENUE HOUSE

ABOUT: Nine 50 gallon tanks
USE: *Aquaponics system and garden
FUN FACT: Catfish and goldfish are used in the aquaponics system.

94TH STREET HOUSE

ABOUT: One 2,500 gallon tank
USE: Landscape
FUN FACT: The overflow is connected to a bubbler that flows down a creek bed landscape.

NATIONAL RANCHING HERITAGE CENTER

ABOUT: *A rain garden
USE: Directs and contains rainwater to stay on landscape rather than run off.
FUN FACT: About 0.62 gallons of water per square foot is generated for one inch of rainfall.

AQUAPONICS- The practice of integrating fish and plants into a water circulation system in a controlled environment.

RAIN GARDEN- A passive rainwater collection system that keeps water from running off of the landscape. Rain gardens are usually decorative and aesthetic.

Cropland and livestock, which provide a way of life for many, deteriorated from the heat of the Texas sun and lack of rainfall. About 800 miles away, drought was also taking its toll on food and fiber supplies in Mexico. Jimmy and Teresa Heisler, along with their two sons, previously worked with the Tarahumara tribe in Mexico as full-time missionaries. After returning to the states, the Heislers heard that people in the tribe were starving to death because of the drought, and they wanted to be part of the solution, but were not sure how their journey would unfold.

ABOUT THE HEISLERS

Even though Jimmy grew up in Amarillo, he was not involved with agriculture as a child. He was a youth minister in Canyon for 10 years, but then he and his family chose to move to Mexico in 2006 to serve as full-time missionaries with Youth With A Mission (YWAM). The Heislers returned to Canyon in May 2011, after living in Mexico for five years.

“When we returned to the states, we didn’t feel like the call to mission was over,” Jimmy shares.

Chasing a passion to help beyond their Mexico mission service, Jimmy and Teresa started looking into establishing a YWAM operating location in the Amarillo/Canyon area that would specifically reach college students. Having worked with the international branch of YWAM in Mexico previously, Jimmy had past experience, but lacked any real connections with the mission’s work in the U.S.

“We did not have any of the requirements necessary to start a local YWAM operating location,” Jimmy says.

With the help of some ministry comrades in Amarillo, an agricultural focus soon narrowed the scope of the YWAM vision. Since the Panhandle is filled with agricultural business, it made sense to have an agricultural focus for the mission.

“We decided to start with agriculture and then discipleship would come,” Jimmy reflects.

After several months of trying to become an official operating location of YWAM, the Heislers decided to build a greenhouse near their home, and start testing sustainable agricultural methods that could be replicated easily in other countries. Once the first

AQUAPONICS ABROAD

Called the worst drought since the Dust Bowl, weather conditions in 2011 affected many people across Texas.

STORY & PHOTOS BY ADELINE FOX

phase of the project was achieved, they were given authorization to pioneer an official YWAM operating location for Amarillo/Canyon.

THE GREENHOUSE IN CANYON

Volunteers from all walks of life helped build the greenhouse. The idea was to experiment with different kinds of plants and fish to find a simple and effective aquaponics system that could be maintained easily.

“The greenhouse is a learning and training development system,” Jimmy said. “We’ve weathered the storms and now we feel like we can teach people how to avoid the issues we faced.”

Once Jimmy attended an aquaponics training school, he and others in the mission group chose building aquaponics systems as their official mission vision.

“WE DECIDED TO START WITH
AGRICULTURE AND THEN
DISCIPLESHIP WOULD COME.”

~ *Jimmy Heisler*



However, before aquaponics could be taken abroad, Jimmy had to design and build the right system. The aquaponics system in the greenhouse is a 4,500 gallon system. Bluegill fish swim in an open tank. Using local fish to the area is always ideal. Fish fertilize the water, which then circulates through the water troughs. Styrofoam, with circle cut-outs for the plant containers, covers the water surface in each of the troughs. An air pump and water pump are also necessary to keep water from becoming stagnant.

