

# NEWS DROP

M A G A Z I N E

MARCH 2023





Edwards Aquifer Authority  
900 E Quincy St | San Antonio, TX, 78215  
210-222-2204 | edwardsaquifer.org



## TABLE OF CONTENTS

- 4** EAA Board Members

---

- 6** Don't Go Chasing Waterfalls

---

- 10** At The EOC You Can See It

---

- 14** An Environmental Makeover Takes Shape

---

- 20** A Night Of A Thousand Drops

---

- 22** Aquifer Update

---

- 26** Ron Walton

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**Front Cover:** Golden Groundsel and Salvia Greggii flower illustrations in the foreground, with EOC's Native Plant Demonstration Garden in the background.

**Back Cover:** Image seen through the "Micro Eye" Microscope at the Education Outreach Center.



Cloud Caster.



EDWARDS AQUIFER  
AUTHORITY

MANAGE • ENHANCE • PROTECT

## BOARD OF DIRECTORS



**Front row, left to right:** Kathleen Tobin Krueger, District 8 – Randall Perkins, District 5 – Deborah Carington, District 6 – Enrique Valdivia, Chairman, District 7 – Abelardo A. Salinas III, District 3 - Carol Patterson, District 1 – Gary Middleton, SCTWAC Appointed Director.

**Back row, left to right:** Matthew Hoyt, District 9 – Russell Persyn, District 13 – Fohn Bendele, Medina/Uvalde Counties, Appointed Director – Scott Yanta, District 12 – Rader Gilleland, District 15 – Byron Miller, Treasurer, District 2– Benjamin F. Youngblood III, Secretary, District 4 – Rachel Sanborn, Vice-Chairman, District 11.

Not pictured: Austin Bodin, District 10; Donald W. Baker, District 14.

# Don't Go Chasing Waterfalls!

Just Visit the Education Outreach Center

Seco Sinkhole.



With a successful launch and maiden voyage in 2022, the EAA Education Outreach Center (EOC) has once again reopened for its 2023 season of operation and outreach to the general public. The Center, which opened its doors in April 2022, has already hosted over 2,500 guests, and 2023 should see larger numbers coming through its doors. Designed to be a facility featuring easily accessible interactive exhibits and displays, the EOC is a presentation experience powered and authored by the bright minds of EAA staff who have endeavored over 25 years to manage, enhance and protect the Edwards Aquifer. For 2023 the EOC has added two featured attractions for the pleasure and education of its guests: first, the long-awaited displays of threatened and endangered species – specifically, the Fountain Darter and the Texas Blind Salamander – have been realized. Visitors will see, up close and personal, both sets of species which figure prominently in the regulation and wellbeing of the Edwards Aquifer. Additionally, the Global Perspective Display – the five-foot diameter video sphere which serves as the anchor exhibit – now features updated graphics and programming, including nearly real-time display of global weather conditions. And by springtime, a gazebo sanctuary will be established next door at the EAA's Field Research Park, allowing selected school groups to enjoy their lunches in the confines of the Edwards Aquifer Recharge Zone.



The Micro Eye Microscope and Global Perspective Display.

Built to be a teaching and learning center to educate and inform the public about the Edwards Aquifer Authority and the Edwards Aquifer, the EOC has proven to be a powerful tool, leaving long-lasting and positive impressions on those experiencing it. The public's reaction has been nearly universal in praise for the valuable information shared, and in the ways and manners that information is conveyed – with a particularly entertaining and insightful flair.

WATER you doing Spring Break?

COME SEE WHY

# SCIENCE ROCKS!

Join us for a week of AquIFun shows and activities! Plus explore what lies beneath through interactive exhibits and displays.

All for FREE!

March 13 -17, 2023 | 10:00am -12:00pm  
23400 Cibolo Vista San Antonio, TX 78259

## SPECIAL GUESTS:

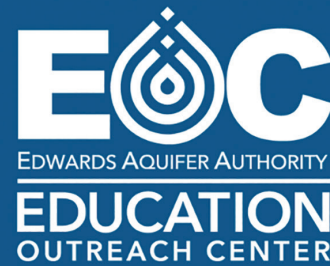
Rain Percussion with TBow:  
*Monday & Wednesday*

The Magic of Water & Science Show  
by Mr. Pitts: *Tuesday, Thursday & Friday*



RSVP NOW!

210-547-2222  
eaaeoc.org



EAA Sr. STEAM Outreach Educator, Sarah Valdez.



