



An overview of EAA efforts to maintain normalcy during drought.

PAGE 4

#### **CRITICAL PERIOD MANAGEMENT**

A tool for managing the amounts of water drawn from the Edwards Aquifer, in wet and dry times.

PAGE 6

#### NOTICE OF INTENT TO FINISH OUT A CROP

Learn how the EAA works with farmers who find themselves in the middle of planted crops during water use reductions.

PAGE 9



#### **CONSERVATION GRANTS**

Learn about EAA incentives for permittees to use water-efficient devices and technologies.

PAGE 10



#### **RESTORING A WATERSHED**

See how the Sessom Creek Watershed is being reclaimed.

PAGE **12** 



#### BACK TO SCHOOL AT THE EOC

The Education Outreach Center is open for school business! Learn all about school visits for 2023/2024.

PAGE **14** 



#### GET IN THE CONTRIBUTING ZONE

The Edwards Aquifer Conservancy announces plans for its second annual Night of a Thousand Drops Gala.

PAGE **16** 



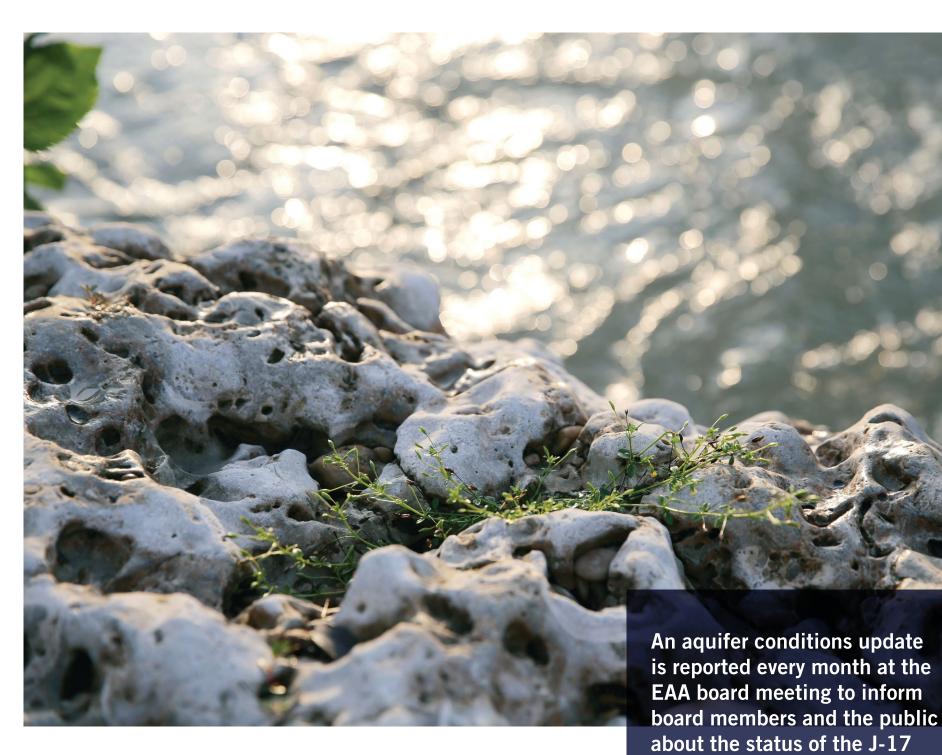
WATCH

EAA BOARD MEETING ON FACEBOOK LIVE:





## AQUIFER UPDATE



The EAA board meeting takes place every second Tuesday of the month at 4:00 P.M. You can watch the meetings on Facebook Live or click the link below:

https://edwardsaquifer.legistar.com/Calendar.aspx

Index Well, J-27 Index Well,

Marcos Springs springflows.

of the aquifer and critical to

drought management.

the Comal Springs and the San

These index wells and springs are indicators of the health





"It crept up out of Mexico, touching along the brackish Pecos and spreading then in all directions, a cancerous blight burning a scar upon the land. Just another dry spell, men said at first. Ranchers watched waterholes recede to brown puddles of mud that their livestock would not touch. They watched the rank weeds shrivel as the west wind relentlessly sought them out and smothered them with its hot breath. They watched the grass slowly lose its green, then curl and fire up like dying cornstalks. Farmers watched their cotton make an early bloom and in its stunted top, produce a few half-hearted bolls and then wither. Men grumbled, but you learned to live with the dry spells ... there were more dry spells than wet ones. No one expected another drought like that of '33. And the really big dries like 1918 came once in a lifetime. Why worry? They said. It would rain this fall. It always had. But it didn't. And many a boy would become a man before the land was green again."

