

# PARTNERS IN PROGRESS

SUMMER 2020



## UNDERSTANDING THE RISING COST OF WATER

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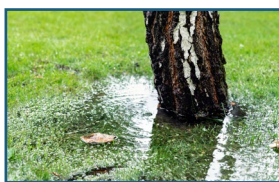
## THERE'S AN APP FOR THAT...



Irry Gator tells us about WHCROWA's new WATER MY YARD partnership with Texas A&M AgriLife Extension Service and the specialized Evapotranspiration (ET) weather station installed at Pump Station No. 1.

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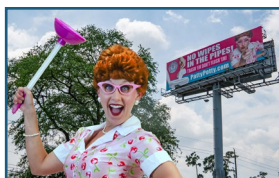
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WHCROWA Operator, INFRAMARK Project Manager Texas Gulf Contract Operations. Here's why you'll want him on your team.

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# Partners...

**Message from WHCROWA's Board President, Eric Hansen**



## This too shall pass...

Even the most prescient futurist could not have told us six months ago that the entire world would be shut down in the throes of a deadly pandemic.

We have learned a new definition of the word HERO as we witnessed countless examples of care given without reservation to perfect strangers...men and women who have selflessly given their last ounce of strength to help someone else cope and survive. Yes, these heroes include the doctors, nurses, interns, lab techs; the emergency service personnel -- the paramedics, 9-1-1 dispatchers, those who staff the ambulances and volunteer; the military called in to provide the extra measures of care and protection; and the law enforcement workforce. But the people who restocked the grocery store shelves overnight, the farmers and ranchers, the truckers who stewarded the supply chains, and the sanitation workers are also heroes without whom a bad situation would have become far worse. They all deserve our gratitude and admiration.

We are cheered by random acts of kindness -- TV news coverage of firetruck parades through locked down neighborhoods to wish a sick child or senior a happy birthday -- proving that even in the worst of situations Americans are resilient.

The pandemic has truly tested our mettle...affecting the way we live, how we choose our priorities, the way we communicate. We hunkered down at home...we became substitute teachers for our children -- and, in the process, gained more respect for educators. We multitasked and relied on new technology to "meet" with associates who were also working from home...all without missing a beat.

Our thoughts and hearts go out to everyone who has contracted Covid-19 and those who have lost a family member or friend or associate to this insidious, lethal, and invisible enemy.

**And we respect and appreciate all the men and women who keep our waterworks working. Thank you.**

*Eric*



# UNDERSTANDING THE RISING COST OF WATER...

## What is the WHCRWA?

The West Harris County Regional Water Authority (WHCRWA) was created by the Texas Legislature in 2001 to manage compliance with the Harris-Galveston Subsidence District's (HGSD) groundwater reduction mandates. **The WHCRWA is not a Municipal Utility District (MUD) and does not control any MUD operations (delivering water to homes and businesses, sewer services, retail billing, etc.). The West Authority is a wholesale water provider and does not provide retail customer services.**

The MUDs that supply our neighborhoods with drinking water have traditionally relied on groundwater pumped by individual wells, some of which are now 50 to 60 years old. Our area's steadily increasing population and decades of aggressive water usage have not only caused the aquifers to decline, but resulted in **land subsidence** and increased flooding, as well.

## The Impact of Subsidence

In 1975, the Texas Legislature created HGSD — a special purpose district; the first of its kind in Texas — armed with the power to restrict groundwater withdrawals as a method to minimize subsidence and to help give aquifers an opportunity to recharge. The combination of subsidence in northwest Harris County and evidence that aquifers were declining confirmed the need to convert to surface water for this area. The Subsidence District extended its groundwater regulation to include north and west Harris County in 2000.

The WHCRWA has to construct an entirely new infrastructure to deliver surface water to the MUDs to supply their commercial and residential customers within their boundaries. The MUDs continue to use their groundwater wells to supplement the new surface water supply.

The Texas Legislature did not give WHCRWA *taxing authority*. In order to generate the necessary revenue to pay Authority operating and construction costs, the Board adopted a rate order to *charge fees for water pumped by the well owners within their boundaries and for surface water delivered.*

## What are the WHCRWA fees that appear on water bills and what are they used for?

The WHCRWA fee that appears on residents' water bills is charged for water pumped by the utility districts (well pumpage fee) and for surface water (surface water fee) provided to them by the WHCRWA. The utility districts in turn charge their individual customers for the water they use, and sometimes modify the fee charged them by the WHCRWA as pass through cost on the retail water bill to cover such things as leaks in their system, and fire hydrant use.

The WHCRWA uses the fees collected to fund its capital, operations/maintenance and debt service budgets. The vast majority of budgetary allocations go toward debt service, buying surface water, and paying for the system needed to deliver surface water from City of Houston-owned drinking water sources to the MUDs within WHCRWA's boundaries.

The first phase of the HGSD's groundwater reduction mandate was met in 2010, which reduced reliance on groundwater in the area by 30 percent. The next deadline is 2025 and requires 60 percent conversion to alternate (or surface) water.

### Effective January 1, 2020 the

- **Groundwater fee is:**  
**\$3.20/1000 gallons, and the**
- **Surface Water fee is:**  
**\$3.60/1000 gallons.**

## Will we have enough water for the future?

Fortunately, the Houston region can rely on the surface water resources secured more than 50 years ago with the construction of the water storage reservoirs fed by the San Jacinto and Trinity Rivers. The City of Houston has over 1.2 billion gallons per day of reliable surface water rights. Combined with its groundwater supply, this is enough to meet the needs of the region through approximately 2050 and beyond.

To meet future demand, the WHCRWA is partnering with the City of Houston and other area water authorities to utilize the available water supply on the Trinity River and get it to where it is needed most — in west, central and north Harris County and north Fort Bend County. That involves constructing new pipelines, pump stations and expanding the water treatment plant's capacity.

*continued page 4*



# The Rising Cost of Water

*Continued from page 3*

■ The **Luce Bayou Interbasin Transfer Project** will bring raw water from the Trinity River in a system of canals and pipelines. Construction is underway on the Capers Ridge Pump Station on the river's west bank that, when fully functional, will be able to divert up to 500 million gallons of water a day from the river, pump it into side-by-side pipelines to flow underground to a storage and sedimentation basin. Then it will flow into a canal that runs to the northeastern tip of Lake Houston.

