

# NEWS DROP

M A G A Z I N E

A QUARTERLY PUBLICATION

WINTER 2019



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**004**

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## A MESSAGE FROM THE GENERAL MANAGER

***“We have much for which to be thankful and hopeful for this holiday season. The year 2019 proved to be a momentous one for the EAA as we introduced some significant initiatives that promise to transform our work in the years ahead.”***

These include developments in the following programmatic areas.

### **SERVICE THROUGH BUSINESS AND COMMUNITY DEVELOPMENT**

Our Inclusion Initiative built inroads to our local business communities in 2019 in ways we’ve never done before. This program, intended to remove barriers and create pathways to partnerships between local minority, women-owned businesses and governmental agencies such as ours, produced its first graduates of the EAA Recharge Bootcamp. Through the recharge bootcamp, nine local small businesses gained new skills and insights into various aspects of business development and strategy through a series of EAA-sponsored classes aimed at helping them grow and build new relationships and alliances in the community.

### **EDUCATION AND CONSERVATION THROUGH PARTNERSHIP**

The announcement of plans for a new EAA Education and Outreach Center at the soon-to-be-built Morgan’s Wonderland Camp signaled the dawning of a new and exciting era in the effort to reach, teach and engage people of all ages in understanding the virtues of aquifer conservation and protection. The imaginative partnership between the EAA and Morgan’s Wonderland is expected to be realized in the establishment of the first-ever education and outreach center dedicated solely to the purpose of introducing people to the Edwards Aquifer some time in 2020.

### **STEWARDSHIP AND SUSTAINABILITY THROUGH SCIENCE**

The acquisition of approximately 150 acres of pristine land located on the recharge zone of the aquifer helped fuel the vision of an outdoor learning laboratory for aquifer field research and observation. These properties, acquired through the City of San Antonio Edwards Aquifer Protection Program and then gifted to the Edwards Aquifer Conservancy, provide the EAA a platform for carrying out meaningful, long-term research on various aspects of aquifer recharge, protection, and management that could further ensure the continued sustainability of the Edwards Aquifer for generations to come.

These initiatives, in their collaborative nature and creativity, illuminate the path of ***inclusion, imagination and innovation*** that we have undertaken in order to reshape and invigorate the work of the EAA and to revitalize our mission to manage, enhance, and protect the Edwards Aquifer system.

**Our pledge to you in 2020, then, is this: Inclusion, imagination, and innovation will be the EAA way.**

**We will carry out our mission by engaging you — our permit holders, stakeholders and neighbors — with world-class service, sound science and research, and open and responsive communication.**

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ON BEHALF OF THE EMPLOYEES AND BOARD OF DIRECTORS OF THE EAA, HERE’S WISHING YOU A MOST HAPPY AND PROSPEROUS 2020!

*Right Page: EAA’s General Manager, Roland Ruiz gives an interview at the site for future EAA Field Research Observatory.*



# EAA TO RECHARGE ITS EDUCATION OUTREACH

**This latest venture in the EAA's story will bring together children and youth of all abilities and teach them about one of the most prolific aquifers in the world.**

Skies were gray and rain was falling – actually, rather appropriate for a late October day at the site of the soon-to-be-constructed Morgan's Wonderland Camp. The day marked the official announcement of the Edward Aquifer Authority entering into a formal partnership with the Camp and committing to the onsite construction and operation of an EAA Education Outreach Center. The announcement was made jointly by Gordon Hartman, Founder of the Gordon Hartman Family Foundation and Creator of the Morgan's Wonderland Camp, and Roland Ruiz, EAA General Manager. Joining them were members of the EAA Board of Directors, who, along with Karston, the EAA Texas Blind Salamander, and Joy the Butterfly, the Camp's Mascot, took part in a traditional groundbreaking to signify the occasion.

By partnering with with ultra-accessible™ Morgan's Wonderland Camp (MWC), a 102-acre recreational oasis on the northern outskirts of San Antonio that will year-round offer a summer camp-type experience to those with and without special needs, the Edwards Aquifer Authority will take advantage of its unique location on the Recharge Zone to impart water wisdom by cultivating a curiosity for the life-sustaining groundwater system below our feet – The Edwards Aquifer.

“Our partnership with Morgan's Wonderland Camp will be manifested in the creation of the EAA Education Outreach Center,” stated Roland Ruiz, EAA General Manager.

Cont.







**ABOVE** Morgan's Wonderland Founder, Gordon Hartman and EAA General Manager, Roland Ruiz.

**TOP OF PAGE** Conceptual rendering of EAA Education Outreach Center.

“It reflects the way we must approach our work moving forward – through inclusion, imagination, and innovation – if our legacy is to be a sustainable Edwards Aquifer for generations to come,” said Ruiz.

On the cusp of celebrating nearly 25 years managing, enhancing, and protecting the Edwards Aquifer, the EAA believes in cultivating an appreciation for the preservation of the Morgan's Wonderland Camp site situated on the Edwards Aquifer Recharge Zone, and raising awareness for the importance of both quality and quantity of water in the Edwards Aquifer. This latest venture in the EAA's story will bring together children and youth of all abilities and teach them about one of the most prolific aquifers in the world.