Presenter, John Ramirez.

The intent has always been to communicate primarily with a vocabulary familiar to middle-school children. But make no mistake – there is no “watering down” of the scientific facts underpinning the presentations. On the contrary, children and adults of all ages find a visit worth their while, with misconceptions about the Aquifer corrected and accurate insights put forward and confirmed. To be sure, the Education Outreach Center is a destination for all people. And since the Center provides free admission, requiring only an advance reservation made through its website, [www.eaaeoc.org](http://www.eaaeoc.org), there is simply no reason not to visit.

Water is life, pure and simple. Without it, there are no homes to build, businesses to operate, farms to irrigate, animals to raise, no industries to grow and prosper, and most importantly, none to drink and stay alive.

Water fuels and sustains our hopes and dreams, and the lack of it is our worst nightmare. The state of Texas has empowered the Edwards Aquifer Authority to manage this unique and vital resource which resides several hundred feet below, and whose daily impact towers over all of us. It is the intent of the EAA Education Outreach Center to tell the story about the primacy of water in the lives of the more than 2 and ½ million people who reside in the Edwards Aquifer region, and depend on it for their lives, and their livelihoods. We are on a mission!

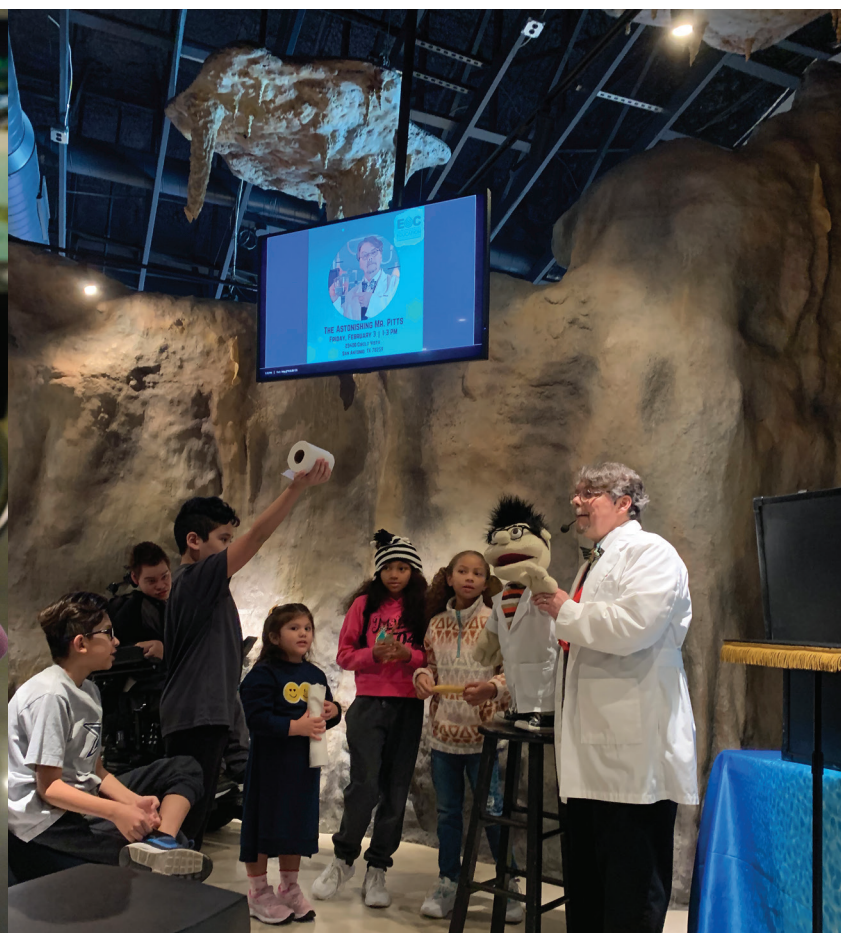
**We look forward to seeing you in 2023!** ■

# AT THE EOC, YOU CAN SEE IT.

Our interactive exhibits and aquariums create a tangible experience of the Edwards Aquifer. Read on for three of our favorite EOC offerings.



Selfie at the Global Perspective Display.



The Astonishing Mr. Pitts in the Karst Theater.



Texas Blind Salamander.

