

NEWS DROP

Autumn 2020

M A G A Z I N E

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CONTENTS:

THE EAA MISSION "THE NEXT GENERATION"	03
THE RECHARGE ZONE PODCAST	05
TAG, YOU'RE IT!	07
WHEN DROUGHT TAKES CENTER STAGE	11
SAN ANTONIO POOL EXITS CRITICAL PERIOD	17
EAA EOC AT MORGAN'S CAMP	20
GROUNDWATER CONSERVATION	25
LOOK WHO'S NEXTDOOR, IT'S THE EAA!	29
FIESTA DE SEPTIEMBRE CELEBRATES IN STYLE!	31

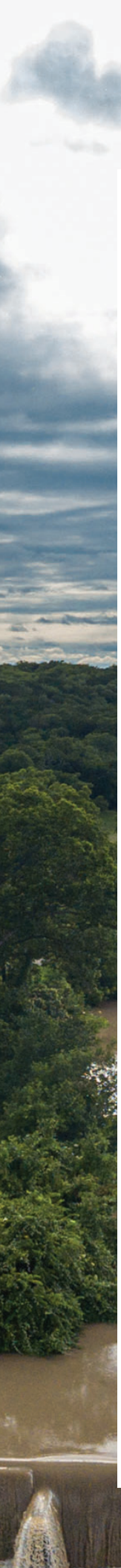
COVER PHOTO:

EAA General Manager, Roland Ruiz, & Rey Feo LXXII, Thomas Aguillon.

The EAA Mission: The Next Generation

The EAA has devoted the better part of a quarter century to securing the effective and responsible management of the aquifer through a combination of regulatory, educational, and conservation-focused programs. We have worked to assure the sustainability of a vital water resource to the benefit of all users and needs. As a result, the once-looming threat of overdrawing the aquifer to the detriment of its two major spring systems and the dire consequences it could hold for our region have been reasonably alleviated. Achieving such certainty affords us now the opportunity to think about the future in ways we could not have imagined previously.





Our board of directors recently gave unanimous endorsement to a new idea that carries with it the possibility of reinvigorating the EAA mission with greater relevance and, to some degree, permanence, well into the future. This concept, which we are calling “The EAA Mission: The Next Generation,” is centered around the notion of a truly regionwide conservation initiative by which the EAA, with support from the Edwards Aquifer Conservancy and other partners, would identify, negotiate, and secure control of the most environmentally sensitive and economically beneficial lands on the Edwards recharge and contributing zones for the perpetual preservation, protection, and enhancement of the Aquifer.

Similar in concept to the City of San Antonio’s Edwards Aquifer Protection Program (EAPP), our vision for the “Next Generation” program would be to complement, enhance, and eventually succeed the EAPP in perpetuity.

While the EAPP has historically focused on Bexar County and counties to the west, the “Next Generation” initiative could supplement and enhance the value of the EAPP by reaching new land areas, including those with the most direct potential impact to the Aquifer’s major springs systems in the northeastern portion of our region.

**PROGRAM OFFERS
BOUNDLESS
OPPORTUNITIES TO
GROW & TO LEVERAGE
OUR BODY OF
KNOWLEDGE.**

Such a program also offers boundless opportunities to grow and to leverage our body of knowledge of the Aquifer by utilizing EAPP and Next Generation properties as field research “laboratories” that could span the entirety of the Edwards region, and thereby further inform and expand our capacity to address various issues of particular impact to the Aquifer. These include critical issues such as climate change, groundwater inter-formational flow, water quality, and recharge preservation and enhancement.