■ With the availability of more raw water coming into the Lake Houston reservoir, there was an urgent need for additional treatment capacity. The City's **Northeast Water Purification Plant (NEWPP)** is being expanded by the City of Houston, the WHCRWA, and its partners. This multi-billion dollar project — to be accomplished in phases over the next 4 to 6 years — will add 320 million gallons a day of treatment capacity.

■ The **Surface Water Supply Project** is a huge, landmark project that will deliver water treated at the Northeast Water Purification Plant through large diameter transmission lines (as large as 8 ft.) across almost 54 miles to west Harris and Fort Bend counties. The pipeline is a joint project between WHCRWA and the North Fort Bend Water Authority.

■ The WHCRWA will also fund its **Capital Improvement Plan** that includes constructing new water distribution lines within their boundaries to convert an additional 43 MUD water plants to surface water.

## So where are we now?

These massive construction projects take years to plan, design, and construct, and the bonds must be sold before we can start these projects. WHCRWA sold \$265MM in bonds in 2019, with another ~\$412MM scheduled for 2020. As we sell more bonds to fund the 2025 conversion projects, the debt service will continue to rise. Without a rate increase, these costs cannot be met.

Fortunately, we also have access to the State's SWIRFT program or the State Water Implementation Revenue Funding Program. The TWDB approved WHCRWA loan requests in 2015, 2017 and 2018. This multi-year, low interest loan commitment is for a total of \$999,105,000.

We know that the cost of water will continue to rise. The Board of Directors is committed to keeping the cost of water as low as possible for as long as possible and will keep the periodic rate increases reasonable and consistent with this commitment. 💧







# PUT GREASE IN ITS PLACE!

When Fats, Oil and Grease (F.O.G.) go down the drain, they clog pipes, cause foul odors, and can cause sewer back ups. F.O.G. comes from cooking meat, shortening, butter, food scraps, sauces, and dairy products and can build up over time in pipes.

**WIPE IT!**



**SCRAPE IT!**



**TRASH IT!**



**WATER LESS  
SAVE MORE**  
savewatertexas.org



# Don't be a lawn watering dummy

*(Modified from a Southern Living "Grumpy Gardner" article by Steve Bender)*

Nothing is stupider than the way people water their yards. People water too much, too often, at the wrong times, and the wrong way. Not only does this waste a valuable and increasingly scarce resource, it also makes your lawn look worse by increasing disease, insect, and thatch problems. How many of the following have you seen in your neighborhood?

## Stupid Lawn Tricks

Using sprinklers in the blazing hot sun. Hello?

Using sprinklers when it's sunny and 95 degrees is dumber than swimming with polar bears. Practically all the water applied will evaporate into the hot air before ever reaching the roots. You might as well water the storm drain.

Using sprinklers when it's raining. Most people guilty of this use in-ground sprinklers set by a timer. Having to eat boiled yak every day for a year is not too harsh a punishment.

Using sprinklers to water the street. Again, in-ground sprinklers are the culprit. People set them to go off in the middle of the night and never see where the sprinklers are pointed. As I've said before, you can water asphalt all you want, but that stuff just ain't gonna grow.

Giving your flowers, shrubs, and trees the same amount of water that you give your grass. Different plants have different water requirements. Treating them all the same means one will be happy and the others will hate you. Who practices such idiocy more often than anybody else? Owners of in-ground sprinkler systems.

Watering the grass every single day for 15 minutes. This turns the lawn into a shallow-rooted water junkie that demands a water fix every day just to soldier on. Instead of watering shallowly every day for 15 minutes, water deeply once a week for an hour or so (or how ever long it takes to apply an inch of water). You can also look into treating your water if you are a fanatic like me, check out some Water Softener Reviews, your grass will never be greener. Your lawn will be healthier and more drought-tolerant. It will also have fewer loathsome weeds like dollarweed and nutgrass (nutsedge) that thrive in overwatered lawns.



## Let's All Water Less

Pure, fresh water is fundamental to human life, yet we waste it in so many ways -- from building humongous, bloated desert cities like Phoenix and Las Vegas that have to capture their water from distant rivers to average folks who overwater their grass. So how can you have a nice lawn while using a modicum of water?

- Don't make the lawn bigger than you need. Devote more area to natural areas and drought-tolerant plants and ground covers. Watch your water bill shrink.
- Choose a grass well-adapted to your region.
- Water at the right time. The best time to water is very early morning before it gets hot. Most of the water will make it to the roots. Plus, the grass blades will dry quickly, preventing disease problems.
- Don't mow your grass during droughts. Cut grass loses lots of moisture through cut blades and turns brown if you don't water it. So don't cut. Grumpy's rule during hot, dry summers is, don't cut the grass until it rains two days in a row.
- Cut your grass at the highest recommended height for your grass. Taller grass shades and cools the ground, reducing moisture loss. In a drought, taller grass always stays greener longer than shorter grass. For example, cut St. Augustine at 3 to 4 inches, and Zoysia at 2 inches.
- If you don't have in-ground sprinklers, don't get them. People with sprinkler systems always use more water because watering is so easy. You don't have to drag hoses. You just set the timer and forget it.

# UH OH! WE HAVE SOME POTTY PROBLEMS! PATTY POTTY TO THE RESCUE...

Human society has progressed through the Ice, Stone, Bronze, and Iron Ages. Sometime during the mid-20th century, we entered the “Disposable Age” where “convenience” became the touchstone, and an increasing number of consumer products were designed to be discarded after a single use. Today, the nonwoven fabric successor to the dampened washcloth – marketed as wet wipes for a variety of different purposes — generates more than \$5 Billion for manufacturers in a single year.

There are “wipes” for virtually every household and personal hygiene purpose. The original product was intended as a handy diaper clean-up for babies and young children; meant to be folded into the *disposable* diaper and *discarded in the trash*. During the last decade; however, marketers have targeted adults to offer products intended to supplement or replace toilet paper. Convenience and “clean” appear to trump all other purchase motivations. We are suckers for products that promise to save time and money, and still get the job done with little or no effort. Unfortunately, when it comes to supposedly “flushable” wipes, many of these man-made fiber products turn out to be nearly indestructible, so **they ‘flush down, but they don’t flush out!’**



**Sewer systems** around the world are now teeming with millions of flushed wipes that form monstrous “**WIPES-BERGS**” when they encounter another sewer enemy that gets carelessly dumped down kitchen sinks – F.O.G. (Fats Oils and Grease). The end result is not only a costly, disgusting mess for wastewater treatment plants but also translates to water and sewer price increases for customers. As an example, in New York City alone the amount of wipes extracted from sewage waste has reached about *1.3 billion cubic feet each year* – with a hefty annual price tag of about \$3 million. The cost to the city’s taxpayers is even higher; the outlay for wipes-related damages to sewer infrastructure was about \$18 million over 5 years.

