WEST HARRIS COUNTY REGIONAL WATER AUTHORITY

PARTNERS IN PROGRESS

WINTER 2021

WATER FOR OUR FUTURE

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In her own words Melinda Silva, P.E.

If you think you know engineer Melinda Silva, think again. She's fiercely independent, a Mom, an outdoorswoman, a scouting volunteer/leader, and a tireless role model for her kids.

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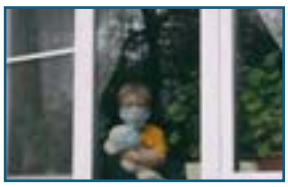
Also in this issue



COVID DRIVING UP HOME WATER USE

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FOR OPERATORS, CRISIS COMMUNICATIONS IS KEY

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Their jobs help provide the lifeblood of our daily lives and are therefore essential to the public health of our neighborhoods and communities.

WHY IS IT IMPORTANT TO CONSERVE WATER... TODAY AND INTO THE FUTURE?

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With a growing population competing for a very small percentage of the water on Earth fit for consumption, it should be obvious that we need to preserve and conserve this precious resource.

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Hey Guys! It's almost that time of year... when the race is on to grow the greenest lawn! Help residents learn how to Water Less...and Save More! Irrigation/ Conservation billling inserts are available FREE to Districts online! www.whcrwa.com

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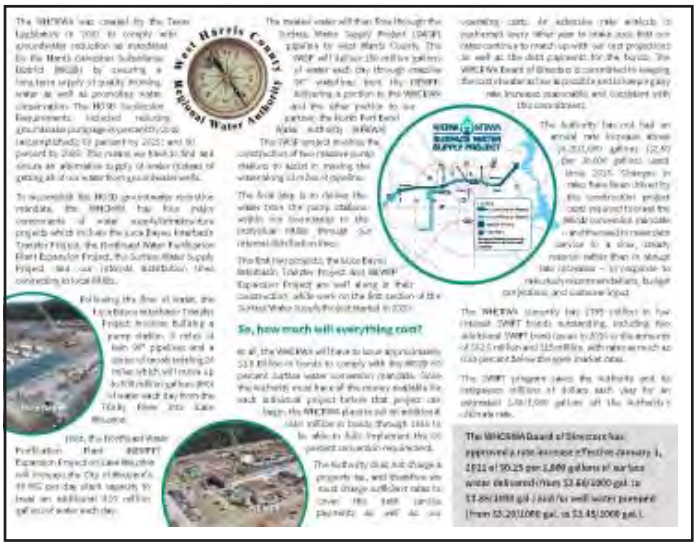
2021 RISING COST OF WATER BROCHURE AVAILABLE NOW!

The 2021 edition of the Rising Cost of Water brochure is ready to order online. The Authority will also be promoting this information in social media to help inform area residents.

The publication is online to facilitate review by district directors.



Also Availalble to order online -- 12 billing inserts on Water conservation and other important topics!

COVID driving up home water use

The average US home used nearly 729 additional gallons of water in April than it did in February, 2020 according to a new study from Phyn, a leak detection, water-monitoring device company. This means usage was up 21% daily, as most Americans followed orders to work and shelter from home, in an effort to "flatten the curve" and curb the spread of the coronavirus.

The spike in water use seems perfectly plausible, given that trends and shifts in water use were bound to change, as people spent more time at home. The Phyn study explains how the 24.3 gallons a day in the US is broken down:

- 21% more sink use
- 20% more toilet use
- 16% more shower use
- 3% more washing-machine use.

"We anticipated and were correct in the assumption we'd see a natural increase in sink and toilet use, as a result of just 'being home,'" said Ryan Kim, Phyn CEO. "On the flip side, we predicted fewer showers taken, as workers did not have to go into the office and kids weren't leaving for school."

The US state hardest hit by COVID-19, New York, also had the highest daily water consumption at the early epicenter of the pandemic: 28% used more at home (30.9 gallons) on a daily basis.

Minnesota also had a big surge, from 135.1 in February to 168.6 (or a 25% rise) in April. The most populated state (40 million residents or 12% of the entire US), California, was at 141.7 in February, and up to 158 in April (or 11.5% rise). Meanwhile, the second-largest state, Texas, went from 129.5 to 145.5 gallons of water, from February to April.