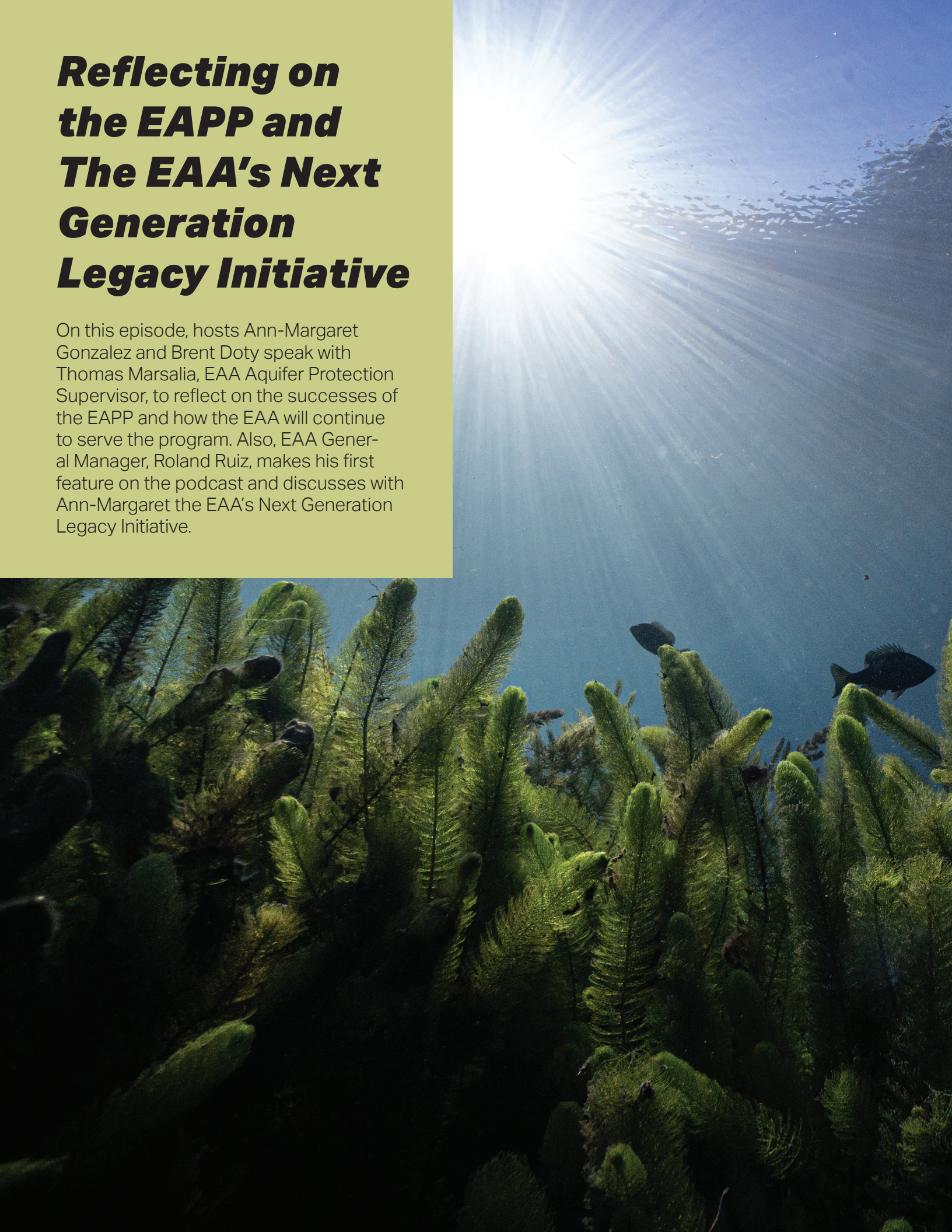
Roland Ruiz
EAA General Manager

Collectively, these efforts could help identify and establish creative solutions to the next generation of demands and risks to the Aquifer, and help us as a region begin to implement those solutions in programmatic ways to maintain and further enhance the aquifer’s sustainable use for the next 25 years and beyond.

So, I appeal to you today as a stakeholder in the Edwards Aquifer, and invite you to imagine the potential of the good we might accomplish together, across our vast region, through the “Next Generation.” ■

Reflecting on the EAPP and The EAA's Next Generation Legacy Initiative

On this episode, hosts Ann-Margaret Gonzalez and Brent Doty speak with Thomas Marsalia, EAA Aquifer Protection Supervisor, to reflect on the successes of the EAPP and how the EAA will continue to serve the program. Also, EAA General Manager, Roland Ruiz, makes his first feature on the podcast and discusses with Ann-Margaret the EAA's Next Generation Legacy Initiative.



the recharge zone PODCAST

The Recharge Zone Podcast is the official podcast for the Edwards Aquifer

Authority (EAA), a regional water management agency, which protects the portion of the Balcones Fault Zone Edwards Aquifer – a jurisdictional area that provides water to over 2 million people, and covers more than 8,000 square miles across 8 counties! Tune in to charge up your knowledge on all things Edwards Aquifer from the EAA.

Listen Here: <https://www.edwardsaquifer.org/news-community/the-recharge-zone-podcast/>

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- APPLE PODCASTS
- GOOGLE MUSIC PLAY



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EAA Communications Specialist

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Roland Ruiz
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Thomas Marsalia
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Tag, You're It!

Near the end of a lengthy discussion about removing the invasive suckermouth armored catfish from the San Marcos River, Dr. Joshua S. Perkin, assistant professor at Texas A&M University, said that at times, they feel like they are outnumbered. But, that particular outlook was more than tempered with an enthusiastic confidence that the current research project, designed to make the removal of the ecologically detrimental fish species much more effective, will be successful.



Part of our research, which was funded by the Department of Ecology and Conservation Biology at Texas A&M, leads us to believe that the population of the armored catfish in the San Marcos River began in the early 1990s," Perkin said. "These fish, which are common in the aquarium trade, are used to remove algae from the sides of aquariums when they're small. That small sucker type mouth is very effective for that. However, they do get much larger and so people who own them think that 'freeing' the fish in the river is the humane way to dispose of them.

Unfortunately, that good intention is definitely misdirected because these fish have been very destructive to the San Marcos River system and the native and endangered species living there. The problem is, these fish have had about a 25-year head start in building a large population and so the goal to remove them is definitely an uphill battle."

Perkin explained that the armored plates on the fish

are created when it takes up large amounts of nutrients in the water. That obviously leaves fewer nutrients for the endangered species to thrive on.

Additionally, the catfish are notorious for burrowing into the banks of the river which can destabilize the riverbank over time and lead to unwarranted silting. Too much silt covers over habitat needed by the endangered species for survival.

Over the past few years, Atlas Environmental, a City of San Marcos contractor for EAHCP conservation measures has been tasked with spearing as many of the catfish as they can.

THESE FISH, WHICH ARE COMMON IN THE AQUARIUM TRADE, ARE USED TO REMOVE ALGAE.

In addition to its routine schedule of scouring the river for these fish, Atlas initiated two spearfishing tournaments to not only increase the numbers of armored catfish removed each year, but to raise overall awareness about the issue in the San Marcos community.



"One of the unique features of this particular research project that drew me in was the community involvement aspect," noted Allison Hay, a Texas A&M undergraduate scholar working with Dr. Perkin. "In the long run, changing the habits of the people who own aquariums will be essential to making the catfish removal successful.