Everything from leafy greens to cucumbers is grown in the greenhouse. Once the design was created, the Heislars returned to Mexico to install their first aquaponics system.

AQUAPONICS ABROAD 2014

The Heislars chose Mexico for their first international mission trip because they had built

CONVERGING



YWAM Facebook: The Heislrs meet with members of the Tarahumara tribe in Northern Mexico in 2014.



The Canyon greenhouse is where the idea began.

relationships with the indigenous people while living there. A group of about 20 traveled to Mexico during Spring Break 2014 for the first YWAM Amarillo/Canyon trip.

Being in a village isolated from water and electricity created design challenges for the mission team. The first aquaponics system they built in Mexico is completely solar-powered. It has 256 square feet of growing space and is designed to accommodate about 70 pounds of fish. People in the village grow tomatoes, Swiss chard, peppers, lettuce and some native greens. Two adjoining fish tanks contain bluegills and trout. The bluegills were caught in a lake a few hours away from the village, and the trout were purchased at a hatchery a couple of hours away. Local residents are also looking into adding tilapia from a nearby river, but the water would have to be heated if tilapia were introduced into the system.

The Heislrs returned to Mexico in early 2015 where they built an additional aquaponics system.

FUTURE PLANS

Looking ahead to the coming months, India is the next destination for their group. In 2016, the YWAM Amarillo/Canyon plans to travel to a children's home in India, where they will collaborate with other YWAM missionaries to install another global aquaponics system. Other opportunities might arise in the Philippines and possibly Nigeria.

"The entire vision is global," Jimmy says. "We want



YWAM Facebook: Jim discusses the water testing kit with Enrique.

to teach people in other countries how to install and maintain aquaponics systems because it is critical that people have a way to raise their own nutritional value."

To accomplish this, Jimmy is making a gradual transition to rainwater for the aquaponics systems. Currently, the systems contain well water or surface water. Adding rainwater catchment into the design would make the project even more sustainable.

"We could run our whole system with five inches of rain in a year."

The aquaponics possibilities are endless for YWAM Amarillo/Canyon. Jimmy encourages people who have a passion to pursue it, even if the expertise seems limited in the beginning.

"If we can do this with zero agricultural background, then anyone can do it." ■



URBAN COMMUNITY CULTIVATES INTEREST IN CONSERVATION

STORY & PHOTO BY QUENNA TERRY WITH
USDA-NATURAL RESOURCE CONSERVATION SERVICE
LUBBOCK, TEXAS

Farmers have a strong sense of pride when it comes to producing high quality nutritious food for America's consumers. Some farmers are even lucky enough to get to meet the people that consume their food. In Lubbock, Texas there is a farm that produces fresh, tasty food on site and provides it to underprivileged residents in a 20-county area.

The South Plains Food Bank uses seasonal high tunnels on their property to extend the growing season for fresh produce to provide to their clients along with other donated food and household items. Established in 1983, they serve over 5,000 people every week. According to a recent study, two-thirds of the South Plains Food Bank clients are minorities.

The food bank recently added another growing plot to their program when the USDA-Natural Resources Conservation Service and Minority Landowner Magazine partnered with the South Plains Food Bank to host a farmer and landowner workshop.

The program is designed to deliver a conservation education program and construct a high tunnel at

the food bank's orchard location within Lubbock's city limits. Finding the right location to host such a workshop was made easy when the South Plains Food Bank voluntarily offered their location for the event. USDA is always cultivating new partnerships to provide conservation outreach to traditional and non-traditional customers.

David Weaver, CEO for South Plains Food Bank said, "We have two farms at the food bank where we grow a variety of crops. The high tunnel NRCS provided in this demonstration will help the food bank extend the growing season for some of the crops and improve our production goals."

NRCS Agronomist Brandt Underwood said some of the benefits the food bank can expect from utilizing the high tunnel is the extended growing season by four to six weeks which will increase overall production.