Shifting Bathroom Habits

Acccording to the Phyn study, "Water consumption patterns are following other notable trends of the new normal stay-at-home life." Families are no longer all rising and using peak morning consumption at 7 am, but two hours later, at 9 am. Despite the significantly later-in-the-morning start, the average day still wraps at the time it previously did.

The highest increase in water use happens in the afternoon, presumably when e-schoolers and their employed adult residents take a break, get up to use the restroom, wash their hands, or prep meals.

If Americans have learned one thing from the COVID-19/ infectious disease experts, it's that washing hands is an imperative, and likely a major contributor and self-protector. *The average US household visited the sink in their home nearly 50 times daily in April, which is 10 more daily visits than in February.*

The study shows families making more short trips to the sink (0-15 seconds in duration) in April, 27 times daily -- up from 22 in February. Slightly longer trips, which the report cites as within the CDC handwashing guidelines, (15 to 25 seconds) occured 13 times per day, up from 11 seconds in February.

On the average, Americans are using their home bathrooms three times more in April than they did in February. To compare, New Yorkers are actually flushing their toilet five times more in April than they did in February.

Whether Americans are adopting a regular fitness regime

Continued

and sweating more, they're also apparently showering more – as many as three times a week more – than they did before the pandemic.

The average general water-use starts later in the day, and shower habits follow accordingly. Morning showers have shifted to later in the morning. There was also an increase in midday (noon to 4 pm) showers -- up nearly 40% -- as were evening (4 pm to 11 pm) showers, up a little more than 20% than in February.

"We don't generally think about water until the bill comes, but we're constantly using it throughout the day, every day," Kim explained. "It's logical that increased home water usage is a byproduct of the COVID-19 lockdowns, and highlights the impact this virus has on the consumption of a precious and finite resource."

"We anticipate seasonal increases in water use for irrigation and expect to see a gradual offset

of increased consumption, as cities open up," Kim said. "People will spend less time at home and shift some of their daily water use to work, restaurants, and other businesses. What will be very interesting is to see and compare how quickly this shift happens based on the timing of, and adherence to, local restrictions."

Based on an article by N.F. Mendoza, a writer at TechRepublic, on a report from the smart-water monitoring company ***Phyn*** *that chronicled the spike in US water use from pre-pandemic, Feb. 1, to mid-crisis, April 30.*

Enter The Year of the Ox

If you had been able to gaze into a crystal ball on January 1, 2020, what would you have predicted to be on the horizon? A period of economic growth and stability? Consumer confidence increasing? Job market improving? A good time to be alive, for sure.

Then, on January 21, 2020, officials in Washington state confirmed that the first case of a coronavirus had been diagnosed in the U.S. Coincidentally, on January 22nd, Wuhan China announced the 'temporary' closure of its airport and railways for departing passengers following news that 17 people had died of what came to be called Covid-19. Chinese authorities confirmed at least 547 cases in the mainland. By January 30th, the Word Health Organization determined that the outbreak constituted a **Public Health Emergency of International Concern**.

A year later (January 15, 2021), the stats were staggering: a little over 2 million cases of Covid-19 in Texas, 23.4 million cases in the US, and 93.3 million cases worldwide. A new strain of the virus began making its way across Europe. And China ushers in the Year of the Ox on February 12th. According to the Chinese Zodiac, that's a good thing; the ox is very diligent and logical so 2021 will be a year when hard work will be rewarded and promising in terms of economic recovery and ideal for bringing order to family life.

For Operators, Crisis Communications is Key

Those who work in the municipal utility business know full well that -- even in ordinary circumstances -- their jobs help provide the lifeblood of our daily lives and are therefore essential to the public health of our neighborhoods and communities. Andrew R Wheeler, EPA Administrator, confirmed that during this international pubic health emergency these dedicated workers are "vital to the goal of ensuring that drinking water and wastewater services are fully operational and are critical to containing COVID-19, and protecting Americans by helping to flatten the curve and prevent the spread of the coronavirus."