So, while I'm very interested in seeing what the data tells us from our fish tagging and tracing work, I'm also excited about the fact that this is such a large group of people working together to improve the overall ecology in the San Marcos River."

Hay explained that the process for tagging the armored catfish starts with capturing the fish and logging the exact location. The fish are then tagged with dual devices.



THE SAN MARCOS RIVER IS LIKE MANY OTHER RIVER SYSTEMS HAVING THIS PROBLEM WITH INVASIVE CATFISH.

The first is a Passive Integrated Transponder (PIT) tag which she said is similar to the chips used by pet owners to find lost animals.

The second tag is placed on the dorsal fin. Each fish is measured and weighed and then given a unique tracking number. Once the tagging is completed, the fish are released in the same locations they were captured. "While releasing these fish back in the environment where they are doing harm seems a bit counter-intuitive, we will get some very helpful information about where the armored catfish like to be in the river and also to what extent we are impacting the mortality rate of the fish through current removal techniques," Perkin explained.

"Between now and when the next spearfishing tournament happens in the fall, we will be come back to the river four to five times to find our tagged fish and note their movements. Then when the tagged fish are caught during the tournament, we will be able to find out how much they have grown. All of that data will then be assessed to help the EAHCP determine the overall effectiveness of current removal methods.

Plus, learning the catfish movements will help focus locations for fishing and in turn improve removal numbers." Perkin said that while there are about 1,000 suckermouth armored catfish being removed each year, they still don't really know what the overall population is.

The San Marcos River is like many other river systems having this problem with invasive catfish harming the ecosystem. However, because of the consistent water quality and water temperature due to the spring-fed source, the San Marcos River is like one big aquarium for these armored catfish.

As a consequence, they thrive here whereas in another river environment with highly variable water temperatures, they might die relatively soon after being released. "An upside to this tagging research is that the PIT tag doesn't require a battery so we will be able to track the fish over several years if they are not caught in the spearfishing tournaments or by other means. That just improves our ability to know more about the armored catfish and ultimately make a larger impact in removal." ■



When Drought Takes Center Stage

The Edwards Aquifer is one of the most prolific groundwater sources in the world. But, even this wonder of nature, which supports a robust agricultural industry, one of America's largest cities, a handful of endangered species and a thriving recreational industry, has its limits. Consequently, a diverse group of communities throughout the Edwards Aquifer Region ultimately agreed to a management system for the aquifer to limit water withdrawals in order to preserve the life-sustaining resource for future generations.



|| The Edwards Aquifer Authority (EAA) was created by the State of Texas in 1993 to develop a regulatory system to protect the aquifer. While the primary focus in the EAA's first few years was developing a system of water rights permits, it also put in place a Critical Period Management Plan (CPM)," said Chuck Ahrens, EAA Water Resources Director.

"The CPM called for percentage reductions in pumping as water levels in the Edwards Aquifer would decline due to drought conditions and overall water use. Texas experienced its worst drought in the 1950s and the Comal Springs, which are fed by the Edwards Aquifer, went dry for six months in 1956. The CPM was one tool designed to help prevent that from ever occurring again. And so far, things have worked out well."

The primary benefit to the Edwards Aquifer is that the CPM helps slow the rate of decline in aquifer levels which in turn buoy springflows during dry periods, which are a

common occurrence in South Texas.

Although the Critical Period Management Plan has evolved a couple of times over the years, here is how it works today. The CPM is divided into five stages in which percentages of pumping restrictions become more restrictive as water levels in the Edwards Aquifer decline. The J-17 well in San Antonio and the J-27 well in Uvalde provide water level data which trigger the implementation of the CPM.

There are two monitoring wells because scientists determined that there are two distinctive "pools" in the Edwards Aquifer. The

TEXAS EXPERIENCED ITS WORST DROUGHT IN THE 1950s.

supports Medina, Bexar, Comal and Hays and parts of Guadalupe, Atascosa and Caldwell Counties, even though there are no registered Edwards wells in Caldwell County. In Uvalde, Stage 1 of the CPM is triggered when that index well averages a reading of 850 feet at mean sea level (MSL) or less for 10 days.



Stage 1 in the San Antonio pool is triggered when averages are 660 feet MSL or lower for 10 days. Getting out of the various stages also includes the consideration of a 10-day average.

While the trigger levels and required reductions to permitted volumes for each stage of the CPM are clearly spelled out, the implementation of those rules can be a little complicated. "The Stage 1 percentage of reduction for groundwater rights holder in the San Antonio pool is 20 percent. However, that doesn't mean that a water provider like the San Antonio Water System must immediately reduce its pumping by that amount," said Javier Hernandez, Special Projects Liaison with the EAA. "



THE AVERAGE ANNUAL EDWARDS AQUIFER LEVELS ARE AROUND THE 660-FOOT MARK.

The 20 percent is an annualized number. For example, if a permit holder has 100 acre-feet of water rights and we are in Stage 1 for 50 percent of the year, when you do the math, the permit holder would be required not to pump more than 90 acre-feet.”

Going over that 90 acre-feet would result in a fine. Additionally, and most importantly, the EAA does not mandate how the water rights holder achieves that reduction in water use. And that fact alone has produced some creative thinking by water rights holders around the region.