The above is how novelist Elmer Kelton described the drought of the 1950's in his Prologue to The Time it Never Rained. As we look back on the magnitude of that drought and compare it to our current situation, it's clear that while this may prove to be a shorter drought, we are experiencing an intensity never seen before. As the heat continues, and the rain does not, it's important to remember that managing against the impacts of drought is a long game. As Kelton describes above, drought comes slow and steady. In order to be successful, our response needs to be the same. That is why the undergirding to all the EAA's programs is its statutory responsibility to curtail permit authorizations during times of drought. The EAA calls the system of curtailment the Critical Period Management Program (CPMP). Described in more detail in a following article, CPMP is a regulatory program that reduces annually authorized, permitted withdrawal amounts on an escalating percentage basis that matches declining aquifer levels and springflow, maxing out at 44 percent reductions overall. The intent behind the regulation is to provide necessary, intermittent protection by slowing the decline of aquifer levels and springflow rates while the region waits for replenishment. As impactful as the program has been during past droughts, it is important to remember that CPMP does not, and cannot, provide instant relief. CPMP, like the EAA withdrawal permit system, is managed on a calendar-year basis, with reductions building daily. The strategy is not to solve drought but rather to manage through drought.

Regarding drought in general, Kelton also said, "Other places might have several droughts in a single summer. Texas was more likely to have several summers in a single drought. Drought here does not mean a complete absence of rain. It meant extended periods of deficient rain, when the effects of one rain wore off long before the next one came so that there was no carryover of benefits, no continuity."

Through its CPMP regulations, the EAA hopes to mitigate such a lack of relief by providing a programmatic bedrock upon which to build drought resilience. By regulating water availability, the EAA hopes to help provide a continuity to the conservation ethic of the Edwards Aquifer Region, partnering with the regulated community to keep thoughts of aquifer conservation at the forefront, supplementing CPM with voluntary and incentivized programs to sustain us through recurring drought and rising demand. Regulation is never enjoyable, and in times of need, it's never easy. However, the foundational protection provided by permit curtailment is a necessary component to ensure that future aquifer sustainability is a certainty and not just a hope.

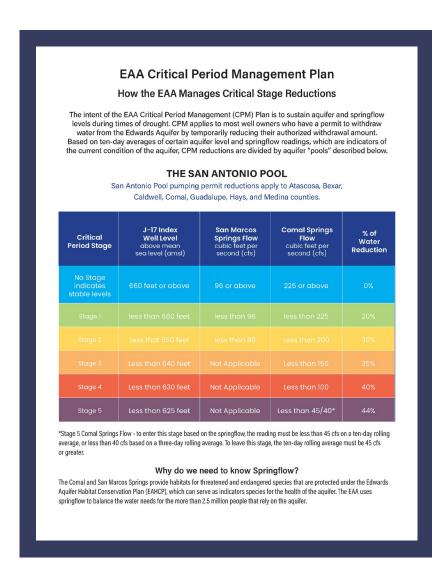


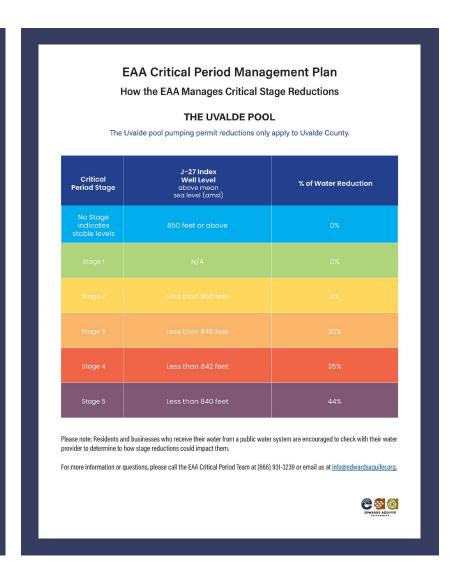
#### CRITICAL PERIOD MANAGEMENT

By Marc Friberg and Omar Garcia, Water Resource Manager

The EAA Critical Period Management (CPM) Plan helps sustain aquifer and springflow levels during times of drought by temporarily reducing the authorized withdrawal amounts of Edwards groundwater permit holders. By curtailing pumping from the aquifer during periods of little or no rain, this program attempts to slow the rate of decline in aquifer levels and spring discharges until such time that it does rain and the aquifer can recharge.