Coming up with a timely and efficient reaction to a deadly global pandemic required perseverance, strong leadership and communication skills and the willingness to put aside typical corporate competitiveness in favor of achieving mutual objectives. The team assembled for the WHCRWA possessed exactly those necessary skills.

"A group of operators put together an ad-hoc group to pool their intel, resources, and experience for the public good in a time of crisis," explained Todd Burrer,Vice President, Texas MUDs, for INFRAMARK. "Joining me to lead this endeavor are Cathy Falke, Environmental Development Partners, Jeff Haley, Si Environmental, and Rebecca Marcucci, Municipal District Services. The Gulf Coast MUD Emergency Operations Group (GCMEOG) has accomplished a lot in a short period of time, but much remains to be done."

According to Burrer, the initial challenge was to figure out communication goals and determine

how to share information without being able to physicallly meet. Virtual meetings take place with the Operations community on Monday afternoons directed by an agenda that includes COVID-19, regulatory and legal updates, supply chain impacts, and workforce protection concerns. These sessions last no longer than an hour and provide critical situational awareness.

Very quickly, long-time relationships have been strengthened and new relationships have been formed. Soon, interest in the GCM-EOG spread to others in the water industry. Thanks to the assistance of AWDB's Taylor Cavnar, additional collaboration took shape and the Monday meetings grew to about 75-100 people.

The interest and participation by utility employees, vendors and suppliers continued to grow and prompted a third weekly meeting focusing solely on supply chain operations concerns, held each Tuesday at noon with 50-75 folks attending.

"Information is a valuable commodity during emergency situations," Burrer continued. "In 24/7 news cycles, managers are bombarded by multiple sources, some true...some not true. We have introduced a curated Dropbox to share critical information needed by the operators, including info on regulatory changes, orders from local county governments, and CDC guidance on employee safety during the pandemic from reliable sources."

No one can say exactly when the pandemic will end, but one of the benefits of the GCM-EOG is that the water industry is not only now better prepared to continued dealing with COVID-19, but also with other emergencies and natural disasters -- hurricanes, tornadoes and floods -- in the future.

WATER FOR OUR FUTURE

LAKE HOUSTON INTAKE PUMP STATION

To accomplish the Harris-Galveston Subsidence District groundwater reduction mandate, the WHCRWA has four major components of water supply/infrastructure projects which include the Luce Bayou Interbasin Transfer Project, the Northeast Water Purification Plant Expansion Project, the Surface Water Supply Project, and our internal distribution lines connecting to local MUDs.

Luce Bayou Interbasin Transfer Project

CAPERS RIDGE PUMP STATION

Following the flow of water, the Luce Bayou Interbasin Transfer Project involves building a

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Shown in the photo above is a pump column with a suction bell on the bottom. The tan lines on the sides are a flushing system to re-suspend any sediment that accumulates in the bay. - Standing next to the column is David Miller the Luce Bayou Project Manager.

Water For Our Future Continued...

pump station, 3 miles of twin 96" pipelines and a series of canals totaling 23 miles which will move up to 500 million gallons (MG) of water each day from the Trinity River into Lake Houston.

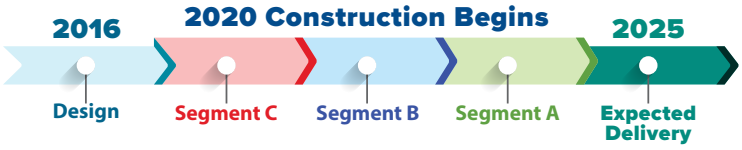
Expansion of the Northeast Water Purification Plant

Next, the Northeast Water Purification Plant (NEWPP) Expansion Project on Lake Houston will increase the City of Houston's 80 MG per day plant capacity to treat an additional 320 million gallons of water each day.

WHCRWA NFBWA

SURFACE WATER SUPPLY PROJECT

The treated water will then flow through the Surface Water Supply Project (SWSP) pipeline to west Harris County. The SWSP will deliver 150 million gallons of water each day through a massive 96" waterline from the NEWPP, delivering a portion to the WHCRWA and the other portion to our partner, the North Fort Bend Water Authority (NFBWA). The SWSP project involves the construction of two massive pump stations to assist in moving the water along 52 miles of pipeline.