## 2. Texas Blind Salamander, Fountain Darters, and More!

The Edwards Aquifer is teeming with aquatic creatures. Notably, the endangered Texas Blind Salamander is found nowhere else in the world. The EOC is one of the few places where the public can see this incredible species. Our Texas Blind Salamander, named Xander by the public (in an online competition), is neighbored by an aquarium of native fish (including the endangered fountain darter) and an aquarium of non-native fish that have infiltrated our water bodies. Students are challenged to consider the dangers of invasive species, including the common Plecostomus or suckermouth catfish.

**WATCH:** Xander, the Texas Blind Salamander.

<https://youtube.com/shorts/HI103U4HTpI?feature=share>

**Finley, the Fountain Darter.**

<https://youtube.com/shorts/by86F6j0eIA?feature=share>

## The EOC Creates a Tangible Aquifer

When designing the EAA Education and Outreach Center (EOC), we had a goal: to take the science of the Edwards Aquifer and make it tangible.

The Edwards Aquifer is intrinsically linked to our most important resource, water. Yet, despite its key role in our lives, the aquifer can remain abstract. After all, the Edwards Aquifer is hundreds to thousands of feet deep. Most of us will never see it or its wildlife with our own eyes. And it's hard to care about something we can't see.



## 1. The Karst Theater

A replica of an Edwards Aquifer Cave, our presentation room elicits exclamations of wonder. School groups file in, looking around with wide eyes as they step into a cave. One can almost imagine the temperature cooling or picture a stalactite's potential fall. This immersive experience creates the perfect atmosphere for learning. Our educators ask students, "How deep underground is the Edwards Aquifer?" or, "What type of stone do you think this cave is made up of?"

# AND, SO MUCH MORE.

From an outdoor native garden to real footage of the inside of a well, to weekly Edwards Aquifer updates by Bill Taylor from KENS 5 News, the EOC is filled with opportunities to learn about and experience the Edwards Aquifer. And don't forget, it's free and open to all! **Every visitor receives a complimentary souvenir!**



Wildlife Viewing Area.



School group.

## Educators, Book a Visit for your Class Today!

Our education team is working especially hard to create a memorable, educational experience for school groups. Our school programs include a presentation by our trained educators, a hands-on activity, and free time to discover the exhibits. Aligned with **TEKS (Texas Essential Knowledge and Skills)**, our school programming emphasizes where our water comes from and the importance of conserving it. Students are further encouraged to form connections between the Edwards Aquifer and our local flora and fauna through an outdoor scavenger hunt which leads kids to explore our native plant garden and wildlife viewing area.

With over 2,000 guests last season, we are gearing up for even more in 2023. Already, we have received bookings for as far in advance as June. So, don't wait! Book a field trip for your school today!

Students leave with smiles, a new appreciation for their water source, and, our personal favorite, the words "that was fun!"

## 3. The Cloud Caster.

The Edwards Aquifer is intrinsically linked to the water cycle. The EOC has several exhibits showcasing the path that water, a finite resource, follows before reaching our aquifer. Most notably, our Cloud Caster allows visitors to create their very own clouds! Not only is this a crowd-pleaser for children and adults alike, but it's a perfect demonstration of one of the key components of the water cycle.

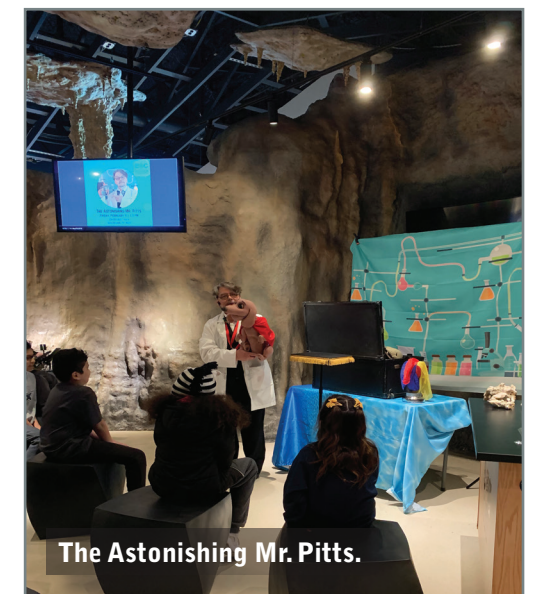


Cloud Caster.