In the original 1993 EAA legislation, the Edwards Region was going to require an overall reduction in

permitted withdrawals to 400,000 acre-feet in 2008. However, the Texas Legislature agreed to allow the overall permitted water to remain at 572,000 acre-feet, but the trigger levels for the Critical Period Management Plan were increased to today’s 660-foot J-17 and 850-foot J-27 levels, meaning the drought plan would be triggered more often.

THE EAA DOES NOT MANDATE HOW THE WATER RIGHTS HOLDER ACHIEVES REDUCTION IN USE.

Because the average annual Edwards Aquifer levels are around the 660-foot mark during the summer months, one might

think that the increased trigger levels would be a major issue for water providers. But, having more permitted water, despite higher CPM trigger levels, has worked out well for the water providers like the San Antonio Water System (SAWS).

“The cutbacks can have a significant impact on our permit, a Stage 1 reduction of 20% would cause an annual loss of over 54,000 acre-feet (17.6 billion gallons) of our permit,” said Darren Thompson, water resources director for SAWS. “Those reductions only get worse during longer dry spells. But, having more permitted water when we are not in the CPM has given us the ability store that water in our Aquifer Storage and Recovery (ASR) facility, and that really helps us offset the CPM reductions.

Outside of the summer months, San Antonio’s water use declines and

aquifer levels are typically higher which gives us a good amount of permitted water we can bank in ASR for use when we do get into drought conditions. And that is very stabilizing factor for our overall water resources plan.”

The statement was validated in 2014 as the region peaked in the midst of a four-year drought. The EAA declared Stage 4 restrictions. The City of Uvalde spent most of the year in Stage V. But because SAWS had stored tens of thousands of acre-feet of Edwards Aquifer water in its ASR facility and could use that water to minimize drought impacts, the City of San Antonio never had to declare Stage 3. The restriction on landscape watering is also a high-profile aspect that comes with the Critical Period Management Plan.

Most water suppliers across the region go to once-a-week watering when Stage 1 is declared. Those reductions continue to escalate as the region progresses through the various drought plan stages.

“For households that irrigate, landscape watering can account for up to 60%

OUTSIDE OF THE SUMMER MONTHS, SAN ANTONIO WATER USE DECLINES.

of their family usage in summer months. So, it makes sense to have rules that moderate lawn watering during a critical period,” said SAWS Water Conservation Director Karen Guz. “We go to requiring once-a-week watering in Stage 1 among other water-saving restrictions. In Stage 2, we continue with one day a week watering but restrict the amount of time you have to do that irrigation on your watering day. Stage 3, which kicks in at aquifer level 640 feet, allows watering on one day every other week. Stage 4 requires a special declaration by the San Antonio City Manager upon completion of a 30-day monitoring period following Stage 3 declaration.

The once-a-week watering restrictions do help reduce overall water use in San Antonio, but they also reduce water bills while allowing enough water to retain landscape health.”

10-Day Average

CRITICAL PERIOD

TRIGGERS, STAGES, & WITHDRAWAL REDUCTIONS

SAN ANTONIO POOL

Trigger

Index Well J-17 Level (MSL)

Critical Period **Stage I** < 660

Critical Period **Stage II** < 650

Critical Period **Stage III** < 640

Critical Period **Stage IV** < 630

Critical Period **Stage V** < 625

Trigger

San Marcos Springs Flow (CFS)

Critical Period **Stage I** < 96

Critical Period **Stage II** < 80

Critical Period **Stage III** N/A

Critical Period **Stage IV** N/A

Critical Period **Stage V** N/A

Trigger

Comal Springs Flow (CFS)

Critical Period **Stage I** < 225

Critical Period **Stage II** < 200

Critical Period **Stage III** < 150

Critical Period **Stage IV** < 100

Critical Period **Stage V** <45/40*

Withdrawal Reduction

Critical Period **Stage I** 20%

Critical Period **Stage II** 30%

Critical Period **Stage III** 35%

Critical Period **Stage IV** 40%

Critical Period **Stage V** 44%

* Either less 45 cfs based on a 10-day rolling average or less than 40 cfs based on a 3-day rolling average.



***IT MAKES SENSE TO
HAVE RULES THAT
MODERATE LAWN
WATERING DURING
A CRITICAL PERIOD.***

You can view the Critical Period Manage Plan details for the various cities in the Edwards Region by clicking on these links:

Guz also described the focused efforts by SAWS to reduce its per capita water use through water conservation and water recycling programs which began in the late 1990s. After an initial campaign to rid the city of high-water use toilets and shower heads, the water utility began a concerted public information campaign to change citizens' water use habits, and that outreach continues today.

Those programs have received national recognition for their effectiveness and have provided SAWS and the City of San Antonio another beneficial hedge against stringent water restrictions implemented during Critical Period Drought Stages.

"The Edwards Aquifer is an amazing natural resource," Ahrens concluded. "And while it was a new concept to many, the Edwards Region came together to address its endangered species issues and effectively manage the Edwards so it would be a viable resource for future generations.

That water management system, which includes a tough drought management plan, provided the incentive for water providers to diversify their water sources and the agricultural irrigators to really step up their game in using new water-saving technology on their farms. So overall, you'd have to say the CPM has had a positive effect on the Edwards Region."