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WHCRWA Transmission Lines

The final step is to deliver the water from the pump stations within our boundaries to the individual MUDs through our internal distribution lines.

The first two projects, the Luce Bayou Interbasin Transfer Project and NEWPP Expansion Project are well along in their construction, while work on the first section of the Surface Water Supply Project started in 2020.

SWSP Seg 3 A4


SWSP Seg 3 A4 - MEADOWGLEN (NORTH)


CAPERS RIDGE PUMP STATION ON THE TRINITY RIVER

Why is it important to conserve water… today and into the future?

With a growing population competing for a very small percentage of the water on Earth fit for consumption, it should be obvious that we need to preserve and conserve this precious resource.

Water conservation means using our limited water supply wisely and caring for it properly. Since all living things on our planet depend on water to sustain life, it is our responsibility to learn how we can help keep our water resources pure and safe for future generations.

Our available water supply is finite. There is not an endless amount of water so protecting it is not just a job reserved for scientists, hydrologists, foresters, wildlife managers, city planners, farmers, or mine owners. Instead, it is up to each of us to use water wisely.

Reasons to Conserve Water

Here are some of the main reasons it is important to conserve water:

- **It minimizes the effects of drought and water shortages.** Even though our need for fresh water sources is always increasing because of population and industry growth, the supply we have stays constant. Even though water eventually returns to Earth through the water cycle, it's not always returned to the same spot, or in the same quantity and quality. By reducing the amount of water we use, we can better protect against future drought years.

- **It helps to preserve our environment.** Reducing our water usage reduces the energy required to process and deliver it to homes, businesses, farms, and communities, which, in turn, helps to reduce pollution and conserve fuel resources.

- **It makes more drinking water available by shifting to reclaimed water** for golf courses, amenity lakes, filling public fountains, and watering common community areas like esplanades.

- **It helps provide safe and beautiful communities.** Consider other essential community uses for water -- firefighters, hospitals, gas stations, street cleaners, health clubs, gyms, and restaurants all require large amounts of water to provide services to our neighborhoods. Businesses and commercial establishments can use water more efficiently, too.

Water conservation requires forethought and effort and every little bit helps. Before reaching to turn on the faucet, ask yourself "Is it worth the water?" The key is to make water conservation a habit—not just something we think about once in a while.

Look at it this way -- **The water we conserve today can serve us tomorrow.**

In her own words...MELINDA SILVA, P.E.

AIN'T NO MOUNTAIN HIGH ENOUGH

If you think you know engineer Melinda Silva, think again. She's fiercely independent, a Mom, an outdoorswoman, a scouting volunteer/leader, and a tireless role model for her kids.

"I have two undergraduate degrees from University of Texas at Austin - Visual Art Studies with all-level teaching certification and a BS in Civil Engineering. I taught high school art in Liberty Hill, Texas for three years before returning to school to pursue civil engineering. I pretty much had to start over as all my previous hours were not heavy in math and science so I have hundreds of college hours. I like to say I am very well rounded in my education. It was not easy going back to school, supporting myself and making such a change. But here I am.

I had an internship with Dow Chemical where I worked a semester in the environmental hazardous waste division in a plant in Lake Jackson, and also spent a semester working in their structural engineering department in Houston.

I have two kids, both teenagers and a labradoodle named Sadie that we adore. There's just three of us. My son, Evan, is 19 and is pursuing Aerospace Engineering at UT Austin. This semester he is a junior. He landed a four year scholarship with Lockhheed Martin which included an opportunity to work for them and he is moving to Denver, Colorado to work in the space facilities for the summer. He is super excited about the opportunity.

My daughter, Lily Kate, is almost 16, can't wait to drive, and is a sophomore at Tomball Memorial High School. Both of my kids played in the Tomball Roaring Blue Band.

I have been involved in scouting for about 15 years. My son was in Scouts from first grade and continues to be active. He is an Eagle Scout and a former Lodge Chief for the Order of the Arrow. I have volunteered as an assistant scout master and committee member. Currently I serve as a Life to Eagle Coordinator for Troop 469, so I help scouts plan, execute their eagle projects and obtain the highest rank as a scout. I also Serve in the Scouting honor society, the Order of the Arrow (OA), as an advisor and support the training and development of ceremony teams. My father, myself, and my son -- we're a three generation team that serves and benefits from the experience of scouting and the OA. I see it as my investment in our youth and our future.