## Join us For AqiFun Fridays This Season!

This season, we are hosting monthly AqiFun Fridays in addition to our regular activities and exhibits! AqiFun Fridays are fun-filled, educational days of interactive programming. Our first AqiFun Friday in February featured magician Mr. Pitts. Performing for our younger elementary-aged visitors, Mr. Pitts skillfully wove science into his magic tricks. Rather than Abracadabra, the magic word of the performance was AqiFun!

Upcoming AqiFun Fridays will feature drummer T-bow—where kids will participate in a drum circle and build their own rainmakers—educational film screenings, and more. Follow us on social media for updates on each month's AqiFun Fridays! ■



The Astonishing Mr. Pitts.



Lot clearing.

The two-acre parking lot that has served the Landa Park Aquatic Center for decades is not only getting a top to bottom overhaul, but a brand new bioretention system as well to improve the quality of water the property catches and funnels toward the Comal River. While this major project has been on the drawing board for a while, it wasn't until the **Edwards Aquifer Habitat Conservation Plan (EAHCP)** stepped in to assist, that this project directly effecting the threatened and endangered species living in the Comal River took off.

"The Aquatic Center's parking lot is only a stone's throw away from where federally protected endangered species thrive in the Comal Springs and new channel of the Comal River," said City of New Braunfels Watershed Coordinator Phillip Quast.

"Once we started talking with the EAHCP team, we knew that we could elevate this typical parking lot repaving into a water quality enhancement type project," Quast said.

## An Environmental Makeover Takes Shape

"And so with the infusion of EAHCP funding and the EAHCP team's planning and administrative assistance, we were able to get to work in moving the project forward late last year; there are some additional costs for including a bioretention basin to a parking lot like this," stated Quast.

"However," Quast said, "when you weigh the minimal extra investment against the major reduction in pollutants to the environment and benefits to the Comal River that draws so many people here, this is definitely a step in the right direction for the future of our city and how we protect endangered species over time," he concluded.

Vehicle wheel stops along with a ribbon curb are designed so that parking lot runoff will shift stormwater flow into the filtering basin, thus, avoiding concentrated discharge points and the potential for sediment accumulation that can impeded water flow. Existing trees will be preserved and the bioretention outlet will use a 24" reinforced concrete pipe to connect to an existing stormwater pipe that currently discharges to the Comal River. "The bioretention basin water quality component was designed per the Texas Commission on Environmental Quality (TCEQ) Edwards Aquifer Protection standards," Quast noted. "We will also be adding layers of TCEQ-approved filtering media such as sand, compost and other loamy soil types," Quast said.

These filtering media are specifically designed not to compact as water flows through it and, most importantly, filter out pollutants.





One major difference the Aquatic Center’s bioretention basin will have from a typical French drain is its maintenance access piping. From time to time, the City of New Braunfels will be able to bring in vacuum trucks and tie into strategically placed PVC pipes that slightly protrude from the basin to remove accumulated sediment.

These types of projects come under the heading of “low impact development.” The term refers to systems and practices that mimic natural processes that result in the filtration of stormwater which protects water resources and associated aquatic habitat.

“ We will also be installing a bio-swale with a slight slope of 0.6% to promote filtering and nutrient uptake as stormwater runs through the bioretention basin,” said Quast. “Finally, the City of New Braunfels will be responsible for monitoring and maintaining the new basin to ensure that it efficiently removes typical parking lot pollutants from rainwater runoff before they can reach the Comal River,” said Quast.

He explained that the bioretention basin project is similar to French drains that homeowners and business owners might install in their landscapes to divert large amounts of rainfall in order to prevent ponding and erosion from occurring.

Non-point source pollution is a prevalent problem throughout the world, and bioretention basins have been deployed worldwide to treat stormwater runoff to protect a community’s water resources.

Today, they are considered a Best Management Practice by the U.S. Environmental Protection Agency for removing potentially toxic pollutants from stormwater runoff.

Over the past few decades, numerous studies have been conducted to test the water quality before and after biofiltration and the results have been impressive.

KEY LANDA  
PARK  
AQUATIC  
CENTER  
STATISTICS:

1.91

ACRES  
DRAINAGE  
AREA

1.59<sup>83%</sup>

ACRES  
IMPERVIOUS  
AREA

3,241

CUBIC FEET  
AT ELEVA-  
TION 624.5  
BIOFILTRA-  
TION MEDIA  
ELEVATION  
623.1

1,427

POUNDS  
TOTAL  
SUSPENDED  
SEDIMENT  
MANAGED  
PER YEAR

**STUDY LINK:**

[BIOLOGICAL EFFECTIVE-  
NESS OF BIORETENTION,  
WASHINGTON STATE  
UNIVERSITY](#)

Landa Lake Aquatic Park before construction.