The \$2.5 million EAA Education Outreach Center will encompass 3,500 square feet and feature unique learning experiences that will broaden imaginations through participation in innovative STEM opportunities with an inclusive mindset. A permanent location for a dedicated EAA Education Outreach Center at Morgan's Wonderland Camp will give the EAA a platform to educate daily.

The \$28 million, ultra-accessible™ Morgan's Wonderland Camp, which is slated for completion in the latter half of 2020, will be able to accommodate, at one time, up to 525 campers of all ages and abilities along with staff for day, weekend or week-long camp sessions.

“We are truly excited about the inclusion of the EAA Education Outreach Center at Morgan's Wonderland Camp, which definitely will be a fun place as well as a learning place,” stated Gordon Hartman, Creator of the Camp. “In collaboration with EAA, we'll be able to offer community-based instruction sessions to campers as well as students from area schools and home schools. When learning becomes fun, lessons are more likely to be remembered.”

Hartman noted that MWC will have a multi-platform zipline that can accommodate wheelchairs, a stable and horses for horseback riding, a nature farm, multiple swimming pools and a relaxing river, an archery range, an enclosed sports pavilion and a challenge course with climbing walls for campers of all abilities, to name a few MWC features. ■





**ABOVE** EAA mascot, Karston; Community Advisory Board member, Chris Herring; EAA Board members, Don Laffere; Deborah Carington; Carol Patterson; EAA's General Manager, Roland Ruiz and Morgan's Wonderland Founder Gordon Hartman; EAA Board members, Byron Miller; Rachel Allyn Sanborn; Patrick Stroka; and Morgan's Wonderland mascot, Joy.

**TOP LEFT** Gordon Hartman and EAA Board Members, Carol Patterson and Don Laffere.

**TOP RIGHT** Mark Hamilton, EAA Executive Director of Aquifer Management Services, and Brock Curry, EAA Deputy General Manager.

THE EDWARDS AQUIFER CONSERVANCY IS ACTIVELY SEEKING UNDERWRITING FOR NAMING AND OTHER SIGNAGE SPONSORSHIP OPPORTUNITIES FOR THE EDUCATION OUTREACH CENTER. FOR MORE INFORMATION VISIT THE EA CONSERVANCY TAB AT [WWW.EDWARDSAQUIFER.ORG](http://WWW.EDWARDSAQUIFER.ORG).



# CONSERVANCY ACQUIRES LAND FOR FIELD RESEARCH OBSERVATORY

**N**ovember 14th, 2019 marked a red-letter day for the Edwards Aquifer Conservancy (EAC), the supporting non-profit organization for the Edwards Aquifer Authority (EAA), as it was formally granted the deeds to 150+ acres of land known as the Cibolo Vista Tracts 1 and 2 by the San Antonio City Council. The property, located just north of the soon-to-be-constructed Morgan's Wonderland Camp, represents a \$5.5 million gift to the Conservancy – the largest gift received to date.

The EAA is proposing to operate a field research observatory on the properties, which would include a thorough science-based initiative to collect groundwater levels, water quality data, soil sampling and mapping of karst features like springs or seeps in the area. The EAA will be responsible for the field research observatory and maintenance of the properties in accordance with the City of San Antonio's conservation easement requirements. The principal purpose of the EAA Field Research Observatory is to develop, research, and implement practices that lead to enhanced water quality and quantity for the region.



“The acquisition of this property demonstrates the value of the Edwards Aquifer Protection Program (EAPP) in incentivizing conservation of lands within the most environmentally sensitive areas of the recharge and contributing zones of the aquifer,” stated Roland Ruiz, General Manager of the EAA. “The transfer of these particular tracts of land to the Edwards Aquifer Conservancy further raises the return on investment of the program because these properties will not only be conserved, they will now provide us a new and meaningful platform to conduct long-term scientific, field research along a critical stretch of the recharge zone, which can ultimately have a generational impact on our understanding and management of the Edwards Aquifer.

It gives us a 150-acre, learning laboratory, that will enable us, for example, to better quantify impacts of adjacent aquifers and surface water influences, and to evaluate creative best management practices that could lead to better water quality through improved retention and infiltration techniques that will ultimately result in a more sustainable aquifer.”

The relative proximities of the Education Outreach Center at Morgan’s Wonderland Camp and the Field Research Observatory will be leveraged upon – with each of the facilities supporting each other’s primary missions of educational outreach and scientific research, respectively. The potential synergy represents a quantum leap in extending understanding, awareness and aquifer insights to all peoples across the Edwards Aquifer region. ■

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THE EDWARDS AQUIFER CONSERVANCY IS ACTIVELY SEEKING UNDERWRITING FOR NAMING AND OTHER SIGNAGE SPONSORSHIP OPPORTUNITIES FOR THE FIELD RESEARCH OBSERVATORY COMPLEX. FOR MORE INFORMATION VISIT THE EA CONSERVANCY TAB AT [WWW.EDWARDSAQUIFER.ORG](http://WWW.EDWARDSAQUIFER.ORG).