Hosted as an educational event, NRCS planned and organized the two-day program where local farmers,



NRCS: The plastic covering of the frame is one of the last steps in constructing a high tunnel.

community based organization representatives and others who are interested in USDA's conservation programs came to learn about technical and financial assistance, crop production, irrigation systems, and marketing alternatives.

The South Plains Food Bank is a cooperator in Lubbock County with USDA's NRCS and the Farm Service Agency (FSA). Both agencies have programs available for producers and landowners to make conservation improvements on the land.

NRCS District Conservationist Kerry Weinheimer manages the Lubbock field office and serves as the resource team leader for four other counties including: Crosby, Hockley, Lynn and Cochran counties.

Weinheimer led the conservation program with a brief history of the NRCS agency followed by information about conservation planning options and the application process.

He introduced speakers throughout the day to cover various aspects of conservation and programs from the NRCS, FSA and the AgriLife Extension Service.

Many of the participants were not familiar with USDA programs. Mark Hall, NRCS program manager, took the opportunity to discuss the financial assistance available through the Environmental Quality Incentives Program (EQIP) and other conservation programs utilized by area producers.

Darren Richardson, NRCS assistant state conservationist, provided a brief overview of NRCS disciplines and discussed how technical assistance can

An infographic with a dark green background and white and yellow text and icons. At the top, it says "SOUTH PLAINS FOOD BANK QUICK FACTS:". Below this, it lists "ESTABLISHED 1983" next to a yellow outline of Texas with "20 COUNTIES" written inside. To the left is a yellow icon of an adult and a child holding hands. To the right of this icon, it says "SERVES 5,000 PEOPLE EVERY WEEK". At the bottom left is a yellow heart with "BASED IN LUBBOCK" written inside. At the bottom right is a yellow circle with a flame icon and a person icon, with the text "HELPS 50,000 PEOPLE EACH YEAR".

work for farmers and ranchers.

“Our technical assistance is available to everyone,” Richardson said. “We want to reach out to as many producers as we can to let them know how NRCS can help with their conservation needs.”

The South Plains Food Bank of Lubbock helps over 50,000 people each year within the 20 counties it serves. This helping hand comes from the employees and volunteers working in the community to make a difference. USDA is proud to partner with the food bank to conserve natural resources while providing fresh, delicious farm grown products in this region. ■

GET TO KNOW THIS H₂O

We have an exclusive interview with a local Water Conservation Mascot, Walter Drop.



STORY & PHOTOS BY ADELINE FOX

HPWD: What brought you to the West Texas area?

WALTER: Technically, I was shipped here from China in January, but I did want to come here to help save West Texas water, as well. Educating others on how to save me is my greatest passion in life.

H: Very cool. What kind of educational programs have you attended since arriving?

W: I starred in some water conservation commercials. You should check them out on YouTube if you haven't already. They were produced to serve a dual purpose though. We were spreading a great water-saving message and also promoting the 2015 Wolfforth Water Expo.

H: How did the Wolfforth Water Expo go?

W: It was great! I had a lot of fun. The younger crowd really liked me. They kept hugging me, which made my body indent, but I think we had about 300 people come through the program that day so it was well worth the body molding.

H: Haha. I bet. With all of the rain we have had, many people say water conservation is not necessary. How would you encourage conserving water all of the time?

W: I think people kind of forget about saving me when it is raining, but it is important to conserve all the time. I hope I can help people better understand that concept. We are never guaranteed rain. This year has been an exception to our normal conditions.

H: I agree with you in that regard. What are some of your future plans?

W: I would like to get out into the general public more. Maybe even make some school visits in the Lubbock area. I also might do some traveling to see other regions of the United States. I have frequent travel rewards with Evaporation Airlines, and I am always up for some kind of adventure.

H: Wow! That sounds great. I would like to tag along too. Is there anything else you'd like to add?