Water treatment experts are calling this proliferation of flushed wipes a global CRISIS. They are working with product manufacturers to encourage “flushable” content and strict advertising standards and, at the same time, conducting campaigns to alter consumer behavior to promote proper disposal. Patty Potty’s **NO WIPES IN THE PIPES** campaign is resonating with municipalities, water plant operators AND consumers! This is a problem that crosses state and national boundaries, so we’re doing everything possible to produce education materials as affordably as possible.

Patty’s goal is to get the message out to as many “flushers” as possible to encourage people to think twice before flushing anything but the three P’s – **Pee, Poo, and Paper** – toilet paper that is!

We invite you to visit Patty online (website ([www.PattyPotty.com](http://www.PattyPotty.com))) where she not only discusses the problem, but “talks” with viewers. **Join Patty’s Potty Patrol! Your support will make a difference!**





# They're Ba-a-a-a-a-c-k!

## Don't give them a home!

*Here's some useful advice from the West Harris County Regional Water Authority*

Just when you're relaxing with your family on the patio, you hear it -- the distinct dive-bomber buzz of a mosquito with a nice juicy spot on your bare arm in her sights. HER sights? Yes, indeed. It is the female mosquito that is responsible for 'biting' you. She's not biting out of spite -- she needs the protein from blood to produce eggs. Not that it matters...the end result is the same -- a tiny spot that itches the more you scratch it.

Here's some more bad news...mosquitoes can find you from up to 36 yards away using sensory organs to detect smell, carbon dioxide, warmth and moisture emitted from a chosen host. The nasty little insects tend to stay around the area in which they hatched, so it is a really good idea to kill them before they make themselves at home. And since they need standing water for three-quarters of their lifecycle (see illustration) and not just to lay their eggs, the primary targets in your yard should be relatively easy to find.

***If you hate mosquitoes, give some thought to how much you water your lawn. It only really needs watering twice a week AT THE MOST, even during hot summer months.*** If you're overwatering -- and most people do -- it is likely there are some soggy spots that make an attractive home for these annoying, blood-thirsty pests.

There are probably lots of attractive mosquito breeding spots in your yard and around the house; you've just never hunted them down before. Here are some favorite mosquito "incubators" to look for...

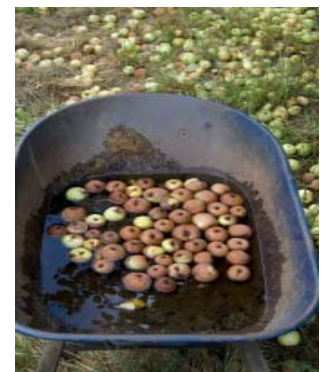
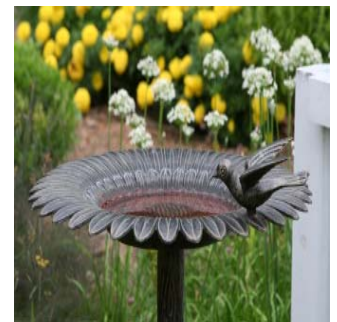
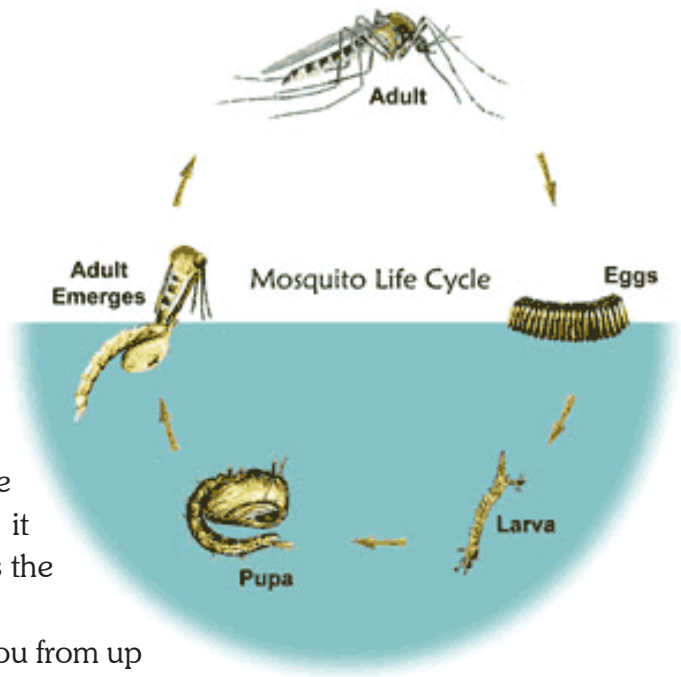
**Bird baths and pet bowls**...hose them out and add fresh water regularly. Your dog or cat will appreciate the fresh water. They're not very fond of mosquitos, either.

**Wheelbarrows** are often left where they were last used, and if not turned over, they will collect rainwater. Dump water out of wheelbarrows and other yard equipment and store them properly.

If there are any young people around the house, put away **toys and play-things** that might hold water. Mosquitoes don't need a lot of standing water to make a nice home.

Make sure to keep grass clippings and leaves out of the **storm drains**. Not only is putting grass clippings or leaves in the storm drains prohibited, but the debris tends to hold water and that attracts mosquitoes. While we're on the subject of storm drains, there are some very important "dos and don'ts" when it comes to these important conduits.

Most people are unaware of how they impact water quality, and are seriously surprised to learn that folks going about their daily lives are *the number one*





source of stormwater pollutants. Some of the biggest contributors to this problem are routine residential activities such as lawn mowing and fertilizing; car washing and maintenance, and the application of pesticides and herbicides on lawns and landscaped areas. These all add contaminants to storm runoff and can end up in our drinking water supply.