**ABOVE** Conceptual rendering of EAA Field Research Observatory.





“Mulchie”

The Mulch Fire Episode



**ABOVE** EAA Water Resources Director, Chuck Ahrens, and San Antonio Fire Department Captain, Michael Wagner.

**TOP OF PAGE** After the fire.

“**M**ulchie” started it all. Part of the Edwards Aquifer Region’s water lore is the massive mulch fire that ignited Christmas night in 2006 near Helotes. The mulch pile had been continually added to over a period of four years and had grown to an estimated 80 feet high and 800 feet long. From the distance, it looked like it could be another hillside in the Texas Hill Country. In the end, it cost about \$5.8 million and took three months to extinguish. Throughout the ordeal, the fire gained worldwide media coverage, was the subject of various poems and songs and earned that “Mulchie” nickname.

The biggest issue with the process of snuffing out the fire was that the mammoth mountain of mulch sat on the Edwards Aquifer Recharge Zone. Consequently, the enormous volume of water being poured on the fire created a toxic stream of runoff. Due to the environmental issues at hand, the San Antonio Water System shut off the water to stop the potential for contaminating the aquifer.

“Needless to say, the whole mulch fire episode initiated new environmental concerns,” said

Chuck Ahrens, the Edwards Aquifer Authority’s water resources director. “There were all kinds of smoke and ash in the air and we were all concerned with the contaminated runoff getting into the aquifer. And while there were a few wells in the area that showed some contamination from the mulch fire runoff, fortunately the problem was not widespread and did not impact any public supply water wells.

But, what we all learned was that there needed to be some changes with how such fires are managed on the Edwards Aquifer Recharge Zone and how we monitor and address firefighting there. Mulchie was truly the impetus for the program we are implementing now with cooperation from the San Antonio Fire Department (SAFD) and other agencies.” Ahrens explained that after the mulch fire incident, the State Legislature gave the responsibility for monitoring and mitigating potential impacts from firefighting water runoff to the Edwards Aquifer Authority.



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Initial efforts to create a program stalled a bit, but over the last several months, a new plan to track and develop programs to mitigate impacts from firefighting on the recharge zone has taken hold. The City of San Antonio provided a \$218,900 grant for analysis and training, the San Antonio River Authority stepped up to manage the funds and the Edwards Aquifer Authority (EAA), San Antonio Fire Department and Texas A&M University - San Antonio collaborated to put the program components together.

“Since the San Antonio Fire Department has a state-of-the-art hazmat program, we were already active in pollution prevention efforts that can be a part of fighting fires,” said SAFD Captain Michael Wagner. “However, when the EAA approached us about taking our efforts to the next level in protecting the Edwards Aquifer Recharge Zone, our leadership team welcomed the opportunity.”

Texas A&M University - San Antonio staff then reached out to the Texas A&M Engineering Extension Service (TEEX) training school to enlist their knowledge in developing some best management practices (BMP) for the program. TEEX is home to some of the world’s top training facilities for emergency preparedness and trains nearly 200,000 firefighters, Homeland Security officials, law enforcement and other emergency responders from around the world each year.

“The TEEX faculty is world class and we were thankful for their participation in helping us formulate a direction for the program,” Ahrens noted. “The EAA has also had regular meetings with the SAFD leadership group, and Captain Wagner in particular, as we try and understand how we can incorporate recharge zone protection BMPs for firefighters working in Northern Bexar County.”

The early research and series of meetings have produced significant goals for the program. The EAA will be visiting all regulated facilities located within the city limits of San Antonio and on the Edwards Aquifer Recharge Zone. The EAA’s Small Container Rules require facilities that store more than 1,000 gallons of regulated substance in containers smaller than 500 gallons to submit facility maps and an inventory of regulated substances that are housed onsite. Using the facility maps and the regulated substance inventory, EAA staff plans to create a database that firefighters will have access to in case they have to fight a fire in the Recharge Zone.

Additionally, the EAA will be creating an innovative site-specific GIS maps that will show firefighters the most environmentally sensitive areas of a given piece of property. The site-specific maps will also show firefighters which direction the water will run, given the slope near facilities storing large quantities of possibly harmful materials.

“Having this type of information available as our units approach the scene of a fire will be invaluable to us,” Wagner said. “While our first priority is saving lives, we are also extremely conscious of protecting the environment. We can pour tens of thousands of gallons of water on a burning structure and we all know that the water has to go somewhere. If we can see that the runoff could enter a sinkhole or other recharge feature from that data the EAA provides, we can immediately set up berms and other containment materials to mitigate contamination of the aquifer.”

Through collaboration with the SAFD, EAA is already getting email notices about any fires occurring on the recharge zone. Ahrens said those notifications are not meant to trigger a water quality team from the EAA heading out to the fire, but more about having the opportunity to do some post-event water quality sampling.