W: Thank you for the interview! If anybody ever has water conservation questions, be sure to contact my agent, Vikram Baliga (806-775-1740). ■





L to R: BR: Sponsor Sharon West, Dominique Flores and Sponsor Ben Stokes. FR: Ciera Ware, Desmond Garza and Natallie Rodriguez.

H2YOU WINNERS RECOGNIZED IN AUSTIN

STORY BY CARMON MCCAIN ● PHOTOS BY ADELINE FOX

Crosbyton High School students Dominique Flores, Desmond Garza, Natalie Rodriguez, and Ciera Ware were honored January 27 by the Texas Legislature as inaugural winners of the “H2YOU” water conservation campaign contest.

The H2YOU contest is a new program of the High Plains Underground Water Conservation District No. 1 (HPWD) in Lubbock.

Using the team name of “Catch-22,” the group produced an agricultural water conservation proposal with creative and inventive solutions to help farmers and ranchers become more informed about water conservation methods and techniques.

“A Catch-22 is defined as an unsolvable logic puzzle. Water conservation is indeed an unsolvable puzzle and water availability will always be a problem. However, our ultimate goal for this water conservation puzzle is for it to be solved as much as it possibly can,” wrote the students in their project overview.

Senator Charles Perry of Lubbock sponsored Senate



While in the Capitol, H2YOU team members met with House Rep. Drew Springer (District 68).

Resolution 19 and Rep. Drew Springer of Gainesville sponsored House Resolution 223 honoring the seniors for their “great skill and dedication” and for being “a source of pride to their school and community.” The students were introduced and recognized in both Legislative chambers.

The students were in Austin January 25-28 to present their project to legislators, legislative staff, and representatives from several statewide agencies—including the Texas Water Development Board (TWDB). The students toured the State Capitol, the Bullock Texas State History Museum, and the Darrell K. Royal-Texas Memorial Stadium.

In addition, each student received a \$500 scholarship from HPWD.

Accompanying the students were Crosbyton Consolidated Independent School District Superintendent Shawn Mason and his wife; Crosbyton ISD Ag Teacher Ben Stokes; Career and Technology Instructor Sharon West; and HPWD staff members Kody Bessent and Adeline Fox. ■

Though it has been a great year for rainfall on the South Plains and in the Texas Panhandle, being conscious about our water use is as important as ever. Those of us who have lived in this part of the state for any amount of time know that we are never more than a couple of months away from drought.

The PERFECT time to start planning for such a situation is when we are getting all the rainfall we can handle and the aquifer is happy and recharging, however slowly. Think about it like your bank account. If you are making plenty of money to pay your bills, have some fun, and still have cash left over, it is easy to put some into savings for a rainy day (pun very much intended). When times are lean, however, it is hard to save. Water is a similar resource. We have been blessed in 2015 with great rainfall and have been able to put a lot in the “bank,” but we all need to make sure we are striving to be as water-wise as we can so we are prepared for the next round of tough times.

However you look at it, “xeriscaping” does not have to be a dirty word. Most peoples’ minds go directly to cacti and cow skulls, but a good xeriscape can and should be so much more! Following the seven easy principles in this article will give you the skills you need to make a beautiful, water-wise landscape that fits any aesthetic you desire.

HAVE A PLAN

Giving proper consideration to the design of your space will help your landscape be successful and water wise. Think about grouping plants by their water use, fertilizer requirements, light requirements, and intended purpose. For example, Agave, cacti, and other desert plants probably should not be planted around your vegetable patch. Having them grouped together by themselves would ensure that you have adequate access to your veggies and would not over water or under water either group of plants.

IT IS NOT ALL ABOUT THAT CACTUS:

TIPS FOR A WATER-WISE LANDSCAPE

STORY BY HORTICULTURE AGENT
VIKRAM BALIGA WITH TEXAS A&M AGRILIFE
EXTENSION SERVICE IN LUBBOCK

Stock Photo

CHOOSE DROUGHT TOLERANT PLANTS

Just because you want to be conscious about your water use does not mean your landscape has to look like the Mojave Desert. By choosing native and well adapted plant species, you can achieve almost any look you desire. Look primarily for drought tolerant perennials that are cold tolerant in our area (USDA Hardiness Zone 6 to 7). Wildflower mixes planted in “meadows” are also great additions. They will reseed every year and you will end up with an incredibly drought tolerant and colorful display.