On household lawns and gardens, homeowners can try natural alternatives to chemical fertilizers and pesticides. Composting, use of native plants and Xeriscaping in landscaped areas can reduce or even eliminate the need for chemicals. Natural predators like frogs, dragonflies, and bats can help take care of pesky insects. If chemicals are needed around the home, they should be stored properly to prevent leaks and access by children. Most cities have designated sites for the proper disposal of used chemicals.

For the same reason, **clean the gutters regularly**. Not only do leaves and pine-straw gather in these troughs and create havens for bugs, but if we do get a really good rain the debris will negate the reason for having the things in the first place...and water will simply stream over the edge. Unfortunately, cleaning out gutters has about as much appeal as pulling weeds, but the end result is worth it...in both cases.

Another nice mosquito breeding area that is not so apparent is container plants. **Plant pot saucers** can collect water, so check and empty them regularly. Or -- here's a clever idea that will help retain moisture -- fill them with sand or fine mulch to retain the water.

If you have a cover on your swimming pool or spa, **prevent water from puddling** on the cover. While you're checking around, eliminate any yard debris that might hold water. Eliminate any of these potential "homes."

If you have any kind of yard ornaments, check them carefully for places water can collect. Some common sense and vigilance will send the pesky little blood suckers somewhere else to live. Enjoy your summer and be bite free! 💧







# In his own w

***You can tell a lot about  
refers to himself in the first***

I was born in Houston in '89 and have lived here 29 out of those 31 years. I grew up with a younger brother that now lives in NY and both of my parents are workaholics and have owned their own businesses. Parents split when I was young and my dad moved to Arkansas so I spent a lot of time visiting in the beautiful lakes and forests of AR and learning how to fix computers in my dad's business, and helping my mom clean houses at home. I went to a private school (Cypress Christian School) 'til 1<sup>st</sup> grade and was homeschooled from there. Both of my step-parents are awesome, so I managed to avoid a bunch of family drama.

From the computer business I developed a love of troubleshooting which is a big part of what drew me to operations. Always nice to figure out a problem and fix it, gives you a real sense of accomplishing something. I always did well in science so I knew I was hooked on my first day as an operator in training.

I got started in this career during the recession in '09, before that aside from my parent's businesses I got a job at Kroger when I was 15 going from sacker, to cashier, to customer service, to bookkeeping. Quit and moved to Central TX then started job hunting at 19, frankly the water plant was the only place hiring in the City of Marlin at the time so I just stumbled into this industry like many folks. I didn't know a single thing aside from water comes out of the faucet when you turn it on.

My first car was a '91 Chrysler New Yorker which broke down a week before my interview was scheduled, so I got on my bike and rode 21 miles to the plant. The plant manager told me if he couldn't find a place for me as an operator he'd find somewhere for me. Luckily I was hired, as an Operator in Training at the City of Marlin surface water treatment plant. Great folks out there, I credit my old boss with supporting me all the way and really ensuring I would never want to do anything else for a living. When you work for a small City, you learn to be a jack of all trades. I learned maintenance on all of the equipment, troubleshooting, lab work, and how to write SOP's. Basically if someone had a challenge I would jump on it.



# ords...Meet Bryan Thomas

*this young professional by counting the few times he person. He's definitely someone you'll want on your TEAM!*

Decided it was time to move back home to Houston after acquiring my C surface license and wanted to continue my professional career. Not a lot of room for advancement when everyone around you has been working the same job longer than you've been alive. Not a lot of surface water jobs available outside of the City of Houston or other municipalities either but that was all I knew at the time.

Applied for a bunch of openings on the public side, and one or two private industry water jobs. Southwest Water had a job for an operator with surface water experience as a plus, and I applied on a Saturday night not knowing what to expect. Lonnie Lee called me first thing Sunday morning to schedule an interview, there weren't a lot of surface water operators looking for jobs in the MUD industry and they had an opening. I had thought the ceiling to shoot for was Public Works Director after putting in 20 years, but there a lot more opportunities available in the MUDs.



Started with the Authority at SWWC as an Operator II on July 5<sup>th</sup>, 2011. I still remember how that first day went and how I felt smiling on the way home. There was a lot of troubleshooting to do, lots of hands-on stuff. It was extremely overwhelming at first but after getting past that I knew this was the place for me. At the time the WHCRWA only had one field person which was me, so for two years I learned every side of Authority operations until we moved to Severn Trent and trained 2 more folks.



WHCRWA OPERATOR

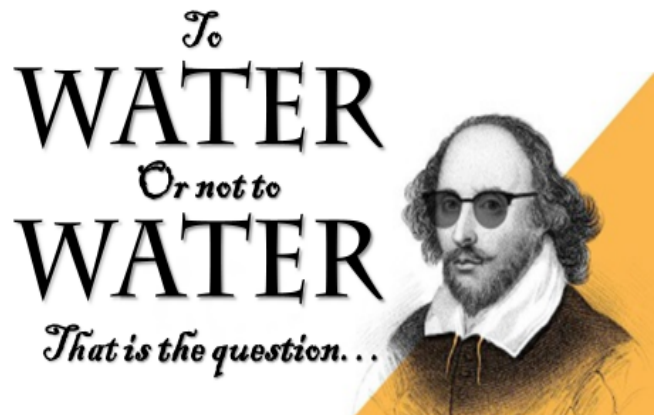
*Project Manager – Texas Gulf Con Ops, INFRAMARK*

Goals? I guess my current goal is to see the Central Pump Station start up and the completed Northeast Water Purification Plant. I am happy and content where I am, moving up would get me too far from the stuff I love to do. I am so very lucky to work with some of the best folks at the top of the industry!

I like traveling, of course, with my goal of visiting all 50 states. Last year I knocked off most of the East Coast -- so 37 down and 13 to go. I want to see them all but my heart is in Texas! 💧



*There's an app for that...*  
**WHEN SHOULD I  
WATER MY YARD?**



Here's a program and website – **WATER MY YARD** — that can answer the “when to water” question for homeowners within the boundaries of the WHCRWA. According to the experts at Texas A&M AgriLife Extension Service, “The WaterMyYard website application uses the best scientific data available to determine how much water plants need based upon the local climate, soils and other factors. Finally, here's something that takes the guesswork out of irrigating your yard.”

The website employs simple, intuitive images and information prompts to guide users in setting up their individual profiles so they can receive watering recommendations for their type of irrigation system and local conditions. Users can choose to receive their weekly watering recommendations by email and/or text messages.