On May 28, 2007, the Edwards Aquifer Authority (EAA) Act was Amended by the 80th Texas Legislature which increased the permitted pumping cap to 572,000 acre-feet annually and also changed the Critical Period Management (CPM) Plan triggers levels to begin sooner at higher aquifer levels. In addition, it also provided agricultural irrigators with an exemption from CPM reductions by allowing them to finish out a crop(s) already planted in a calendar year.





#### WHO DOES THIS APPLY TO?

CPM Plan stage reductions apply to all Edwards Aquifer well owners and groundwater permit holders authorized to pump more than three acre-feet annually. They apply to industrial, irrigation, and municipal users, including water utilities authorized to pump Edwards groundwater for delivery to their respective customers\*.

In addition, all municipal, industrial and irrigation well owners are required to submit monthly withdrawal reports to the EAA for tracking of their pumping. These reports are reconciled at the end of the year to ensure permit holder compliance with the CPM Plan reductions.

The EAA
Critical Period
Management
(CPM) Plan helps
sustain aquifer
and springflow
levels during
times of drought.

<sup>\*</sup> The EAA does not enforce lawn watering activities or other water use limitations. Any enforcement of such activities or limitations is enforced by a municipality. The EAA does not regulate the public, but instead regulates Edwards permit holders utilizing their right to pump from the aquifer.



### WHAT ARE THE STAGES OF PERMIT REDUCTIONS AND WHEN ARE THEY DECLARED?

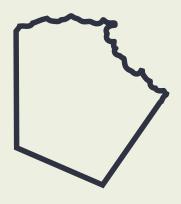
The CPM Plan is divided into five stages of escalating reduced pumping requirements, each triggered by declining aquifer levels or springflow discharge rates as calculated in 10-day averages. These stages are illustrated on page 6, and show the different degrees of critical period management we implement based on conditions from the J-17 Index Well, Comal Springs, and San Marcos Springs for the San Antonio Pool. The Uvalde Pool is managed solely by the conditions of the J-27 index well.

Required reductions increase as aquifer levels or springflows decrease. For example, Stage 1 of CPM Plan is triggered and declared for the San Antonio Pool (all counties within EAA jurisdiction except Uvalde) when the 10-day average level at the J-17 Index Well, in Bexar County, drops below 660 feet above mean sea level (amsl) or the 10-day average spring flow at Comal or San Marcos Springs falls below 225 cubic feet per second (cfs) or 96 cfs, respectively. As a result, under stage I, permit holders must reduce groundwater withdrawals by up to 20% of their authorized annual withdrawal amounts based on the number of days CPM is in effect.

#### **HOW DOES THE MATH WORK?**

The EAA calculates critical period reductions on a yearly basis, with percent reductions, increasing daily as long as the aquifer is under defined critical conditions. Therefore, entering into Stage I CPM Plan does not mean that permits are automatically reduced by 20 percent. What it means is that some reduction will be realized using 20-percent as a variable. Permit holders should use the following equation to determine their current or projected permit curtailment at any time during the year:

(the number of days in a critical period stage / 365) x (the percentage reduction) An example for this formula is as follows:  $(117 / 365) \times (35\%) = 11.22\%$ 



Farmer Jones' region was in Stage III for 117 days



Farmer Jones' permit of 5,000 acre-feet was not reduced by 35 percent

11.22%

Because the CPM Plan was not in effect for the entire year (365 days), the resulting reduction was 11.22 %.



#### **CPM PLAN TIMELINE**

June 23, 2008 First time statutory Stage 1 CPM Plan was declared for the San Antonio Pool.

June 27, 2011 First time statutory Stage 2 CPM Plan for the Uvalde Pool was declared.

**February 14, 2012** Stage 5 was added for the San Antonio and Uvalde Pools.

**March 27, 2013** The J-27 index well ten-day rolling average was 838.1 ft above mean sea level, triggering Stage 5 for the Uvalde Pool.

**August 12, 2014** Stage 4 was triggered by both the J-17 index well (629.7 ft above mean sea level ten-day average) and Comal Springs (91 cfs ten-day average).

September 2023 both the San Antonio and Uvalde Pools are in Stage 4 CPM Plan.