- EDWARDS AQUIFER AUTHORITY
- SAN ANTONIO WATER SYSTEM
- CITY OF UVALDE
- NEW BRAUNFELS
- CITY OF SAN MARCOS ■



10-Day Average

CRITICAL PERIOD

TRIGGERS, STAGES,
& WITHDRAWAL REDUCTIONS

UVALDE POOL

Trigger

Index Well J-27 Level (MSL)

Critical Period **Stage I** N/A

Critical Period **Stage II** < 850

Critical Period **Stage III** < 845

Critical Period **Stage IV** < 842

Critical Period **Stage V** < 840

Trigger

San Marcos Springs Flow (CFS)

Critical Period **Stage I** N/A

Critical Period **Stage II** N/A

Critical Period **Stage III** N/A

Critical Period **Stage IV** N/A

Critical Period **Stage V** N/A

Trigger

Comal Springs Flow (CFS)

Critical Period **Stage I** N/A

Critical Period **Stage II** N/A

Critical Period **Stage III** N/A

Critical Period **Stage IV** N/A

Critical Period **Stage V** N/A

Withdrawal Reduction

Critical Period **Stage I** N/A

Critical Period **Stage II** 5%

Critical Period **Stage III** 20%

Critical Period **Stage IV** 35%

Critical Period **Stage V** 44%

San Antonio Pool Exits Critical Period Stage Restrictions

The purpose of mandatory pumping reductions is to stabilize water levels and springflow until rainfall replenishes the aquifer. Stage reductions apply to all Edwards Aquifer groundwater permit holders authorized to pump more than three acre-feet annually. All affected permit holders must also report their pumping totals to the EAA on a monthly basis.



The Edwards Aquifer Authority (EAA) staff confirmed that on Sunday, September 13, 2020 the daily high, water level at the San Antonio Pool Index Well (J-17) in Bexar County was 664.4 feet above mean sea level (ft msl).

The daily high water level resulted in a ten-day rolling average at J-17 of 660.3 ft msl which is above the 660.0 ft msl threshold for Stage I within the San Antonio Pool.

Therefore, on Sunday September 13, 2020, the ten-day rolling average for water level and spring discharge met the criteria to end Stage I Critical Period Management for the San Antonio Pool.

This determination was based on the water level measurement from Index Well J-17.

The EAA drought plan for the San Antonio Pool requires Edwards groundwater permit holders in Atascosa, Bexar, Caldwell, Comal, Guadalupe, Hays, and Medina counties to reduce their annual authorized pumping amount by a certain percentage based on the critical period stage that is declared.



Photo: J-17 monitoring well.

Furthermore, Uvalde County relies on The Uvalde Pool Index Well (J-27) in order to declare critical period stage restrictions (please see figure 1 on next page, or click on the link below).

- https://www.edwardsaquifer.org/documents_post/triggers-stages-withdrawal-reductions-chart/

CRITICAL PERIOD TRIGGERS, STAGES,

The following Critical Period triggers and percent reductions apply to all Municipal, Industrial and Irrigation

San Antonio Pool

Critical Period is declared in the San Antonio Pool when the 10-day average of the rate of springflow in Bexar County drops below the Stage I trigger level. Likewise, a more restrictive stage of Critical Period stage of Critical Period requires the 10-day averages of all three trigger levels to be above the active

TRIGGER (based on 10-day average)	CRITICAL PERIOD STAGE I	CRITICAL PERIOD STAGE II
Index Well J-17 Level (MSL)	<660	<650
San Marcos Springs Flow (CFS)	<96	<80
Comal Springs Flow (CFS)	<225	<200
Withdrawal Reduction	20%	30%

Uvalde Pool

The Uvalde Pool enters Critical Period at Stage II based on the 10-day average of aquifer level read

TRIGGER (based on 10-day average)	CRITICAL PERIOD STAGE I	CRITICAL PERIOD STAGE II
Index Well J-27 Level (MSL)	N/A	<850
San Marcos Springs Flow (CFS)	N/A	N/A
Comal Springs Flow (CFS)	N/A	N/A
Withdrawal Reduction	N/A	5%

**San Antonio Pool only: In order to enter into Critical Period Stage V, the applicable springflow trigger is based on a three-day rolling average. Expiration of Critical Period Stage V is based on a ten-day rolling average.*

Definitions: (MSL) Mean Sea Level; (CFS) Cubic Feet Per Second

AND WITHDRAWAL REDUCTIONS

irrigation users authorized to withdraw more than 3 acre-feet.



at either the Comal or San Marcos springs, or aquifer reading at the J-17 Index Well in
d is activated by any one of these triggers. However, the declaration of a less restrictive
ation thresholds of the particular stage in effect at the time.

CRITICAL PERIOD STAGE III	CRITICAL PERIOD STAGE IV	CRITICAL PERIOD STAGE V
<640	<630	<625
N/A	N/A	N/A
<150	<100	<45/40*
35%	40%	44%

ings at the J-27 Index Well in Uvalde County.

CRITICAL PERIOD STAGE III	CRITICAL PERIOD STAGE IV	CRITICAL PERIOD STAGE V
<845	<842	<840
N/A	N/A	N/A
N/A	N/A	N/A
20%	35%	44%

ger is either less than 45 cfs based on a ten-day rolling average or less than 40 cfs based on
ge of 45 cfs or greater.

Figure 1.



EDWARDS AQUIFER
AUTHORITY

EDUCATION

OUTREACH CENTER

For almost 40 years the EAA has been an integral part of the water story in South Central Texas. In the Spring of 2019, businessman and philanthropist Gordon Hartman invited the EAA to visit a 102-acre property located on the Recharge Zone in North San Antonio where he presented the Edwards Aquifer Authority with a unique opportunity—



To build an education center where students of all ages and abilities can cultivate curiosity about the life sustaining groundwater system beneath our feet—the Edwards Aquifer. The property is the future site of Morgan’s Wonderland Camp. With plans to build an Ultra Accessible multi-day camp experience on the site, Hartman invited the EAA to become a partner in this unique endeavor and to develop an educational center offering innovative STEM experiences and programs on the site.