The specialized weather station installed by the Authority will provide the localized climatic data needed to calculate daily evapotranspiration, the amount of water used by plants. Knowing how much water plants are using and how much rain has fallen allows WaterMyYard to determine if any additional irrigation is needed. It includes calculations for sprinkler and drip irrigation systems by all major manufacturers, and can also calculate weekly runtime watering recommendations for homeowners who use hose-end sprinklers.

This a great time for residents who live within the Authority's service area to sign up for the **FREE WaterMyYard** program. We know we save water when we don't irrigate, so with the assistance of the ET device local residents can “**Water Less and Save More.**”

Based on an article by Adam Russell, [ag.tamu.edu](http://ag.tamu.edu) Agrilife TODAY; July 10,,2019

**Your yard's new very best friend!**

**Take the guesswork out of irrigation decisions!**

**Sign up TODAY for WATER MY YARD and get timely tips and alerts when your lawn is thirsty!**

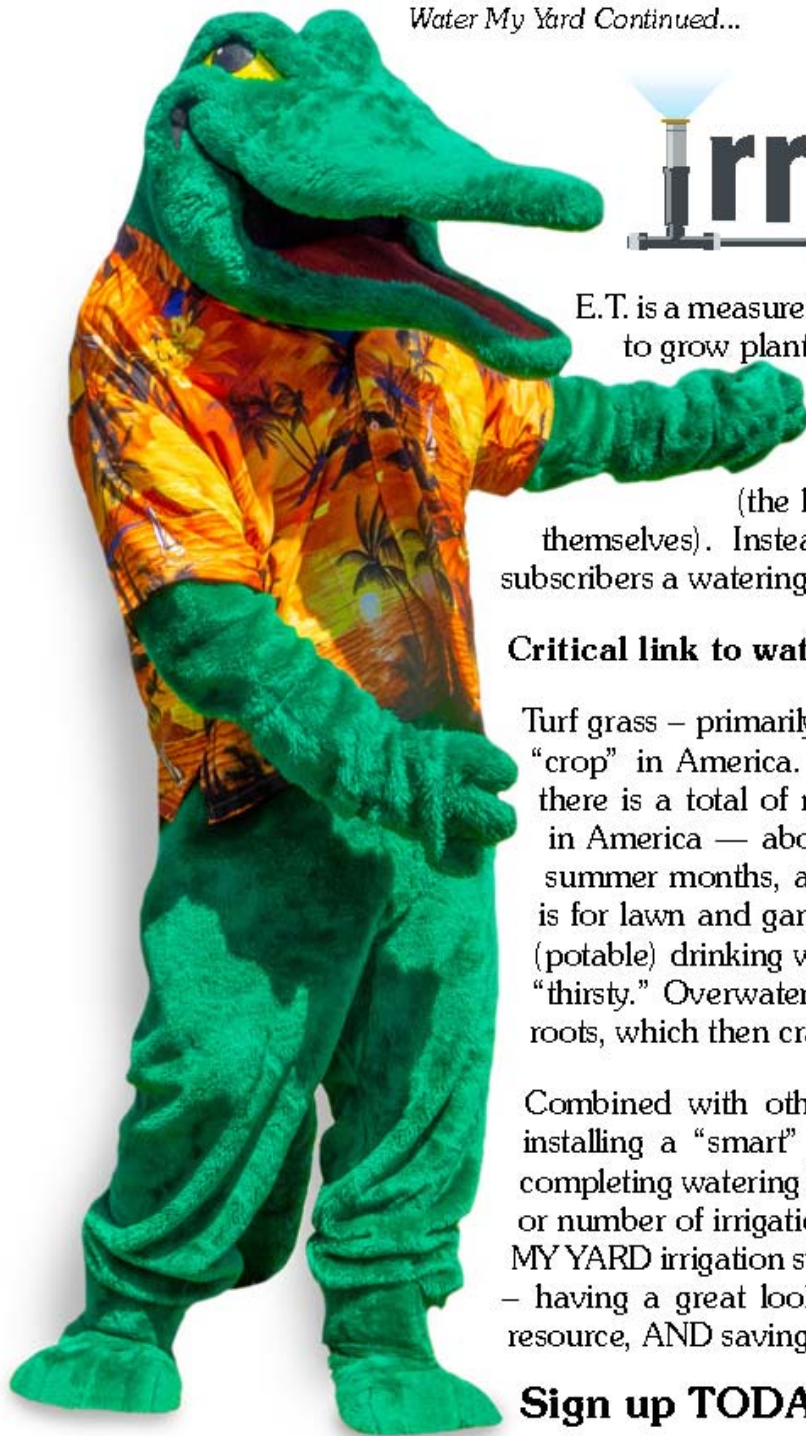
**www.IrryGator.com**

**IrryGator**  
WATER LESS - SAVE MORE

West Harris County  
Regional Water Authority



*Water My Yard Continued...*



E.T. is a measurement of the total amount of water needed to grow plants and crops. The term is a combination of the word evaporation (loss of water from the soil in the form of a vapor or gas) and the word transpiration (the loss of water from the plants and grasses themselves). Instead of phoning home...this E.T. sends subscribers a watering alert via text or email!

### **Critical link to water conservation...**

Turf grass – primarily St. Augustine — is the largest irrigated “crop” in America. A study by NASA scientists estimates there is a total of more than 63,000 square miles of lawn in America — about the size of Texas. During spring and summer months, about 80 percent of residential water use is for lawn and garden irrigation; almost 50 percent of that (potable) drinking water is wasted on lawns that aren’t even “thirsty.” Overwatering ‘tricks’ the turf into growing shallow roots, which then crave more frequent watering.

Combined with other water conservation strategies – like installing a “smart” irrigation controller and a rain sensor, completing watering before dawn, and cutting back the length or number of irrigation cycles – following the weekly WATER MY YARD irrigation suggestions will help you achieve a trifecta – having a great looking lawn, avoiding wasting a valuable resource, AND saving money on your water bill.

### **Sign up TODAY...**

**Visit [watermyyard.org](http://watermyyard.org)  
then enter your address to  
view your typical watering  
recommendations.**





# Check your sprinklers or irrigation systems in the spring

Here's where to start:

- Run the system through all the zones manually and walk the property.
- Make sure none of the heads are broken or damaged.
- Adjust any heads that are spraying the house, especially windows, as this can cause moisture problems.
- Adjust heads that are spraying the street, sidewalk or porches to avoid wasting water.