I love to tent camp, hike, kayak, and climb.

I spend as much time outside as I can. Before Covid, my kids and I set off on a road trip to Utah to visit all 5 National Parks. We camped along the way and had a great adventure. We love to get away and spend time together. The kids are getting older so I savor my time with them.

I am an avid gardener and love working in my yard growing flowers. I make jewelry and collect way too many beautiful beads and stones. I'm very visual and appreciate aesthetics around me. I try to take care of myself so I get up early (at 4am) five days a week to work out. I'm a member of Camp Gladiator and just recently hit my 500th check in. Everyone thinks I'm crazy but it helps me destress and start my day with an achievement.

My daughter loves to bake and cook so we often do that together. She is very strong willed and sees no boundaries based on her sex between what her brother can do and what she can do. I attribute much of that to my kids observing my approach to life. I am very independent and I raised them to be self-sufficient. If they don't know how to do something, they figure it out. There are so many more tools available now with utube videos and the internet. Recently my daughter changed the lightbulb to fix my burned out headlamp on my car. And my son installed the new kitchen faucet-all without any help from me. They just figured it out and never thought they couldn't do it.

I think engineering is like that. I try to bring a thoughtful, practical and level headed approach to the problems we have to deal with for the WHCRWA. We often find ourselves in situations without a clear path forward and we have to find that solution. A lot of the solution comes from the approach. Thankfully we have a great team of folks.

I enjoy my work with the West Authority. Its been a great opportunity and I'm hopeful to continue working with them for some time.

Here are some facts that will really surprise you…

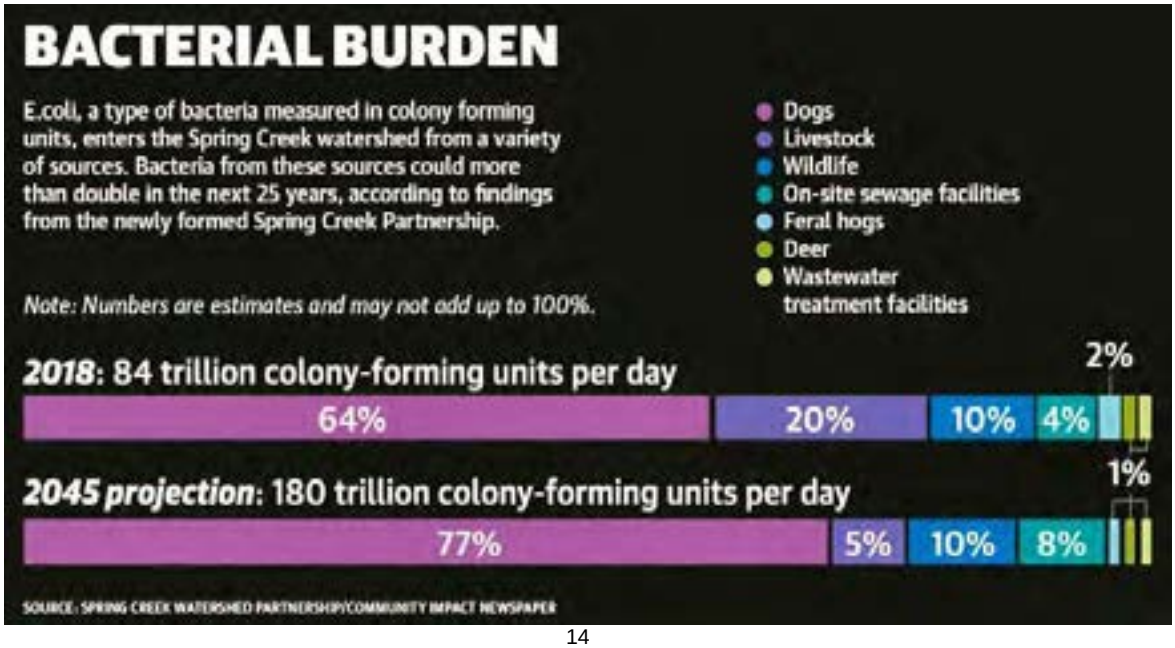
We sure do love our dogs. There are at least 10 parks in the Houston area solely dedicated to our favorite canines. There's almost a million pups in our town and they produce an amazing amount of…yes, go ahead and say it…poop. Truckloads of it, in fact.