“San Antonio firefighters are well-trained and we are not going to get in the way of them doing their jobs. However, the open line of communications and data sharing will help both of us,” Ahrens concluded. “Our long-term goal is for comprehensive training on this issue to become a standard component for every new firefighter joining the SAFD. The Edwards Aquifer will always be an essential water supply for San Antonio and other communities around the region, so we need to ensure that we’re taking every step we can to protect it from potentially contaminated runoff that can occur as firefighters do their jobs on the Edwards Aquifer Recharge Zone.” ■





# “Dream Big”

The EAA Mentors

**T**he Big Brothers Big Sisters (BBBS) program has a storied history. It has operated for 115 years going back to a juvenile court in New York City where Ernest Coulter, a court clerk, noticed that an inordinate number of fatherless boys were appearing before the judge. So, he gathered 50 volunteers to mentor those boys and started a movement that is still growing and evolving today. And while that amazing story is worth knowing and telling, the true impact of the program is felt when you witness the connection between a mentor and a child and understand how a positive human bond can help shape both of their lives in a big way.

The program calls mentors “Bigs” and the children “Littles.” Big Brothers Big Sisters has learned that connecting “Bigs” with middle school children is the best opportunity for both the kids and mentors to bond. These are very formative years for the soon to be teenagers and a time when an adult can help create a solid foundation for them.

“There are two main components to Big Brothers Big Sisters where you can be a mentor in a workplace scenario or in a community setup,” said Damon Childs, Edwards Aquifer Habitat Conservation Plan (EAHCP) contract administrator and a board member for Big Brothers Big Sisters of South Texas.

“In the workplace program, you meet with your Little once a month, typically during the lunch period. Contact with your Little is pretty much limited to that one hour for the month. The community facet of the program allows you to visit your Little a couple of times a month, take them places and communicate with them more freely. I’ve been fortunate to have participated under both sets of guidelines and I can say that helping young kids like that gives you a deep sense of satisfaction. I can only hope that I’ve given them as much as they’ve given me.”

Childs says that he got involved in BBBS right after he earned his undergraduate degree from the University of Texas at San Antonio. He was paired with an eight-year-old named Isaiah and stayed involved through BBBS until Isaiah aged out of the program at 21. They are still friends today. Isaiah, now 24, attended Child’s graduate degree ceremony and wedding as well. They’ve continued to keep up with each other’s lives and families as you might expect a bond created over 16 years would engender.

Cont.





**ABOVE** Little Brother and Big Brother Damon Childs, Edwards Aquifer Habitat Conservation Plan (EAHCP) Contract Administrator, (at the EAA), and a board member for Big Brothers Big Sisters of South Texas.



**ABOVE** EAA staff with their Littles. **RIGHT** Jim Winterle, EAA Director of Modeling and Little. **LOWER RIGHT** Childs, Littles, and Big Brothers, Big Sisters Vice-President of External Relations & Big Sister, Christina Martinez.

“Isaiah is a fine young man,” Childs said with a proud smile. “He’s in the telecom construction business and still trying to find his way a bit on a career path. He is smart and works hard so I have every confidence he will get where he wants to be in life.” Shortly after becoming a “Big”, Childs was asked to be on the board for the South Texas Chapter of Big Brothers Big Sisters. He recalled that he immediately said yes and now has a decade of experience as an official with the organization. About a year ago, he decided to get the Edwards Aquifer Authority (EAA) involved in the BBBS workplace program.

“When Damon approached me about being a Big, I was a little hesitant about joining,” noted Latifah Jackson, a Contracts and Business Development Coordinator for the EAA. “I was wondering how I would relate to a sixth grader and what I might have to offer her.

But it didn’t take too long before we got to be friends. Not long after I was paired with my Little, Mo’nay, her family moved to another part of the city. I didn’t want her to think that I was going to abandon her, so I decided to transition from the limited contact workplace format to the community part of Big Brothers Big Sisters where I will be able to spend more time with her and pick her up for outings and such. I just want to be there to support her and guide her the best I can.”

Both Childs and Jackson explained that connecting with family members is extremely important to being a successful Big. Jackson said she regularly texts Mo’nay’s Mom to keep up with their lives and Mo’nay’s progress in school.



“Mo’nay was interested in animals and science when we first met,” Jackson said. “She is now particularly interested in endangered species. She was surprised to find out that you don’t have to go to some exotic location in the world to find an endangered species. We have them right here in our own back yard.”

“It would be awesome to someday have one these kids be an intern at the EAA and maybe even find a job here,” Childs noted. “Latifah says that sometimes you just have to plant a seed, care for it and good things will happen. I couldn’t agree more with that sentiment and that’s really the whole philosophy behind Big Brother Big Sisters. You never know who is going to inspire you. And after being a part of the program for so long, I know that inspiration works both ways between Bigs and Littles.” ■

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BIG BROTHERS BIG SISTERS | BBBS.ORG

The EAA now has 17 Bigs who get to meet with their Littles, all from Jackson Middle School, once a month at the EAA. The Bigs and Littles share lunch, work on an activity together and have some on-one-on time before the Littles get back on the bus and head to school. These meetings give the kids an opportunity to discuss anything that is on their mind with the full attention of their mentors.