#### HIGHEST LEVELS 2008 - PRESENT

#### Location

J17 Index Well

J27 Index Well

Comal Springs

San Marcos Springs

#### **Date**

1/1/2008

1/5/2008

4/20/2017

6/8/2016

#### Levels

689.15 msl

882.65 msl

440 cf/s

350 cf/s

#### **LOWEST LEVELS 2008 - PRESENT**

#### Location

J17 Index Well

J27 Index Well

Comal Springs

San Marcos Springs

#### **Date**

9/4/2014

4/4/2015

8/29/2014

3/27/2023

#### Levels

625.9 msl

822.92 msl

65 cf/s

80 cf/s



#### **NOTICE OF INTENT TO FINISH OUT A CROP**

Since 2007, the EAA has implemented some iteration of providing agricultural irrigators an exemption from CPM Plan reductions by allowing them to finish out a crop or crops already planted prior to the implementation of a CPM Plan stage without regard to increased permit reductions due to CPM Plan. These rules were set in motion by the legislature and carried out by the EAA to ensure that a farmer's investment in a particular crop is protected, so that said crop can make it to harvest.

The EAA Act and current EAA rules state: "notwithstanding the existence of any stage of ... critical period ... a person authorized to withdraw groundwater from the aquifer for irrigation purposes shall, without regard to the withdrawal reductions prescribed for that stage, be allowed to finish a crop already planted in the calendar year during which the critical period is in effect."

Under the current Rules, an irrigator would receive protection from critical period reductions for crops that are in the ground. However, that protection, or exemption from drought restrictions, would be administered at any time during the calendar year, with the exception of a hard deadline for filing for such protection (and providing all required information demonstrating the need for such protection) by December 1st.

44

notwithstanding the existence of any stage of ... critical period ... a person authorized to withdraw groundwater from the aquifer for irrigation purposes shall, without regard to the withdrawal reductions prescribed for that stage, be allowed to finish a crop already planted in the calendar year during which the critical period is in effect.





Frequently asked questions regarding the process can be found by scanning the QR code, or visiting the following URL: https://youtu.be/Q1pWpypOLgE

If you have any questions regarding CPM Plan, please email us at permits@edwardsaquifer.org



#### **CONSERVATION GRANT PROGRAM**

# PIVOTING TO BEST GROUNDWATER CONSERVATION PRACTICES FOR IRRIGATION PERMIT HOLDERS

By: Isabel Martinez, Senior Permit & Conservation Coordinator



Approximately 30% of Edwards Aquifer groundwater is used for agriculture purposes, whether it be for the farming of crops or for raising livestock. Since the 1850's, farming and ranching have been a staple industry in the western part of

THE SUCCESS OF THE IRRIGATION
EFFICIENCY IMPROVEMENT PROGRAM
IS DUE TO THE COMMITMENT OF THE
EAA'S AGRICULTURE COMMUNITIES
TO DO THEIR PART IN EFFECTIVELY
MANAGING THE EDWARDS AQUIFER.



Crop field being flood irrigated vs the new linear sprinkler system funded with EAA grant monies.



Installation of subsurface drip irrigation lines in a crop field.

the Edwards Aquifer Authority's jurisdictional area, mainly in Medina and Uvalde counties. The success of these agriculture activities has lasted through the years due to the dependability of water from the Edwards Aquifer. Additionally, Edwards Aquifer Authority (EAA) has developed a program that conserves Edwards groundwater while helping farmers and ranchers continue their work.

In 2010, the EAA began awarding grants through its Groundwater Conservation Grant Program. The purpose of the grant program was to promote water saving activities that were recommended by the EAA's Groundwater Conservation Plan. In 2016, the EAA began focusing on agricultural irrigation strategies by creating the Irrigation Efficiency Improvement Program (IEIP) to encourage agriculture producers to install sprinklers and micro-irrigation systems that improve water efficiency while continuing their farming activities. Each year the EAA receives grant applications from irrigation permit holders for the conversion of older irrigation methods, to more efficient, water saving methods such as the installation of overhead sprinkler systems and belowground, drip irrigation systems. Furrow irrigation, also known as flood irrigation, is one of the oldest irrigation methods and is widely used in the Central Texas region. Furrow irrigation is inefficient because most of the water applied to the crops is more likely lost due to evaporation or runoff. Overhead sprinklers and below-ground drip irrigation tape allow for better permeation of water into



the soil, thus minimizing evaporation and water leaving the field.