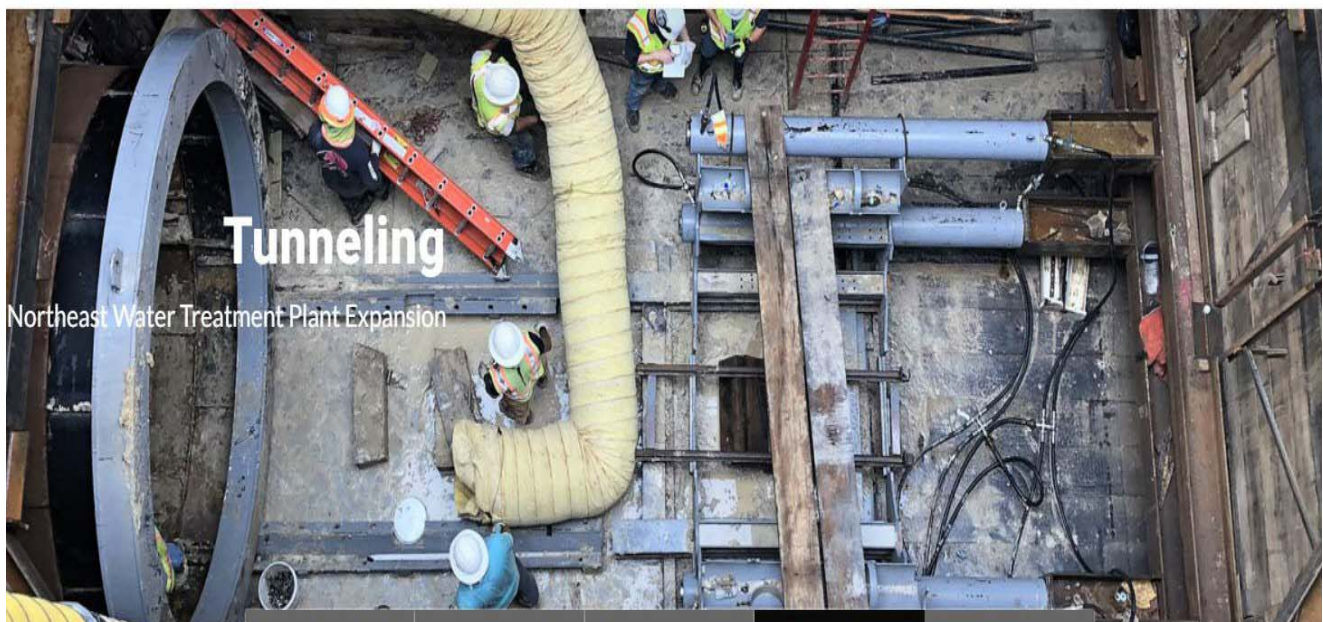
If you don't know how to maintain your sprinkler system, call a professional to do it. You'll save money on your water bill and protect one of our most valuable natural resources.

***Visit us online...[www.whcrwa.com](http://www.whcrwa.com)...for videos and information about critical water issues.***

West Harris County Regional Water Authority - Houston, Texas



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# BILLING INSERTS AND BROCHURES AVAILABLE ONLINE

## UTILITY DISTRICT BILLING INSERTS

**A LEAKY FAUCET**  
Can waste thousands of dollars a year!

**THE WASHING MACHINE**  
The second largest water user in your home.  
Can account for as much as 22% of residential water use.

**STOP THOSE LEAKS**  
Save water and money! Stop leaky faucets and toilets.

**TAKE SHORTER SHOWERS**  
Even a one or two minute shorter shower can save up to 700 gallons of water a month.

**RUN THE DISHWASHER ONLY WHEN IT'S FULL!**

**TURN OFF THE WATER WHILE BRUSHING YOUR TEETH**  
Now that turning off while you brush your teeth can save four gallons a day? In one year that's to be about 2,880 gallons of water!

**LEAKY TOILET**  
The single greatest water waster in the home is a leaking toilet!  
A leak of one gallon every six minutes adds up to ten gallons an hour, or 240 gallons per day!

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Every Living Creature Needs It To Survive!

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## FREQUENTLY ASKED QUESTIONS ABOUT HURRICANES

### Q. What Is a Hurricane?

**A.** A hurricane is a tropical storm with winds that have reached a constant speed of at least 74 mph in the North Atlantic Ocean, Caribbean Sea, or Gulf of Mexico. A hurricane's winds blow in a large spiral around a relatively calm center of extremely low pressure known as the eye of the storm. Around the rim of the eye, winds may gust to more than 200 mph. The eye of a storm is usually 20 to 30 miles wide and may extend over 400 miles. The entire storm can be up to 340 miles in diameter, dominating the ocean surface and lower atmosphere for thousands of square miles.

### Q. Where Does a Hurricane Form?

**A.** Hurricanes only form over warm waters in the tropics (usually above 27°C, or about 81°F). Think of a hurricane like a giant engine. It's fuel is warm, moist air—which rises from the oceans causing an area of lower pressure below. Then the air from surrounding areas with higher air pressure pushes in to the low pressure area. Then that “new” air becomes warm and moist and rises, too. As the warm air continues to rise, the surrounding air swirls in to take its place. As the warmed, moist air rises and cools off, the water in the air forms clouds. The whole system of clouds and wind spins and grows, fed by the ocean's heat and water evaporating from the surface. Around their core, winds grow with great velocity, generating violent seas. Moving ashore, they sweep the ocean inward while spawning tornadoes and producing torrential rain and floods.

### Q. Which Areas Are Most Susceptible to Hurricanes?

**A.** All Atlantic and Gulf coastal areas are subject to hurricanes or tropical storms. Although rarely struck by hurricanes, parts of the Southwest and Pacific Coast suffer heavy rains and floods each year from the remnants of hurricanes spawned off Mexico. Islands such as Hawaii, Guam, American Samoa, and Puerto Rico also are subject to hurricanes.

Sources: Colorado State University, Dept. of Atmospheric Science; The Old Farmer's Almanac; National Oceanic and Atmospheric Administration (NOAA); The Weather Channel

The Atlantic hurricane season officially kicks off on June 1 and lasts until November 30. Each year, a series of hurricane forecasts are issued by the *Department of Atmospheric Science at Colorado State University (CSU)*. Additional forecasts are put out by the *National Oceanic and Atmospheric Administration (NOAA)* and *AccuWeather*, among others. Forecasts cover the Atlantic Basin—the area encompassing the Atlantic Ocean, Caribbean Sea, and Gulf of Mexico.