Dog owners are a lot more conscientious about cleaning up after their pets than they used to be, whether they're on a walk though the neighborhood or in a nearby park. Non-dog owners get pretty testy, however, when folks allow their animals to stop and "water" lawns and shrubs along the way, or make 'deposits' near the curb. How big a problem can that be, you ask? And what does animal waste have to do with our drinking water? You won't like the answer.

As the public service literature on the next page reports, rainwater runoff travels along picking up all kinds of debris on its way to creeks, rivers, and streams. We have been warning about the dangers of stormwater pollution of our drinking water resources for decades, but some investigative studies of local watersheds are sounding a wake up call.

Community members and representatives from local government and environmental groups formed the Spring Creek Partnership last year to evaluate water quality issues. It is supported by the Texas Commission on Environmental Quality and the Houston-Galveston Area Council, a regional planning organization, The take-away of their collaboration is the stunning fact that the main culprit of bacterial contamination throughout the Spring watershed in 2018 was dog waste, accounting for almost two-thirds of the daily amount of pollutants. They anticipate a 20 percent increase from dog waste alone over the next 25 years, as development and population growth continue.

The good news is that everyone can help improve water quality without drastic measures or lifestyle changes. The Authority has outreach materials available for MUD distribution to their customers (billing inserts, post cards and posters) and as soon as the Covid restrictions are behind us, the WATER QUALITY Mobile Teaching Lab will be available for community visits.



WHAT'S THE PROBLEM WITH DOG POOP?

Help protect our waterways one bag at a time!

We love our pups, but not the germy little "gifts" they leave behind. Turns out that our rivers, creeks, streams and lakes don't much like them either! How can we help solve this problem?

There are:

900,000

Dogs in the Houston-Galveston Region

Collectively depositing

312 Tons

of poop per day.

Which is the equivalent of 52 dump truck loads per day!

PLEASE! SCOOP THAT POOP!

Americans own approximately 75 million dogs and an estimated 40 percent of pet owners don't clean up their dogs' "deposits" – at home or when out for a walk.

Those piles don't just disappear – rain washes unscooped poop into storm sewers which drain into local rivers and bays, contaminating the water with such nasties as E. coli, fecal coliform bacteria, salmonella, and giardia. As the poop decomposes, it uses up precious oxygen needed by fish and other aquatic creatures to stay alive and healthy.

Please scoop your pup's poop into a bag you take along, and dispose of it properly in a trash receptacle – every time!

WATER LESS SAVE MORE

Are you over watering your yard?