Jackson and Childs say they’ve noticed that some of the kids have picked up an interest in science after learning about the Edwards Aquifer and EAHCP program that helps protect the endangered species found in the Edwards Region.

On one particular visit, the group was given a 3D video presentation from the EAA Communications Department of the Edwards Aquifer. The kids got to experience what it would be like to navigate through a cave and learn about the geological features that exist right beneath us.





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# EAA Continues Conducting Scientific Research At EPA Superfund Site



**R**iver City Metal Finishing (RCMF), located in Bexar County west of San Antonio, is a former metal plating shop that operated from 1994 to 2002.

RCMF was closed due to a series of compliance issues stemming from improper handling and disposal of chemicals associated with metal plating. In May 2018, the site was listed by the U.S. Environmental Protection Agency (EPA) as a Superfund site following a referral from the Texas Commission on Environmental Quality (TCEQ). During an inspection in 2016, TCEQ found heavy metal contamination of soil and shallow groundwater and potential contamination of Edwards Aquifer water.

In 2018, the EAA began independently researching this site and implemented a collaborative effort within the EAA's various departments to gather data. EAA staff reviewed the site's geology, water level data, groundwater chemistry data, and collected new groundwater samples from Edwards Aquifer wells in the area. Paul Bertetti, Director of Aquifer Science commended his staff, stating, "Aquifer Science staff at the EAA were able to quickly organize a water sampling plan and assemble a large amount of data to characterize the RCMF site before the first interagency discussions. They did a wonderful job employing several new software tools for the task."

EAA staff used data from wells in the RCMF area to create cross sections of geologic layers under the site. Information about the structure, such as location and offset of faults, helps staff evaluate the potential for contaminant transport from the surface to the Edwards Aquifer.

The EPA began its remedial investigation field work in March 2019. During the remedial investigation, which could last up to two years, the EPA will collect new water quality and soil samples from the site and surrounding areas. Furthermore, the EPA has also drilled several new monitoring wells to examine the potential for movement of contamination. The data from EPA's investigation will be used to conduct human health and ecological risk assessments, which will be used to guide recommendations about site clean-up.

The EAA plans to continue sampling wells near the site on an annual basis in coordination with the EPA investigation. In addition, the EAA will continue to assist with EPA's efforts and be a part of interagency discussions with their agency and other agencies, including TCEQ, Texas Department of Health and Human Services, and the U.S. Geological Survey (USGS).

"Fortunately, our sampling in 2018 and 2019 has shown that heavy metal concentrations in the Aquifer are far, far below any levels of concern for drinking water. In fact, our results indicate levels in the area are no different than background."

"Soils and shallow groundwater at the RCMF site are still contaminated. So, we will remain vigilant in our monitoring and continue working with the EPA to fully assess any risks from the site," said Bertetti.

EAA staff used data from wells in the RCMF area to create cross sections of geologic layers under the site. Information about the structure, such as location and offset of faults, helps staff evaluate the potential for contaminant transport from the surface to the Edwards Aquifer. ■

[ Figure 1. on the following page summarizes this study. ]