Just because the ‘official’ hurricane season starts on June 1st, that doesn't mean that one cannot form before then.

Nine of 17 years from 2003 through 2019 had at least one named storm before June 1, and there were a total of 11 out-of-season named storms during that time. The majority of these developed and meandered, or made landfall along the coast from North Carolina to northeastern Florida.

**Tropical Storm Arthur** is the first Atlantic named storm of 2020, swirling off the coast of North Carolina. Arthur quickly turned east without causing significant threats to the eastern seaboard.

### What's on the horizon for this year?

Overall, an above-average number of storms is expected in 2020: CSU predicts 16 named tropical storms (average is 12.1) of which 8 will become hurricanes (average is 6.4). Of the hurricanes that are expected to occur, 4 will turn into major hurricanes (average is 2.7). AccuWeather also predicts 14 to 18 tropical storms and 7 to 9 hurricanes, of which 2 to 4 will become major hurricanes.

The important thing to keep in mind, however, is that no matter how good the local forecasters are, hurricanes and tropical storms can be unpredictable. Take all precautions to protect your family and create and follow an emergency plan with which every family member is familiar.



### Q. How Do We Know a Hurricane Is Coming?

A. Now, thanks to satellite technology, no hurricane goes unnoticed. It also usually takes several days to a week for a tropical storm to grow into a hurricane and there is often plenty of time to take precautionary measures unlike some extreme weather events (such as a tornado).

But if conditions are just right, a powerful major hurricane can develop in just hours. This has been called “rapid intensification” by the National Hurricane Center. When conditions are just perfect, a storm can increase its wind speed 35 mph in 24 hours or less—about two categories on the Saffir-Simpson scale, which grades hurricane strength from 1 to 5. Rapid intensification, however, is rare, with just one or two Atlantic storms per year undergoing such an acceleration.

### Q. Is a Hurricane the Same as a Cyclone? How Is Tropical Weather Classified?

A. A hurricane is actually one of three kinds of tropical storms, or cyclones, that circulate over tropical waters. The circulation is counterclockwise in the Northern Hemisphere. Tropical cyclones are classified as follows:

- **Tropical depression:** An organized system of clouds and thunderstorms with a defined circulation and maximum sustained winds of 38 mph (33 knots) or less.
- **Tropical storm:** An organized system of strong thunderstorms with a defined circulation and maximum sustained winds of 39 to 73 mph (34 to 63 knots).
- **Hurricane:** An intense tropical weather system with a well-defined circulation and maximum sustained winds of 74 mph (64 knots) or higher. In the western Pacific, hurricanes are called typhoons. Similar storms in the Indian Ocean are called cyclones. Hurricanes are further classified by rank according to how strong their winds are.

*Continued page 16*





# What's in a name?

## History of Hurricane Names

For several hundred years many hurricanes in the West Indies were named after the particular saint's day on which the hurricane occurred. For example, there was "Hurricane Santa Ana" which struck Puerto Rico with exceptional violence on July 26, 1825, and "San Felipe" (the first) and "San Felipe" (the second) which hit Puerto Rico on September 13 in both 1876 and 1928.

In 1953, the United States abandoned a confusing, short-lived plan to name storms by a phonetic alphabet (Able, Baker, Charlie) when a new, international phonetic alphabet was introduced. That year, the United States began using female names for storms.

The practice of naming hurricanes solely after women came to an end in 1978 when men's and women's names were included in the Eastern North Pacific storm lists. In 1979, male and female names were included in lists for the Atlantic and Gulf of Mexico and have been ever since.

The use of short, distinctive names in written as well as spoken communications is quicker and less subject to error than the older, more cumbersome latitude-longitude identification methods. These advantages are especially important in exchanging detailed storm information between hundreds of widely scattered stations, coastal bases, and ships at sea.

The use of easily remembered names greatly reduces confusion when two or more tropical storms occur at the same time. In the past, confusion and false rumors have arisen when storm advisories broadcast from radio stations were mistaken for warnings concerning an entirely different storm located hundreds of miles away.

2020 HURRICANE NAMES		
	ARTHUR	LAURA
	BERTHA	MARCO
	CRISTOBAL	NANA
	DOLLY	OMAR
	EDOUARD	PAULETTE
	FAY	RENE
	GONZALO	SALLY
	HANNA	TEDDY
	ISAIAS	VICKY
	JOSEPHINE	WILFRED
	KYLE	

## Q. How Are Hurricane Names Chosen? Can the Same Name Be Used Twice?

**A. The World Meteorological Organization's (WMO) Hurricane Committee** chooses names. The Atlantic tropical cyclone name lists repeat every six years unless a storm is so severe that the Hurricane Committee votes to retire that name from future lists. More than 80 names have been retired since 1950 because they were so deadly or destructive that the future use of the name would be insensitive. A name can be retired at the request of a country affected by the storm. Any country may request that the name of a hurricane be "retired," which must then be considered and agreed upon by the WMO.

Examples of retired names include: Hazel 1954; Carla 1961; Alicia 1983; Hugo 1989; Andrew 1992; Allison 2001; Ike 2008; and Harvey 2017.

## Q. How Are Hurricanes Classified and What Are Hurricane Categories?

**A. The Saffir-Simpson Hurricane Scale** is a 1-5 rating based on the hurricane's present intensity. This is used to give an estimate of the potential property damage and flooding expected along the coast from a hurricane landfall. Wind speed is the determining factor in the scale, as storm surge values are highly dependent on the slope of the continental shelf in the landfall region. Wind speeds are measured using a 1-minute average. 💧

## HURRICANE TRIVIA

**Around 39% of hurricanes that hit the United States strike the state of Florida.**

**Two-thirds of the strongest hurricanes (Class 4 or 5) make landfall on either the Florida or Texas coast.**

**The 2005 hurricane season had the most retired names – five – for one season.**

**Storms that form north of the equator spin counterclockwise. Storms south of the equator spin clockwise. This difference is because of Earth's rotation on its axis.**





# Five things that really will help you save water and money!

There are lots of valid reasons to use our finite water resources more efficiently...here are just a few. Our population is growing...and growing...and growing. That means more

homes and more paved areas, which means that stormwater runs off instead of seeping into the ground to help recharge our aquifers. The more water we pump from the ground, the greater the strain we place on our aquifers.