Grant applications that are received are evaluated based on the increased efficiency of the new form of irrigation; how much water will be saved with the new irrigation technology; and how much money is needed to save an acrefoot of water, also referred to as cost efficiency.

Each year the Irrigation Efficiency Improvement Program receives grant requests that exceed its annual budget. Fortunately, the EAA partnered with the Texas Water Development Board's (TWDB) Agriculture Water Conservation Grant program to facilitatie administering the Irrigation Efficiency Improvement Program. Over the course



Old center pivot sprinkler system (top) vs the new center pivot sprinkler system purchased with EAA GW Conservation Grant Funds (bottom).

of several years, including 2023, the EAA secured TWDB funding to supplement the grant program, allowing the funding of more water saving projects for EAA farmers. One project selected for funding in 2023 is Jared Boehme from B – W Farms – Medina. B – W Farms – Medina will install a low pressure, linear sprinkler system that will cover 149 acres. Mr. Boehme shared, "We are very grateful for the opportunity to apply for and receive funds from the EAA Grant Program. The EAA Groundwater Conservation Grant Program, along with the

Natural Resource Conservation Service EQIP Program, help us install the most efficient irrigation equipment."

The success of the Irrigation Efficiency Improvement Program is due to the commitment of the EAA's agriculture communities to do their part in effectively managing the Edwards Aquifer. Each round of selected projects has saved approximately 400 acre-feet each year which after eight years, represents approximately 3,200 acre-feet saved annually. This is roughly over 1 billion gallons of water!

#### **CONSERVATION IN THE HOME**

Water is a very valuable resource, and we are very fortunate to have the Edwards Aquifer as our primary water source. We can directly affect the health of the aquifer by being aware of our water use and act when we can

It's been estimated that approximately 80% of outdoor water use is directly related to yard and landscape irrigation. If outdoor watering is necessary, consider the following:

Irrigate only on your designated watering days.
Check with your water provider to determine the days outdoor watering is allowed.

Water during the cooler times of the day, preferably between the hours of 10:00 p.m. and 8:00 a.m.

When using sprinklers,make sure the water does not run off the yard onto sidewalks or driveways.

Water by hand by using your garden hose to apply water directly.

Consider xeriscaping or planting native plants when landscaping your yard.

Water can also be saved by being vigilant of the water fixtures that are in the home:

Repair any leaks that may be coming from toilets and faucets in the home.

Check with your water pr vider for rebates they may provide for the purchase of water saving washing machines, toilets, and water heaters.







#### RESTORING A WATERSHED

#### **Sessom Creek Phase 1 Restoration Project is now complete.**

The Sessom Creek watershed is a relatively small, 430 -acre area, that flows directly into the San Marcos River where endangered species and their critical habitat are located. With little to no filtering of Sessom Creek stormwater runoff, pollutants and heavy sediment from the watershed are deposited directly into the San Marcos River after heavy rains. That particular

rice and fountain darters living near the confluence of Sessom Creek and the San Marcos River," explained Mark Enders, Habitat Conservation Plan Manager for the City of San Marcos. "We determined that a better EAHCP answer to the sediment question was to greatly reduce the amount of sediment from occurring in the first place. That meant we would need to rework the

team of volunteers met to remove non-native vegetation throughout the Sessom Creek Natural Area. "There was a jungle of non-native plants that had taken over the area and so we started chipping away at removing those invasive plants with a group of about 20 volunteers once a month on a Saturday" said Eric Weeks, San Marcos Discovery Center Manager.