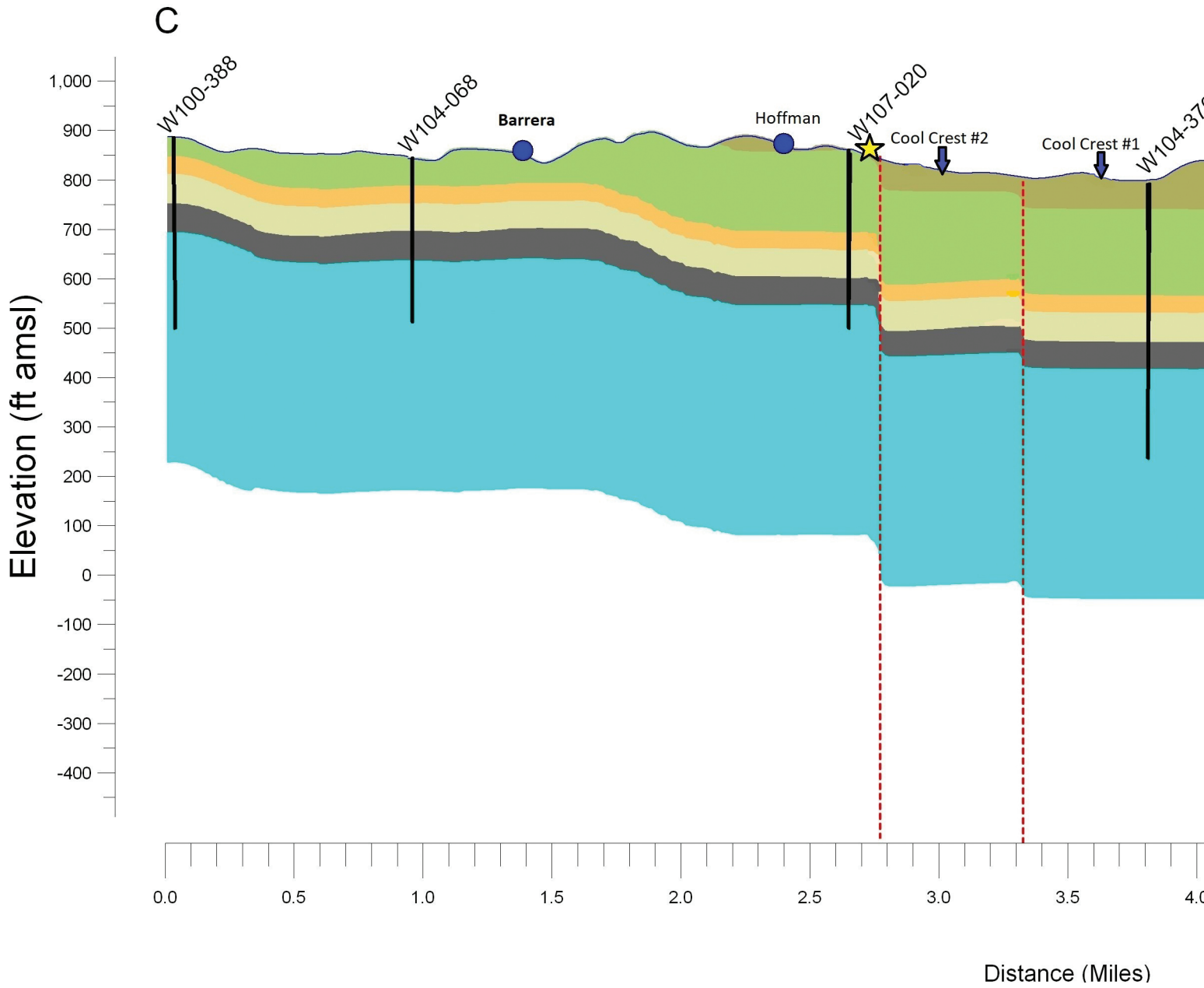
The Aquifer Science and Research Team performs several data collection tasks to include water chemistry samples, stream flow measurements, and research related water level transect data sets. Paul Bertetti is its Director.

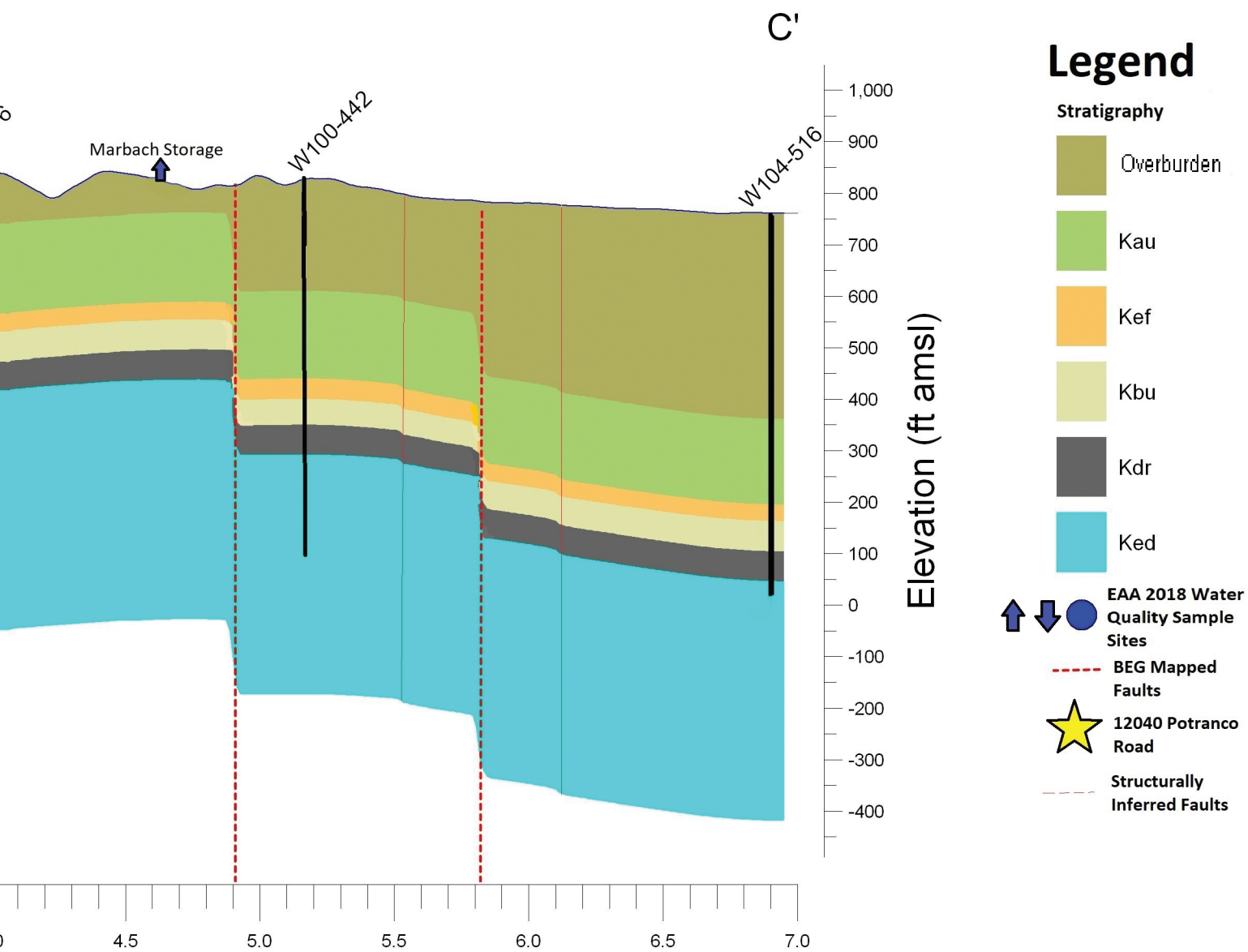
For more than 25 years, Mr. Bertetti has worked as a research scientist investigating a wide range of topics related to the hydrogeology and geochemistry of complex aquifer systems such as the Edwards, Carrizo-Wilcox, and Trinity aquifers. He has also conducted numerous in-field, laboratory, and modeling studies to examine the sorption and ion-exchange behavior of dissolved constituents in groundwater. Mr. Bertetti holds B.S. and M.S. degrees in Geology from the University of Texas at San Antonio.