The days of cheap and plentiful water are history. So, if you're going to make the commitment to changing your wasteful water use habits, what steps will save you the most water...and therefore the most money? Here's what the experts suggest.

## Inside the house...

**1. STOP THOSE LEAKS!** Routinely check for leaks...leaking faucets, leaking toilets, leaking appliances. Watch your water bill...suspect a leak if you have any sudden increase in usage without changing your usual patterns. Studies have shown that the single greatest water waster in the home is a leaking TOILET...a leak of one gallon every six minutes — not an unusual amount — adds up to ten gallons an hour, or 240 gallons per day! A leaking toilet can double the total monthly water usage by the whole household. Most toilet leaks involve poorly seated tank balls, worn valves, or other minor components that are relatively easy to fix. Unfortunately, many toilets are silent while flushing your dollars down the drain...so check all the toilets for leaks regularly!

**2. IN THE BATHROOM...** While we're on the subject of toilets...if yours are more than 15 years old, replace those water-guzzling 5-7 gallon a flush toilets with the now-mandated 1.6 gallon per flush models. You can check the date stamp inside the toilet tank for the make, model and date of manufacture. If it is before 1992, replace it...you'll start to see the payback on the first water bill.

Next, consider the family's shower use. Do you have water-saving — or flow restricting — shower heads? Replacing old ones can save 500 to 800 gallons a month. And, even a one or two minute reduction in shower time can save up to 700 gallons a month. Multiply that by the number of people in your household and now we're talking about some substantial water savings! Something as minor as turning off the water while you brush your

teeth can save another three gallons a day. Here's a cool tip — while you are waiting for the water to get hot, capture some of that water in a plastic container and use it to water plants or for pets.

**3. IN THE KITCHEN AND LAUNDRY...** Here's where you'll find some more thirsty appliances. Again, depending on the age of these workhorses, significant savings in water, money, and energy usage are likely if you replace them. The washing machine, for example, is the second largest water user in your home, accounting for as much as 22 percent of the total residential water use.. Today, there is a good variety of high-efficiency (HE) clothes washers on the market that require only 27 gallons or less per load. If you combine the conserving technology with efficient use practices — running only with full loads, selecting minimum volume settings and shorter wash cycles — even more savings are possible.

In the kitchen, today's newer, more efficient dishwashers use only half of what the earlier models did...about 7 gallons per load. Avoiding waste is the key here...use with full loads only; minimize pre-washing by scraping off food using a utensil not water; make sure dishes are positioned to get good water flow during the cycle; and select the shortest practical cycle. Garbage disposals use a surprisingly large amount of water as they grind solid food waste into small particles that water washes down the drain. Consider composting your food scraps...this saves water twice — in the kitchen and in the final organic product which reduces the need for water for your plants.



*Continued on page 20*

## 5 THINGS...Continued

### Outside the house...

#### 4. LANDSCAPE DESIGN AND PLANT SELECTION...

Now we're talking some serious water and money savings opportunities. Excessive irrigation not only increases water costs, but it drains our water supply sources, adds to pollution with runoff of fertilizers and other chemicals, and demands a significant amount of our time and resources for maintenance. Americans spend more than \$750 million each year on residential turf grass...and another \$25 billion for mowers, hoses, clippers, and gardening tools. The amount of lawn fertilizers — chemicals — applied by homeowners on these lawns and landscapes is nearly 10 times the amount of pesticides (per acres of turf) than farmers use on crops!

Let's start with design. A residential yard with a water-wise design can be just as attractive, lush and colorful as what is thought of as a 'traditional' landscaped area. Think outside the box. The largest water savings to be achieved through water-wise landscapes are accomplished by reducing turf areas — especially if the grass variety is especially thirsty, like St. Augustine.



The concept of "Xeriscape" or water-wise designs is often misunderstood. These are NOT just recreations of desert environments using rocks and cactus; these principles utilize native and adaptive plants from the area in which they are created. Using native and low-water-use plants and grasses is the key to controlling irrigation demand.

Experts say that "native plants" have three distinguishing characteristics: 1. It 'arrived' by means of water, wind, the fur of a migrating animal, or by bird or animal droppings; 2. The plant evolved over a long period of time and now thrives; and 3. It has not been 'tampered with' by humans. It is the place of origin that determines whether or not it is native to

the region. Selecting drought-tolerant or drought-resistant plants is another key strategy to not only reduce the need for supplemental water but to increase their incidence of survival, as well.

Soil quality influences how well plants will survive or thrive, so the first step should be to have the soil analyzed. Select the plants after the soil test is complete to know which are best suited for the soil you have to work with. The use of mulch will help save water by reducing evaporation, cooling the soil, and controlling weeds. Using organic mulch (grass clippings, shredded leaves, wood chips, bark mulches, and pine 'straw') and compost in flower beds can significantly reduce the amount of water the plants will need to thrive.

**5. IRRIGATION...** Poor irrigation scheduling — watering too often and for too long — is the number one source of water waste associated with irrigation, followed by poor system design, inefficient equipment, and poor maintenance. Apply water only when and where it is needed. Just because you have a sprinkler system, don't assume that you are using water efficiently. Even the most elaborate system can waste water because residents either don't know how or don't bother to set the frequency and timing controls after the initial settings. Experts suggest that, for proper efficiency, the entire irrigation system controllers be reprogrammed at least monthly to respond to changing rainfall and temperatures. The entire system should be checked for leaks periodically, too. Installing a device that shuts off an automatic irrigation system when it has rained or is raining is a must and can save up to 10 percent of water used outdoors. If you don't have one, get one.

Find and repair any broken heads, seals or pipes in your irrigation system. Watch the entire cycle to make sure that the water is going where it is needed and that all areas you intend to water are getting wet. Make control modifications as appropriate. If serious water savings interest you, consider replacing a conventional sprinkler system for non-turf areas with a drip-irrigation system — the savings can be as much as 75 percent. (See the article on Irrigation page 5 )

**Remember, YOU are the most important water conservation 'tool' at your house. Make using water more efficiently a priority!**

**The water we conserve today  
can serve us tomorrow.**