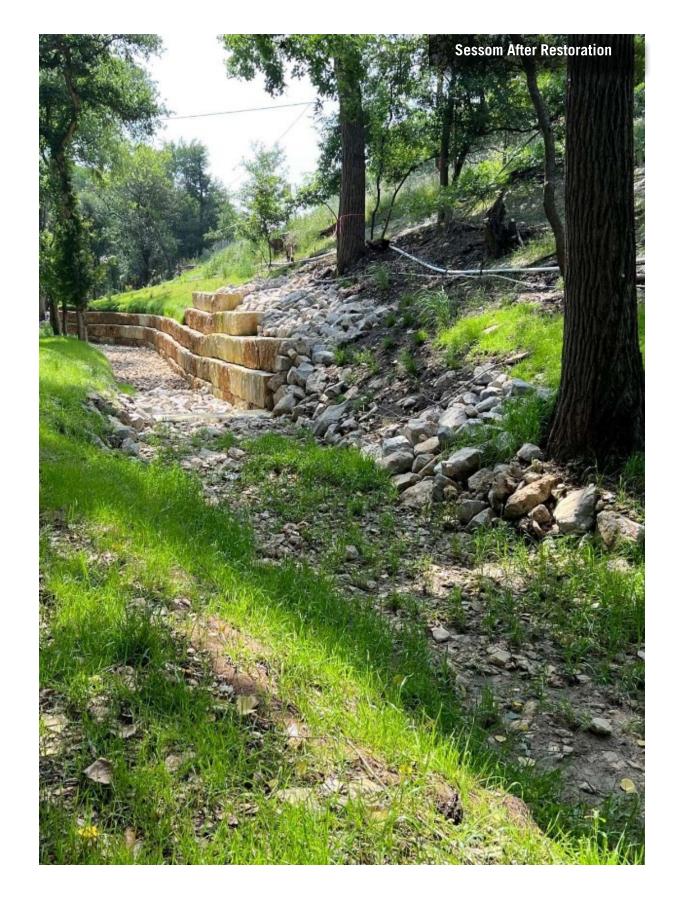
environmental problem was something the EAHCP had been studying and prioritized to find a long-term solution.

"Early on in the EAHCP implementation, we were spending time and money removing sediment from the San Marcos River to enhance water quality for the endangered Texas wild-

flow of Sessom Creek, stabilize the streambanks, remove invasive, non-native plants that had a stranglehold on the watershed and replant native plants to secure the streambed and embankments."

Prior to construction of the Sessom Creek Phase 1 Restoration Project, a So now that Phase 1 is complete, the logical question to ask is "how is the plan working?"

"It's too soon to do the type of analysis to quantify the impacts of the Sessom Creek restoration project," noted Kristina Tolman, EAHCP Senior Coordinator. "We will need to wait a couple





"WE DETERMINED
THAT A BETTER EAHCP
ANSWER TO THE
SEDIMENT QUESTION
WAS TO GREATLY
REDUCE THE AMOUNT
OF SEDIMENT FROM
OCCURRING IN THE
FIRST PLACE."

- MARK ENDERS

years until Phase 2 construction is completed, then Phase 1 and 2 sites stabilize, and the plants establish before we can collect and analyze the data to assess the beneficial impacts."

While it might take some time for enough data to be collected and reviewed to provide scientific results, there are now noticeable public improvements to the watershed's aesthetic value.

"The project is located within the Sessom Creek Natural Area and designated as a San Marcos city park," Enders explained. "There is a trail system in place now and, because of this project and

support from the San Marcos Greenbelt Alliance, more enhancements to those trails will made in the near future."

For more information on the Sessom Creek Restoration Project, please visit https://www.eahcpsteward.org/.



#### **EDUCATION OUTREACH CENTER**



#### **BACK-TO-SCHOOL AT THE EOC**

By: Sarah Valdez and Karen Mendiondo

It's already that time of year! Walk-in visits from summer campers, counselors, and volunteers at Morgan's Wonderland Camp, where the EOC is located, ended with the close of the MWC summer camp season, but we hope we have inspired and educated some of those 475 guests from around the country and world! Meanwhile, local teachers have begun inquiring about and scheduling field trips to visit the EOC to supplement their students' learning. This fall as the weather cools, the EOC will begin to feature guided, mini hikes to our brand-new, outdoor classroom: a covered pavilion in the EAA Field Research Park. We continue to offer indoor educational presentations in the EOC Karst Theater, which is complete with realistic cave features including stalactites and "soda straws."

The TEKS-aligned interactive exhibits, engaging STEAM-based indoor presentations and activities, and signature EOC Scavenger Hunt on the covered patio are fully accessible and fun for all ages--from kindergartners to inquisitive older adults seeking a group outing. While the exhibit hall content is designed specifically for grades 4 -8, there is something here for everyone to learn and enjoy!

#### **New for Fall**

The stunning 3-D Perspective Display gets even better! With the installation of six speakers surrounding this magnificent 5-foot-diameter globe, the EOC will immerse its visitors in visualizations of real-time weather and other global data as we add audio narration to our interactive content selection.