USE TURF AREAS WISELY

Turfgrass is not the enemy. In fact, it provides a lot of benefits to the urban landscape. It provides great aesthetics, a massive cooling effect during the day, and a place for kids and pets to play! Just make sure you match the size of your turf area to your water use goals. It takes about 625 gallons of water to put one inch of irrigation on 1,000 square feet of turf grass. That adds up fast! Try to limit turfgrass areas to 50 percent or less of landscape portions of your property and you might notice a BIG difference in your water bills.

IRRIGATE EFFICIENTLY

Plan your irrigation system so that similar plants can be watered with different technologies. For example, multi-stream sprinkler heads are a great, efficient way to irrigate turfgrass areas. Your flower beds, however, would be much better served by drip irrigation, which is incredibly water efficient and delivers water exactly where the plants need it. Also, make sure you know how to operate your irrigation timer and adjust it seasonally. A rain/freeze sensor is an important (and often mandatory) addition to any automated irrigation system.

USE MULCH

Mulch is one of your very best friends when it comes to being a water wise landscape enthusiast. A healthy layer of mulch (3-4 inches) helps retain soil moisture, lowers soil temperature during the summer, and reduces weed pressure. Additionally, mulch helps protect your plants from the cold during even the harshest winters in the Texas Panhandle and South Plains. Whether you choose bark, gravel, shredded rubber, live plant material or hay, good mulching practices makes your plants much happier and healthier.

AMEND YOUR SOIL

Using compost in your planting beds and gardens yields great results. Your soil will hold water better and be more nutrient rich. There are a wide variety of composts, fertilizers, manures, and other soil amendments available on the market. The best way to determine what you need is to start with a soil test. By using a local lab or the Texas A&M soil testing lab, you will find out exactly what is lacking in your soil.

MAINTAIN SYSTEMS

Routine maintenance makes a landscape far more water efficient and aesthetically pleasing. Remove weeds to reduce competition for resources, prune perennials appropriately to encourage healthy growth, and regularly check and maintain your irrigation system. There is nothing worse for your water wise landscape than a broken sprinkler head shooting a geyser 20 feet into the air! Regularly making certain everything is clean and operating properly will save you large amounts of time, money, and hassle in the long run.

For tips on finding the right plants for your area, look up your local chapter of the Texas Master Gardener Association, talk to local nurseries, or find online plant selection tools at Texas A&M's Earth-Kind Landscaping or Texas Water Smart's websites. If you need further advice or information about gardening, check out www.LubbockMasterGardeners.org, www.LubbockHorticulture.com, or call the Lubbock County AgriLife Extension office at 806-775-1740.

2015 LEGISLATIVE SESSION SUMMARY

STORY BY KODY BESSENT

Throughout the 84th Texas Legislative Session, the High Plains Water District (HPWD) worked closely with our representatives and senators on several key water policy initiatives. HPWD sincerely appreciates the hard work and dedication of our elected officials in promoting innovative and scientific based solutions to address our state's growing water needs.

AQUIFER STORAGE AND RECOVERY (ASR)

House Bill (HB) 655, effective June 16, 2015, amends the Texas Water Code relating to the storage and recovery of water in aquifers. Previous law provided for the storage of appropriated water in aquifers through pilot projects.

The bill as signed into law streamlines the development of ASR projects, granting the Texas Commission on Environmental Quality (TCEQ) exclusive jurisdiction over the regulation and permitting of ASR injection wells, and requires reporting of injection and recovery volumes and water quality data to TCEQ by the project operator.