A dedicated facility for public outreach and education is a first for the EAA. We have a long and continuing history of education services for classrooms across the region with resources that include lesson plans, curriculum, classroom presentations, costumed characters and now online resources.

Since this form of site-specific education outreach was not in our toolbox, we engaged an interpretive

planning consultant to help craft key messages and develop a narrative that will meaningfully and imaginatively engage visitors in innovation, and investigation through first-hand involvement.

Before construction on the camp began, EAA Staff and consultants developed a Master Interpretive Plan for Communication and Development. The Plan began with an internal survey of the EAA’s Education Program from its beginning in 1981 and sets goals through to 2025.

A DEDICATED FACILITY FOR PUBLIC OUTREACH & EDUCATION IS A FIRST FOR THE EAA.

The EAA Education Outreach Center Interpretive Master Plan was created to fit the mission and vision of the EAA. The three key themes and messages—manage, enhance and protect—are in direct alignment with the EAA mission.

The Interpretive Plan includes an outreach and communication mission to support the overall EAA



mission, EOC goals, objectives, outcomes, and recommendations for implementation. The Plan also identifies collaborative opportunities and ties to community initiatives to assist in the alignment of regional resources.

The development of the Plan was led by the EAA STEM Educator serving as Project Lead and consultants who conducted meetings and work sessions with key stakeholders including MW Camp staff, the EAA EOC project team, and EAA scientists.

This groundwork was followed by constituent surveys, online engagement events and phone interviews to gather input and ongoing program feedback.



THE EAA HAS DEVELOPED ONLINE EXPERIENCES FOR STUDENTS, TEACHERS & CASUAL LEARNERS.

To help students and teachers connect with the Education Outreach Center, a project-based curriculum was planned and developed as an online resource. The curriculum, aimed at students in grades 3-8, leads students through what it is like to have a career at the Edwards Aquifer Authority.

The curriculum allows students to become “experts” on five sites located throughout the Edwards Aquifer Authority’s region by assuming the role of an “aquifer agent”.

The unit culminates in a classroom project that students develop to help them become agents of change within their own school and community.

As construction on the Education Outreach Center continues and we grapple with new ways to engage with constituents, the EAA staff has developed online experiences for students, teachers and casual learners.

The EAA Education Team developed the Learning-Zone, a series of 8 online portals which can be used in shorter, more flexible settings.

The Learning Zone has ties to the project-based learned curriculum experiences of the Edwards Aquifer Authority Education Outreach Center.

At edwardsaquifer.org/learning-zone, students can find hands-on,

experiential learning portals designed with multiple ways to learn and get excited about the story of the Edwards Aquifer and all its ecosystems. With the shell of the building completed in September, work now turns towards finishing out the inside of the building with exhibits and displays.

To that end, a professional exhibit design firm will be working with staff to develop an immersive low-touch ultra-accessible experience informed by the Master Interpretive Plan and the three key messages.

While we can’t tell you everything that will go into the final design, there are plans to include a virtual cave experience and aquariums. A highlight of the Education Outreach Center will be the demonstration garden which will reinforce the work going on at the adjoining EAA Field Research Park.

The demonstration garden will feature a collection of native and low water-use plants as well as a rainwater collection system.

Data from the EAA Field Research Park will feed the EOC in real time so students can analyze and study actual data gathered with by EAA scientists in the field.

With a capacity to hold up to 525 visitors per day at the camp the EAA can reach a greater number of students, teachers, families, and individual visitors than ever before. The Edwards Aquifer Authority Education Center at Morgan's Camp allows for the EAA to reach a wider and more diverse audience while providing a platform for hands-on exploration and state-of-the-art experiences.

The ability to have exhibits and equipment in one place gives our constituents a destination for learning about our shared critical, but intangible natural resource.

Opening in 2021, the Edwards Aquifer Education Outreach Center at Morgan's Camp will be a vehicle for communication and conversations about water conservation for students and learners of all ages and abilities. ■



Groundwater Conservation

The Edwards Aquifer Authority (EAA) recognizes that regional and individual groundwater conservation planning is essential in managing our water resources and such stewardship is demonstrated with the EAA Groundwater Conservation Grant Program (Program). The Program assists Edwards Aquifer permit holders in the implementation of innovative water conservation projects, allowing for the continued preservation and use of the aquifer, including the habitats on which certain endangered species rely.



Many cities in the region already offer financial incentives for the installation of residential water saving fixtures or landscaping improvements; therefore, the EAA began to focus its funding on projects that support efficient agricultural practices. The EAA created the Agricultural Irrigation Efficiency Improvement Program, which supports the installation of sprinkler and micro-irrigation systems for farming communities.

Since the program's inception in 2016, approximately 1,500 acre-feet of water have been saved annually due to the use of more efficient irrigation equipment. In 2017, the EAA partnered with the Texas Water Development Board (TWDB) to fund irrigation projects with the Agriculture Water Conservation Grant Program. TWDB funding helped the EAA increase the number of efficient irrigation equipment projects to be funded, allowing for more water savings.