Learning Zone updates and new content...coming soon to the EOC website! Be on the lookout this fall at <https://www.eaaeoc.org/ learning-zone/> for updated videos in our 8 Learning Zone content categories, plus 2 brand-new content areas: Weather Watchers and Grow Green. A big THANK YOU to EOC interns for developing this educational content and to KENS 5 Weather Chief, Bill Taylor, and multiple EAA staff for sharing their expertise in the Learning Zone videos.

#### Fall Festivities at the EOC

AquiFun Fridays – On certain Fridays in October, only at the EOC! Come experience the magic of science in the Karst Theater with a water-science magic and puppet show presented by The Astonishing Mr. Pitts between 10 am and noon. Plus, design your own water-inspired AquiFlag!



Movie Mondays – Every Monday from October 2nd through December 18th, join us in the EOC Karst Theater for educational, family-friendly films and thought-provoking documentaries showcasing water and the wondrous outdoors! Showings will take place at 11 a.m. and 2 p.m.

Santa Saturday – The EOC will open its doors on Saturday, November 18th, for a special visit from Santa and EOC mascot, Elf Karston! Enjoy a free, memorable photo experience with Santa when you donate non-perishable human and pet food to the San Antonio Food Bank in our onsite bins. Share, give, and be thankful as you start your holiday season here at the EOC!

#### **Get involved!**

Learn more and schedule your free visit to the EOC at https://www.eaaeoc.org/.

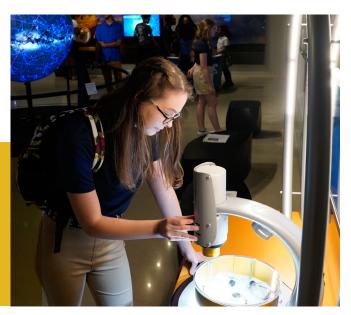
Interested in interning or volunteering at the EOC? Internship opportunities at the EOC exist each semester for college students or express your volunteer interests by clicking on the Volunteer button on the EOC home page https://www.eaaeoc.org/.

Remember to follow the EOC on social media to stay informed about all EOC happenings!

THERE IS
SOMETHING HERE
FOR EVERYONE TO
LEARN AND ENJOY!











#### **CONSERVANCY 2ND ANNUAL GALA PLANNED FOR 2024**



## GET IN THE CONTRIBUTING ZONE SAVE THE DATE FOR SECOND ANNUAL GALA

SAVE THE DATE: NIGHT OF A THOUSAND DROPS - ANNUAL FUNDRAISING GALA RETURNS TO SUPPORT THE EDWARDS AQUIFER CONSERVANCY



AUTHORITY

MANAGE • ENHANCE • PROTECT

**EDWARDS AQUIFER** 

Edwards Aquifer Authority 900 E Quincy St • San Antonio, TX, 78215 www.edwardsaquifer.org



The mission of the EAA is to Manage, Enhance and Protect the Edwards Aquifer. The Edwards Aquifer Authority is a regional water management agency that regulates with integrity, transparency, respect, and commitment to sustainability of the aquifer.

**NewsDrop** is a production of the EAA Communications and Development Department with helpful assistance from the following EAA Staff: Brent Doty, Damon Childs, Isabel Martinez, Javier Hernandez, Marc Friberg, Olivia Ybarra, Omar Garcia, Paul Bertetti, Roland Ruiz and Scott Storment

By: Nikki Young // nyoung@edwardsaquifer.org

The countdown has begun for the highly anticipated second annual Night of a Thousand Drops fundraising gala, benefiting the Edwards Aquifer Conservancy. On **March 23rd 2024**, prepare to be dazzled at the brand-new and stunning Security Service Federal Credit Union Event Center. This exciting event promises an evening of fun, entertainment, and heartfelt giving, all in support of the vital work done by the Conservancy.

But wait, there's more! For those eager to show their support ahead of time, contributions can be made online through our website at any time. And for an extra touch of charm, swing by the Education Outreach Center and pledge your contribution at our "Well of Fortune" Wishing Well nestled in our lovely native demonstration garden. It's an enchanting experience that allows you to amplify your impact by contributing directly to the Edwards Aquifer Conservancy. Your loose change can make a change in conserving our most precious ecosystem.

Additional information regarding the Gala will follow in future NewsDrop issues. Be sure to visit www.eaconservancy.org to learn more about the Conservancy and how you can support it. Meanwhile, if you want more information, don't hesitate to contact Nikki Young at Nyoung@edwardsaquifer.org.

We look forward to seeing you and we appreciate your continued support!



**Every Drop Counts**