One particular study by Washington State University for the City of Seattle, an area of the country with seemingly nonstop rainfall, showed that a bioretention basin can significantly reduce pollutants from the stormwater stream. Researchers chemically analyzed the water before being passed through a bioretention system and found various pollutants including metals, copper and zinc, and hydrocarbons which are products of vehicles. After filtration, results showed that those pollutants were greatly reduced from around 70-100 percent. Washington State concluded that a relatively inexpensive approach such as bioretention basins and/or rain gardens made up of sand and compost, can greatly reduce pollutant loads to aquatic systems, resulting in greatly reduced toxicity to aquatic organisms.

"The overall project will be completed this spring and we're definitely anxious to get the bioretention system online," Quast commented. "In addition to being a consequential improvement to the Landa Park infrastructure, this will also be a great way for us to let visitors know about our efforts to protect the river's water quality and the endangered species. There will be several signs associated with the bioretention basin that will explain its purpose," said Quast.

"And we all know Landa Park is a favorite recreational destination for those living in this part of the State, so we're expecting to reach a lot of people with our pollution prevention message," Quast concluded. ■



Clearing parking lot for construction.

**LEARN MORE:** [URBAN RUNOFF: LOW IMPACT DEVELOPMENT.](#)

# A Night of a Thousand Drops

The Edwards Aquifer Conservancy, or the EAC, is the 501(c)3 non-profit organization which supports the Edwards Aquifer Authority, and we have big things planned for 2023 – headlined by A Night of a Thousand Drops – an inaugural signature fundraising event benefiting the Conservancy. The event is scheduled for Saturday, May 13th, 2023, from 5:30 p.m. to 9:30 p.m.

Held against the backdrop of our Education Outreach Center, guests of the Night of a Thousand Drops: The Magic of Water event will be feted with a variety of treats, ranging from performing magicians, to water-infused libations, to a savory dinner and dessert paired with fine waters from around the world, and so much more!

The EAA plays a critical role in protecting our most precious resource – the water we drink and use to sustain our lives, and our livelihoods. Events like these allow us to continue our education efforts by providing free admission to children and adults who visit the Education Outreach Center, and so much more. 100% of the proceeds raised from this event will directly benefit the Conservancy, and its charge of supporting EAA programs, projects, and special initiatives – all of which supports its mission to manage, enhance, and protect the Edwards Aquifer.

A limited number of tickets and sponsorship opportunities are available, so you're encouraged to purchase a seat or table as soon as possible. To do so, please visit [EAConservancy.org/GALA](http://EAConservancy.org/GALA), or call 210-693-5499. If you're unable to attend, but would still like to show your support, you can either donate online at [eaconservancy.org](http://eaconservancy.org), or mail a check to:



**EDWARDS AQUIFER  
CONSERVANCY**  
SUPPORTING THE EDWARDS AQUIFER AUTHORITY

Edwards Aquifer Conservancy  
C/O Nikki Young  
900 E. Quincy  
San Antonio, TX 78215



An aquifer conditions update is reported every month at the EAA board meeting to inform board members and the public about the status of the J-17 Index Well, J-27 Index Well, the Comal Springs and the San Marcos Springs springflows. These index wells and springs are indicators of the health of the aquifer and critical to drought management.

# AQUIFER UPDATE

Conditions current as of time of publication.

Conditions reported as of February 14, 2023.

Paul Bertetti, EAA Senior Director for Aquifer Science Research & Modeling, gave his monthly aquifer conditions report at board meeting on February 14, 2023.

**Figure 1**, shows water levels for the J-27 Index Well in Uvalde, Texas as of February 14, 2023. The yellow line indicates the historical mean value trend, and the blue line is the actual measured water level over the past year. As you can see in the figure, water levels in J-27 have started to decline after remaining steady over the winter. Warmer weather and the start of planting season result in increased pumping as Spring approaches. The 10-day average water level at J-27 was 849 feet above mean sea level on February 14, which puts the Uvalde Pool in stage two of the EAA critical period management plan.

**As of February 14, 2023**, water levels have been improving a bit at the J-17 Index Well in Bexar County and in the Comal and San Marcos Springs because of recent rainfall.