Each year the EAA solicits grant applications from irrigation permit holders for the conversion of older, less efficient irrigation methods to more efficient irrigation practices - such as the installation of linear sprinkler, center pivot sprinkler, and subsurface drip irrigation systems.

Grant applications are evaluated using rated percent efficiencies provided by the US Department of Agriculture (USDA). The USDA rates irrigation equipment based on how well it applies water to a crop without diminishing factors, such as evaporation and runoff interfering with the applied water entering the soil and plant roots.

EACH YEAR, THE EAA SOLICITS GRANT APPLICATIONS FROM IRRIGATION PERMIT HOLDERS.

Furrow irrigation, also known as flood irrigation, is one of the oldest methods of irrigating and was widely used in the Central Texas region. Furrow irrigation has a lower USDA efficiency rating, which means most of the water applied to crops is

WHEN EVALUATING THE GRANT APPLICATIONS, THE EAA CALCULATES PERCENTAGE EFFICIENCIES.

more likely lost due to evaporation or runoff rather than utilized by the crop. Sprinkler technologies and sub-surface drip irrigation methods allow for better permeation of water into the soil while minimizing evaporation and runoff; therefore, the USDA rates them with higher efficiencies.

When evaluating the grant applications, the EAA calculates percentage efficiencies are incorporated into calculations for the following factors:

- **Irrigation Efficiency Improvement** - Irrigation efficiency improvement is determined by identifying the efficiency of the current irrigation method and the efficiency of the new irrigation equipment and then calculating the difference between the two.



***EAA STAFF
CONDUCTS SITE
VISITS & VERIFIES
THE INSTALLATION
OF THE NEW
EQUIPMENT.***

• Water Savings and Cost Efficiency

- Water savings are calculated based on the estimated amount of water applied using the older irrigation method and mathematically calculating the amount of water that would be used with the new irrigation equipment proposed to be funded by the EAA grant.

These savings are then used to assess the value of the grant award. The remaining factors used in the evaluation process include:

- The accuracy and detail of the completed application, including required supplemental information, such as a product specification sheet for the new irrigation technology for which the requested funds will be used;

- The availability of additional project funding sources, other than the EAA grant; and

- The likelihood of project completion by December 31st.

Once the evaluation and analysis are complete, the calculated results are then assessed points on a predetermined point scale created to maximize water savings and allow the EAA to fund as many projects as possible in a given year.

Once the selected projects have been approved by the EAA Board of Directors, EAA staff conducts site visits and verifies the installation of the new equipment.

Grant recipients are required to submit crop and water use information yearly, allowing the EAA to gather data related to the water savings achieved through its funded projects.

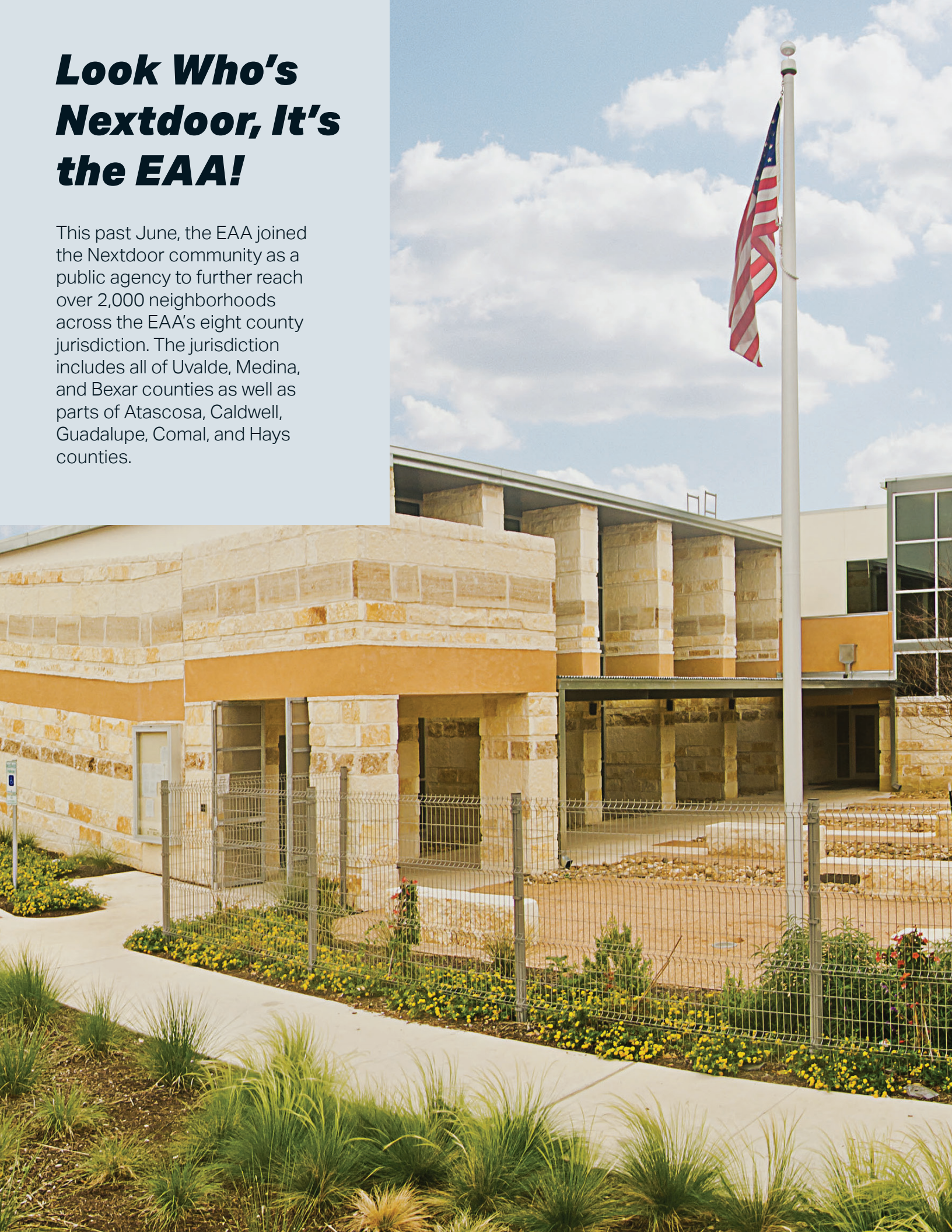
The EAA is proud to continue offering its Groundwater Conservation Grant Program as a means of providing financial assistance to its permit holders for projects that enhance water conservation of the Edwards Aquifer.