## What is a "Superfund"?

Superfund is the common name for the law that authorizes the state to take care of contaminated sites that have releases or potential releases of hazardous substances into the environment. The law gives the environmental agencies the legal power to clean up the sites and to recover cleanup costs from those who are responsible for the hazardous substances and solid wastes associated with the Superfund site ("State Superfund Program" 2019).

# DATA FROM WELLS IN THE RCMF AREA





**ABOVE** EAA staff used data from wells in the RCMF area to create cross sections of geologic layers under the site (shown by the yellow star). Information about the structure, such as location and offset of faults, helps staff evaluate the potential for contaminant transport from the surface to the Edwards Aquifer.

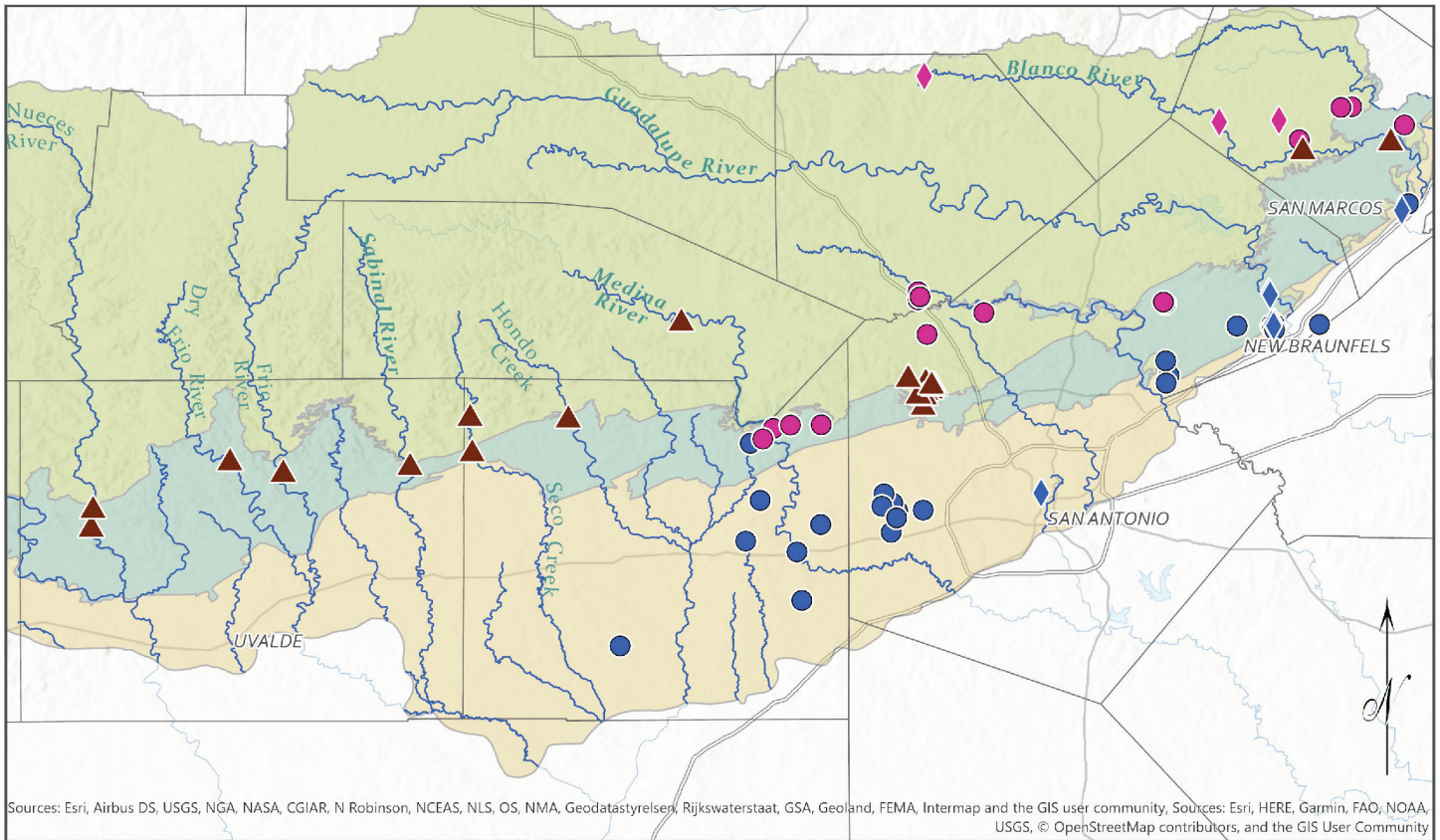




# WATER QUALITY

Water quality data collected by the EAA over the past, almost 25 years is now stored in a new water quality data management software, Aquarius Samples. In the past, the department had relied on a Structured Query Language (SQL) for extracting data for reports. However, this newly implemented database houses streamlined field sample data in a centralized location in the cloud. This method for inputting data allows for information to be efficiently extracted and easily searchable for discovery, analysis, and reporting.

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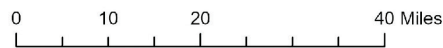
Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodastystrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community, Sources: Esri, HERE, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

**Explanation**

- Surface Water Sample Location
- Trinity Well
- Trinity Spring
- Edwards Spring