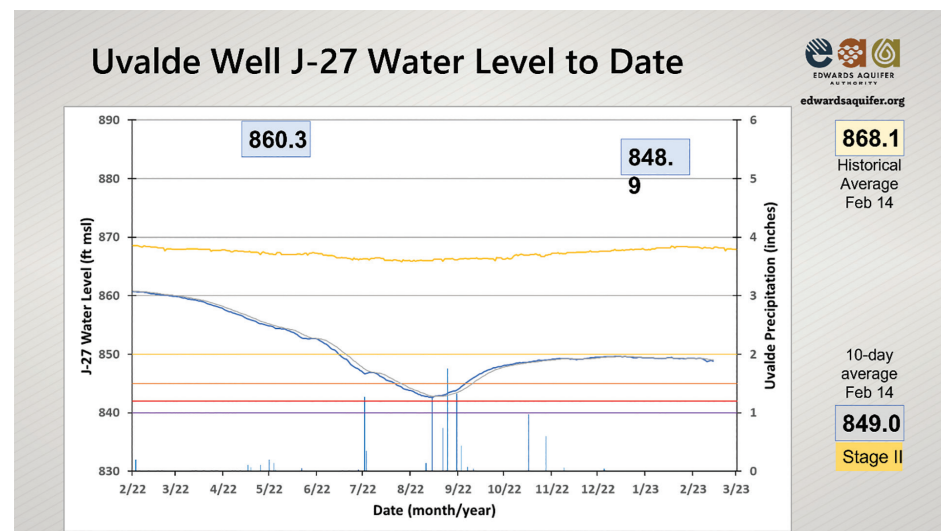


Figure 1. J-27 Index Well Water Level Data, February 2023.

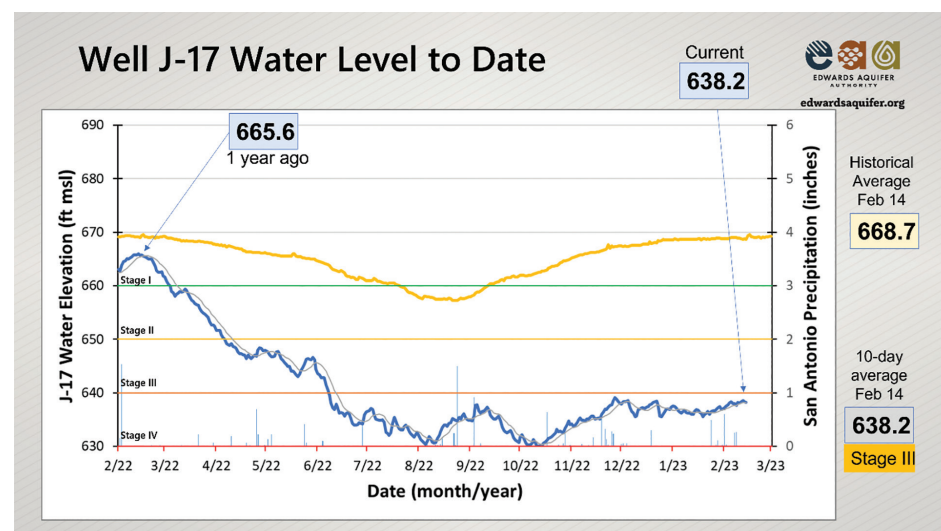


Figure 2. J-17 Index Well Water Level Data, February 2023.

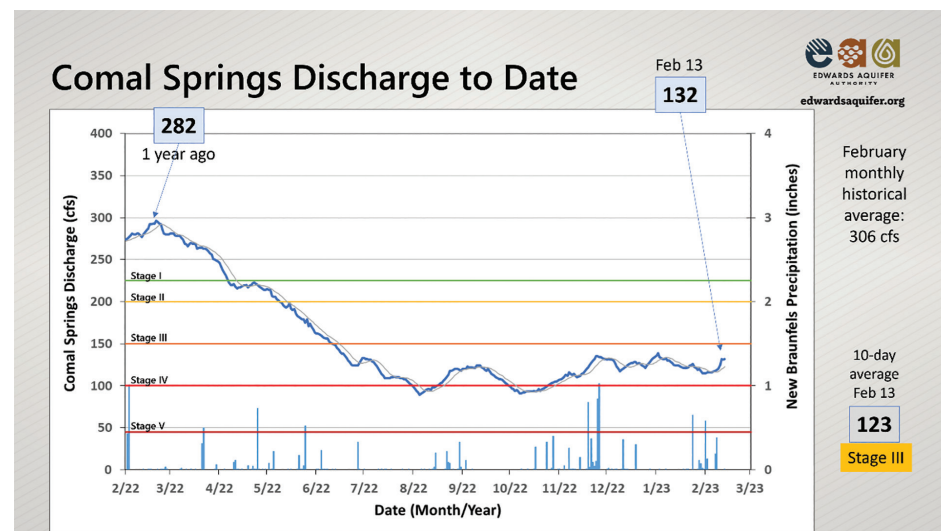


Figure 3. Comal Springs Discharge Data, February 2023.