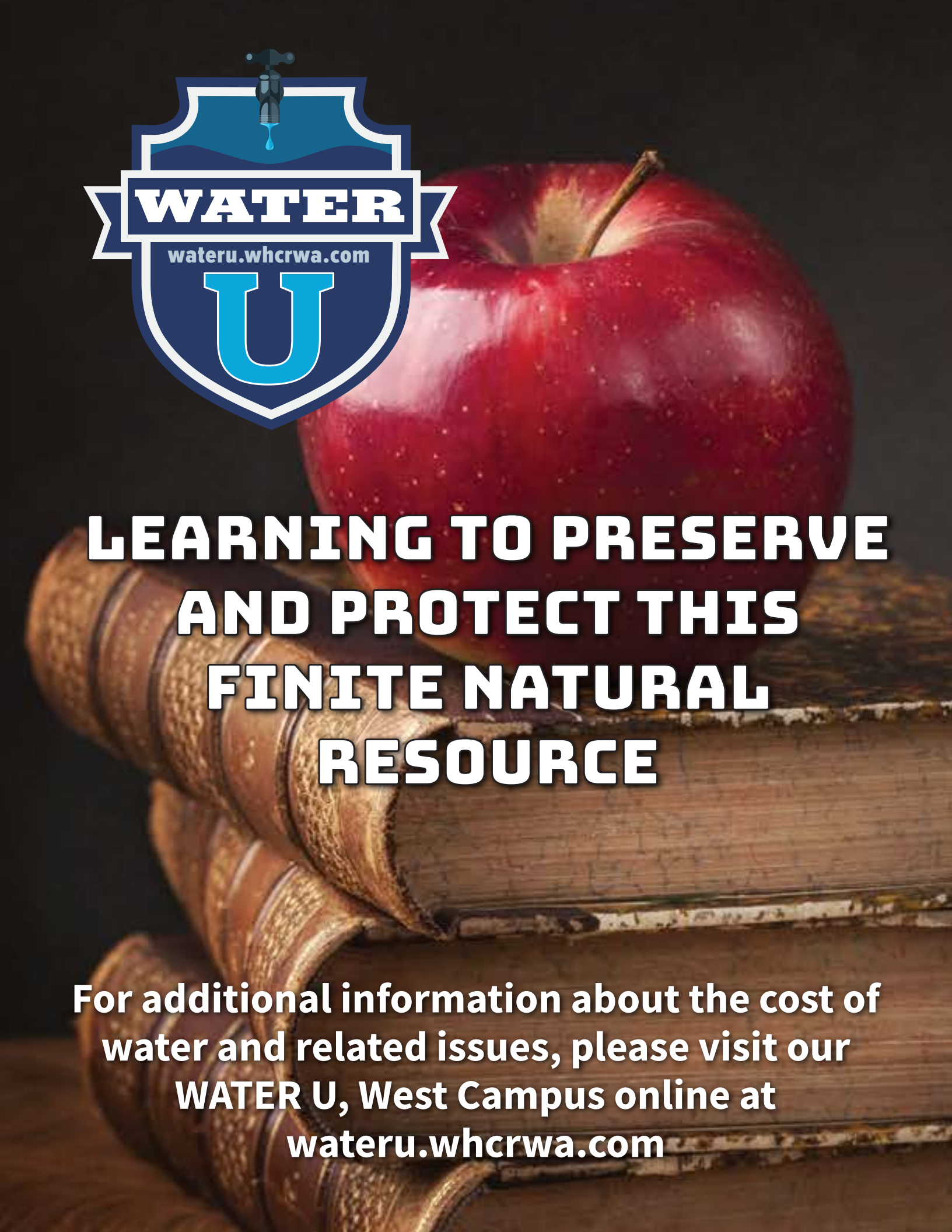
SEVEN QUICK AND EASY IRRIGATION TIPS

- Water lawns in the early morning.
- Install rain sensors on sprinkler systems.
- Fix leaky faucets and hoses... they waste water and money.
- Water the grass. NOT the sidewalk and street.
- Plan water cycles according to each type of plant or grass.
- Watering in the heat of the day can waste up to 65 percent of the water.
- Use a broom to clear away debris, instead of using the hose.

IrryGator© WATER LESS - SAVE MORE

TAKE THE GUESSWORK OUT OF IRRIGATION DECISIONS!

VISIT IRRYGATOR.COM FOR TIMELY TIPS AND ALERTS FROM THE WATER MY YARD PROGRAM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Are You Over-Watering Your Lawn?

Just because you have an irrigation system, It doesn't mean you're saving water…

Let's face it, environmentally-responsible water efficiency practices make a lot of sense and are certainly necessary, but where do you begin, and how do you know if your actions are truly making a difference?

The best place to start is to do a careful inventory of how water is used at your house – inside and out – and to pay close attention to your water bill to track any changes. Sudden spikes, for example, may signal a leak or a significant change in a usage pattern. Many homeowners don't think they're using much water at all and don't know what 'thirsty' appliances or practices are driving up their water bill.

One simple and highly effective way to take charge is to pay attention to how – and how often – you water your lawn, garden and landscaped areas, and to implement appropriate water-saving irrigation practices whenever possible.

The most common question on this subject is: ***"How do I know when to water…how much water is enough?"*** The simple answer is: "You water when it's needed." And the surprising truth is…that's not nearly as often as you might think…IF you water properly (and that's a pretty big IF).