- Edwards Well
- Artesian Zone
- Contributing Zone
- Recharge Zone

**2018 Water Quality Sampling Locations**

Scale: 1:900,000

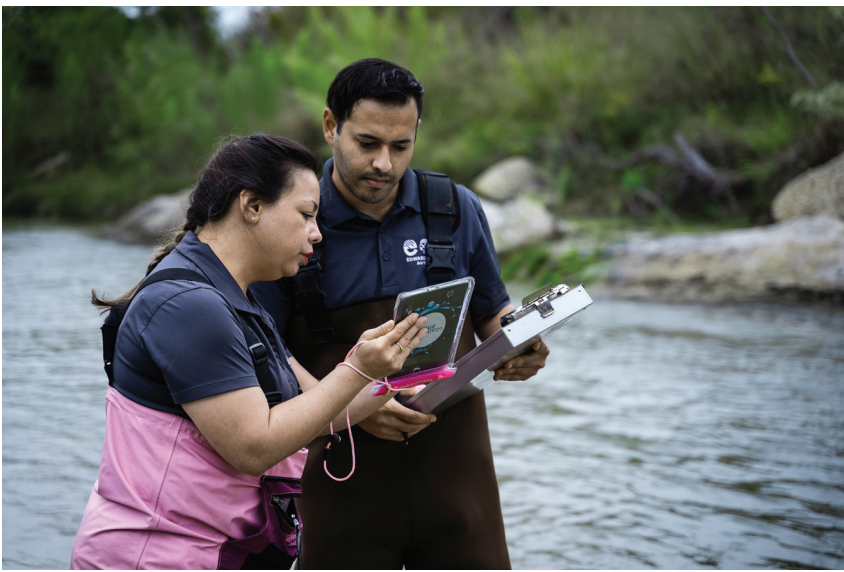


Map 1. The map shows the locations for water quality samples collected by EAA staff in 2018. The samples represent 11 streams, 43 wells, 5 spring groups, and 2 alluvial wells. Samples were obtained from the Contributing, Recharge, and Artesian Zones of the Edwards Aquifer.

Every year the EAA publishes a Water Quality Summary with a reporting of water quality samples from streams, wells (Edwards Aquifer wells and Trinity Aquifer wells), and five spring groups (see map 1 for sampling locations examples from 2018). EAA’s annual reports on water quality summary, groundwater recharge, groundwater discharge and usage, or precipitation in the Edwards Aquifer region can easily be created with better data accuracy through quality control and quality assurance using Aquarius Samples.



“In recent years our advances in data collection methods and research interests had exceeded our ability to effectively store and transmit our results in once central location. The older system, once useful, became outdated and inefficient to use. To resolve this matter, the department acquired Aquarius Samples, a comprehensive, cloud-based water quality database. The system is easy to use and can rapidly filter data, narrowing thousands of results within seconds,” said Brent Doty, EAA Research Manager for Aquifer Science. The EAA Aquifer Science department will utilize Aquarius Samples when developing the 2019 Hydrologic Data Reports. ■

**PICTURED RIGHT** Gizelle Luevano, EAA Lead Hydrologic Data Coordinator and Jose Silvestre, an intern, analyzing samples in the Blanco River.





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