The Program has seen tremendous success over the past four years and was awarded the 2019 Non-Utility Conservation and Reuse Award by the Texas Section of the American Water Works Association. ■



Look Who's Nextdoor, It's the EAA!

This past June, the EAA joined the Nextdoor community as a public agency to further reach over 2,000 neighborhoods across the EAA's eight county jurisdiction. The jurisdiction includes all of Uvalde, Medina, and Bexar counties as well as parts of Atascosa, Caldwell, Guadalupe, Comal, and Hays counties.



The EAA regulates the portion of the Balcones Fault Zone Edwards Aquifer – a jurisdictional area that provides water to over 2 million people and covers more than 8,000 square miles.

Furthermore, the EAA is governed by a seventeen-member board of directors representing the interests of constituents from across the Edwards Aquifer region. Fifteen directors serve as voting members of the board, elected from single-member districts to four-year terms.

Two non-voting directors are appointed to four-year terms—one by the South-Central Texas Water Advisory Committee (SCTWAC) and one by the commissioner’s courts of Medina and Uvalde counties, on a rotating basis.



Joining the thousands of other public agencies on the Nextdoor platform, the EAA hopes to enhance their strategic communication efforts by disseminating pertinent information to residents across its jurisdiction.

From aquifer conditions to agency initiatives, such as the EAA’s Inclusion Program and the EAA Education Outreach Center at Morgan’s Wonderland Camp –increasing awareness for the vital resource that is the Edwards Aquifer has always been of longstanding importance to the EAA, and with the use of the Nextdoor App the agency has already seen rise in interest from its neighbors on the platform and beyond. ■

• WWW.NEXTDOOR.COM



From Left: Carol Patterson, Dist. 1; Rader Gilleland, Dist. 15; Ronald Walton, Dist. 9; Deborah Carington, Dist. 6; Don Laffere, Dist. 14; Enrique Valdivia, Dist. 7; Scott Yanta, Dist. 12; Gary Middleton, SCTWAC; Rachel Allyn Sanborn, Dist. 11; Ron Ellis, Dist. 5; Byron Miller, Dist. 2; Abelardo Salinas, Dist. 3; Kathleen Krueger, Dist. 8; Patrick Stroka, Dist. 10; Clark Ward, Medina/Uvalde; Luana Buckner, Dist. 13; Ben Youngblood, Dist. 4



Fiesta de Septiembre Celebrates in Style!

From the parking lot of the Edwards Aquifer Authority, great music could be heard, the smell of delicious food was in the air, and EAA fiesta medals were purchased by the many guests who attended the first EAA Fiesta de Septiembre event held Saturday, September 12th on the grounds of the EAA headquarters. Proceeds from the event benefited the Edwards Aquifer Conservancy, the non-profit support organization of the EAA.





For weeks prior to the event the public was invited to go online and make purchases of the EAA 2020 Fiesta medal which were prepared in anticipation of the 2020 Fiesta San Antonio.

With the cancellation of Fiesta due to the coronavirus pandemic, EAA staff devised an event by which supporters could not only pre-purchase their medals but also secure a meal or two in the process. Billed as a drive through, contact-less event, our guests were greeted and parked while their medals and meals orders were fulfilled.

While waiting our guests were encouraged to tune in through their car radios to a special frequency where the live music being performed on stage could be enjoyed. The entertainment itself was an eclectic group – including T-bow Gonzales, Allan Hendrickson, Marisa Flores, and Jesus Rodriguez. Additionally, the Mariachi Fiesta de San Antonio strolled the grounds, serenading our guests and volunteers alike. Local food vendors Deco Pizzeria and Fajita Rita’s

provided the food and beverages, including a delicious chicken on a stick, fried pork skins, brisket and chicken tacos, among other items.

El Rey Feo LXXII Thomas Aguillon was a special guest, adding a regal flavor to the festivities. And, EAA’s own Karston the Blind Salamander Mascot, also shimmied in to make it truly special for all.



WITH THE CANCELLATION OF FIESTA, EAA STAFF DEvised AN EVENT BILLED AS A DRIVE THROUGH.

“This has been a great day for the EAA and the Conservancy,” stated Breanna Saucedo, EAA Development Coordinator. “From the decorations to the event signage, and from the food to the entertainment – and everything in-between – the event has been an unqualified success.”

“I especially want to thank the Communications and Development Department members, as well as all EAA volunteers, who gave of their time and energies to make our guests feel right at home. They’re the best!”









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