Encourage deep roots.

Watering infrequently *and deeply* is the key to forcing grass and plants to grow deep roots. In doing so, you enable them to access water for a longer period of time so they will thrive through the long, hot summer. Experts say that homeowners who water every other day are seriously over-watering and by doing so, they are initiating a vicious cycle…shallow roots need more water. Why? Because water close to the surface evaporates long before the deeper moisture. Air is forced out of the continually saturated soil and since roots need air – voila – they don't grow as deeply!

Let's get specific.

As a general rule, proper watering means applying ONE inch of water per week. Now, how long this takes depends on the irrigation system you have in place. A simple way to assess the output of your system is to place 6 or more one-inch deep empty cat food or tuna cans throughout the lawn area your sprinkler covers. Keep track of the time,

and check periodically until the cans are filled. Mark the amount of time it took to fill them up; that's your ideal watering time! (Note: if the cans have an uneven amount of water, your water distribution controller may need to be adjusted, so be sure to accomplish that, too.)

Here's a quick watering check list:

- According to irrigation experts, you should apply enough water to wet the soil to a depth of 4-6 inches. Pick up a soil probe at your local garden center and use it to help determine exactly how deep the water penetrates when you run a normal cycle.
- The experts also say it's very important to use a sprinkler that emits large drops of water that remain close to the ground as opposed to sprinklers that spray a fine mist.
- Consider "drip irrigation" for landscaped areas if you're installing a new system.
- Set the timer to water during the very early morning hours as watering in the heat of the day can result in up to a 60 percent higher evaporation loss. To avoid peak demand for other household uses – like showers, kitchen chores, and the use of

Source: Texas Cooperative Extension Service and Texas Water Development Board.

laundry appliances – set irrigation system timers to complete the cycle *before 4:00 a.m.*

- Don't water on windy days, and make sure your sprinkler is set to water your lawn, not sidewalks and driveways.
- A rain sensor is also a great investment and will keep your lawn from being watered unnecessarily when Mother Nature has already done the job!

What does mowing have to do with water conservation?

Quite a bit, actually. It's best to base your mowing schedule on the growth rate of the grass versus a set time schedule, and set the mower to the highest setting during hot summer months. Longer grass keeps the soil cool, minimizes evaporation, reduces root stress (because the soil won't dry out as quickly), and therefore conserves water. This smaller amount of cut grass means the clippings won't have to be bagged and, if left on the lawn, they can actually return nutrients to the soil.

The scoop on fertilizer.

A reasonable amount of fertilizer is necessary to develop the root system and to help keep the lawn healthy. Too much fertilizer, however, will lead to excessive growth, which will then require more watering.

Rainwater runoff can carry fertilizer, pesticides and unfiltered soil into the nearest storm drain which leads to the nearest creek, river or lake. Many sprinkler systems apply water faster than the soil can absorb it. Consequently, irrigation water is

often seen running down the streets into the storm drain. To apply water without creating runoff, the **cycle and soak method of irrigation** may be a solution.

Soil can become compacted with lawn maintenance, foot traffic, stormwater and irrigation. Clay soil particles are very small. Water and air fill the tiny spaces between the soil particles. Consequently the infiltration rate (the rate water enters the soil) is very slow. When water fills the space, the saturated soil does not allow more water to enter the soil and runoff occurs. Water running off landscapes is waste of a valuable resource.

The cycle and soak method applies water in multiple cycles with 30 to 60 minutes in between cycles so water has time to soak deeper into the soil. The first cycle will break the surface tension of the soil and saturate the top layer of soil. With time, the water soaks deeper allowing the second cycle to infiltrate the soil more efficiently. .

When choosing a fertilizer, consider the organic, slow-releasing kind. Organic fertilizers have to be broken down by soil microbes and converted to a form plants can use. Therefore, they do not deliver too much nitrogen to the grass at one time and are less susceptible to leaching into ground water. By contrast, high nitrogen, water soluble fertilizers *can* leach into ground water and can also cause abnormal cell growth of grass, making it more susceptible to diseases such as brown patch.

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