As is typical for the wintertime, J-17 levels have been steady since about mid-December. This is a result of near-normal rainfall and stable pumping. As you can see in **Figure 2**, the yellow line depicts the mean historical water level trend for J-17, and the measured water levels are indicated by the blue line. Unfortunately, current conditions show that we are about 30 feet below the historical average for this time of year. As indicated by the 10-day average for J-17 water levels, the San Antonio Pool is in stage three of the EAA critical period management plan.

Comal Springs flow has been responding very similarly to water levels at J-17. Even though there's been some good local rainfall in the New Braunfels area, the conditions at Comal Springs continue put us in stage three of EAA critical period management plan. As shown in **Figure 3**, flow at the springs is nearly two hundred cubic feet per second below average for this time of year and has declined significantly over this past year as a result of the intense drought.

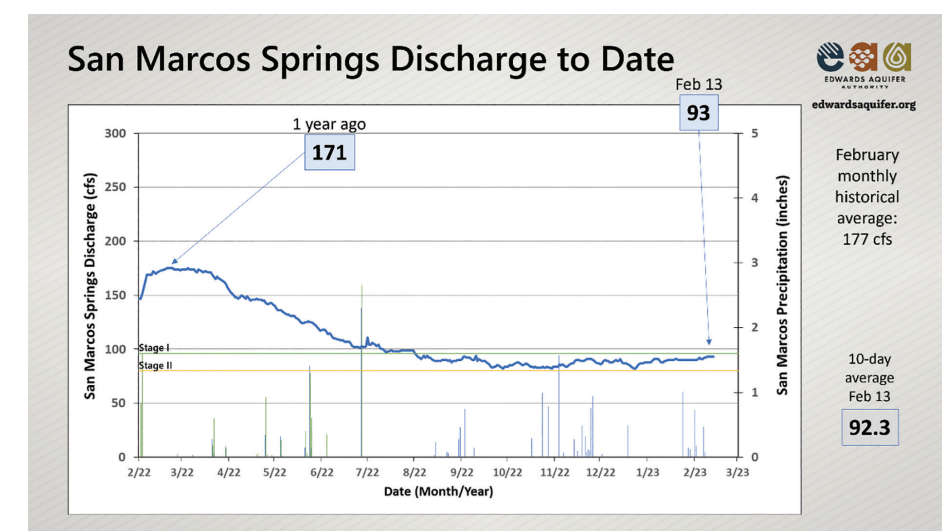


Figure 4. San Marcos Springs Discharge Data, February 2023.

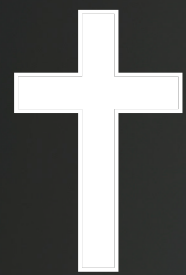
Flow at San Marcos Springs has remained steady but low since last Fall. Recent rainfall in and around San Marcos has not seemed to have had a significant impact on the springflow. **Figure 4**, shows discharge was at 171 cubic feet per second (cfs) one year ago and as of February 13, 2023, it's at 93 cfs, which is significantly below average for this time of year.

Although we have had several recent rainfall events, much of that rainfall has been east and south of I-35. Unfortunately, that is away from the recharge zone of the aquifer. There have been lesser amounts of rainfall to the west of I-35 on the contributing and recharge zones. That's one of the reasons the aquifer levels have not risen more in the past few weeks.

To learn about current EAA topics, and to listen to the latest aquifer conditions reports, be sure to tune in to our board meetings on March 14, 2023, and April 11, 2023, at 4 p.m. ■

**TUNE IN: EAA Board Meetings.**

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



IN LOVING

*memory*

RONALD J. WALTON  
July 1, 1940 - February 4, 2023



Ronald J. Walton  
EAA Director for Comal & Guadalupe  
Counties – District 9



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