Additionally, HB 655 requires the registration and reporting of ASR injection wells and ASR recovery wells with a groundwater conservation district in which the wells are located. A district is authorized under HB 655 to assess a well registration fee or other administrative fee for an ASR recovery well. The bill subjects a recovery well associated with an ASR project to a district's permitting, spacing, and production requirements if the amount of groundwater recovered from the well exceeds the volume authorized by TCEQ.

BRACKISH GROUNDWATER DEVELOPMENT

HB 30, effective June 19, 2015, authorizes \$2 million in General Revenue for a study to be conducted by the Texas Water Development Board (TWDB). This study concerns the designation of brackish groundwater in the portion of the Carrizo-Wilcox Aquifer located between the Colorado and Rio Grande Rivers, the Gulf Coast Aquifers and sediments bordering that aquifer, the Blaine Aquifer, and the Rustler Aquifer, or other appropriate aquifers as identified. The TWDB shall report to the Legislature on its progress relating to the study no later than December 1, 2016 and December 1, 2022 respectively.

The purpose of HB 30 is to provide scientifically based incentives for the development of brackish groundwater resources in areas where development would have a minimal impact on existing fresh groundwater use, while respecting and adhering to private property rights in groundwater. HB 30 should also encourage the use of brackish groundwater for purposes other than public drinking water.

DESIRED FUTURE CONDITION APPEALS

HB 200, effective September 1, 2015, amends the Water Code to revise the current statutory procedure for the appeal of a desired future condition adopted by a groundwater conservation district. Among other things, the bill requires an appeal to be heard by the State Office of Administrative Hearings, instead of the Texas Water Development Board. It also requires a groundwater conservation district to issue a final order on the matter upon receipt of the administrative law judge's proposal for decision, and provides for the appeal of the order to local district court.

OIL AND GAS

HB 40, effective May 18, 2015, amends the Natural Resources Code and gives the state exclusive jurisdiction for regulating oil and gas operations. The bill expressly preempts the authority of a municipality or other political subdivision to regulate an oil and gas operation, but authorizes a municipality to enact, amend, or enforce certain measures that regulate aboveground activity.

THE INTERIM

As we enter the interim following the 84th Legislative Session, HPWD looks forward to working with our elected officials and their staffs in order to address charges set forth by Lieutenant Governor Dan Patrick and Speaker Joe Straus.

HPWD will continue to focus on groundwater research and development efforts while advocating for new and innovative conservation strategies, the protection of private property rights, and maintaining local management of groundwater resources. ■

COUNTY ADVISORY COMMITTEES

MEET IN LUBBOCK ● STORY & PHOTOS BY CARMON MCCAIN



Senator Charles Perry (SD 28) recaps water legislation during the 84th Legislative Session.

State Senator Charles Perry of Lubbock and Texas Water Development Board (TWDB) Chairman Bech Bruun of Austin were keynote speakers at the Sept. 15 HPWD County Advisory Committee meeting at the Bayer Museum of Agriculture.

The meeting provided County Advisory Committee members with updated information about recent legislation, state water funding opportunities, and HPWD support for water conservation research.

SENATOR PERRY

“The 84th Texas Legislature was a great session with new leadership and new energy,” said Perry, who chairs the Senate Committee on Agriculture, Water and Rural Affairs.

While water issues can be contentious, he was pleased that three major pieces of water-related legislation were approved during the 140-day regular session. These bills addressed aquifer storage and recovery, desalination of seawater, and mapping groundwater in brackish aquifers.

It is his belief that Texas must continue its water conservation efforts while exploring ways to develop new water sources.

He concluded by thanking the HPWD Board of Directors and County Advisory Committee members for their service.

“Every Texan must be a good steward of their water resources. It is best to have local management, such as HPWD, rather than the alternative,” he said.

CHAIRMAN BRUUN

“The TWDB is not a regulatory agency, but rather a resource to help provide low-interest loans to fund water projects. We’ve done this since 1957,” said Chairman Bech Bruun. “Other major duties include state water planning as well as providing sound science and technical support to groundwater conservation districts throughout Texas.”

Created by HB 4 and approved with a Constitutional Amendment, a one-time \$2 billion transfer from

the state’s “Rainy Day Fund” was authorized to fund the new State Water Implementation Fund for Texas (SWIFT) program.

By statute, 20 percent of the SWIFT fund is for conservation/reuse projects. Another 10 percent of the fund is designated for rural communities and agricultural water conservation.

“There were 32 projects funded during the first round of the process. These ranged from a surface water conveyance project for Houston to a new groundwater well for Marfa,” he said.

UPDATES ON HPWD PROGRAMS: DOCKUM AQUIFER STUDY

Because of the recent drought, there is increased interest in use of the Dockum Aquifer as a potential water supply.

“The Board authorized staff to conduct a Dockum Aquifer study, which includes an inventory of Dockum wells, establishes a network of water level observation wells, and engages the U.S. Geological Survey (USGS) for geophysical logging of up to 15 Dockum wells,” said HPWD Manager Jason Coleman.

Currently, HPWD has information for about 225 to 230 wells completed in the Dockum Aquifer. “This study will help us determine which areas need more intense evaluation,” Coleman said.



HPWD Board President Lynn Tate catches up with TWDB Chairman Bech Bruun.



HPWD Board Member Mike Beauchamp talks with Bailey County Committee Member Jim Pat Claunch.

RESEARCH PROJECTS

Precinct Three Director Mike Beauchamp of Friona discussed recent funding of water conservation research and demonstration projects by the HPWD Board of Directors.

“A research and development project policy committee reviewed 17 proposals and recommended eight projects be funded for a total amount in excess of \$87,000,” he said.

While use of the Dockum Aquifer as a potential future water supply topped the list of proposed research projects, other projects included an evaluation of precision mobile drip irrigation systems, purchase of a soil moisture meter, playa basin educational workshops, and an economic analysis of residential irrigation habits/landscape design.

“The Board is pleased to work with these researchers to gain a better understanding of groundwater and how to conserve it for the future,” Beauchamp said.

HPWD WEBSITE & INTERACTIVE MAPS

Education and Outreach Coordinator Adeline Fox demonstrated the interactive maps found at map.hpwd.org.

“The website includes links to interactive maps showing all wells in the district, the district’s observation well network, well logs, and a well spacing guide for permit application use. Several updates were made to these maps during the past few months,” Fox said.

Some refinements include access to water level data recorded on a daily basis in continuous monitoring wells and geophysical log data for Dockum Aquifer wells. Legal descriptions and latitude/longitude have also been added to the base maps.

IRRIGATION ASSESSMENT PROGRAM

Field Staff Supervisor Keith Whitworth discussed the 2014 Irrigation Assessment program.

Participants volunteer to have their center pivot or drip irrigation system evaluated by HPWD staff. Wells are tested during the growing season to determine the total gallon per minute flow at each pivot or drip irrigation site. In addition, HPWD staff members take water quality samples at each site in the program.

“The HPWD service area is 150 miles in distance from north to south and 120 miles from east to west. Because of this, we encounter a wide range of conditions as part of the program. This includes rainfall, amount of irrigation per crop, water quality and quantity, and saturated thickness of the aquifer(s),” Whitworth said. For example, the average depth to water is 70 feet in Lynn County while the average is 364 feet in Parmer County.

HPWD Board President Lynn Tate concluded the meeting by thanking the County Advisory Committees for their dedicated service.

“You are the heart and soul of the district. The Board wants to hear from you regarding future programs and activities,” Tate said.

Bailey County Advisory Committee member Nick Bamert of Muleshoe said he was pleased with the information presented at the meeting.

“I’m very excited about this. We’re not talking doom and gloom as in the past—but are actually working to determine availability of future water supplies for our region,” he said. ■



High Plains
Underground Water
Conservation District