Annual Report

Bandera County River Authority and Groundwater District

BANDERA COUNTY TEXAS

FY 2022

The District

BOARD OF DIRECTORS

- Don Sloan, President
- Bob Williams, Vice President
- Neil Boultinghouse, Secretary-Treasurer
- Ernest DeWinne
- Conrad Striegl
- Rebeca Gibson
- Bruce Hayes
- Andrea King
- Melissa Checkovage

PUBLISHED

April 2023

AUTHOR

Prepared by: Charley Curd
Cover Photo Courtesy of Shelby Sckittone

The District

OUR MISSION

The principle mission of the Bandera County River Authority and Groundwater District is to protect and preserve the County's water and natural resources for the State of Texas. The District is also tasked with maintaining local accountability of the County's water resources to help safeguard the property rights of the citizens of Bandera County.

CORE VALUES

Professionalism, Dedication to Science, Honor, Integrity, Public Service, Stewardship, Leadership and Collaboration, Accountability, and Transparency.

CONTACT INFORMATION

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About the District

1971
BANDERA COUNTY RIVER AUTHORITY

- HB 988 of the 62nd Texas Legislature
- Article XVI, Section 59 of the Texas Constitution
- Vested with all of the rights, powers, privileges, authority and duties of the WCID

1989
SPRINGSHILLS WATER MANAGEMENT DISTRICT

- SB 1636 of the 71st Texas Legislature
- Joint surface and groundwater district
- Chapter 50, 52 of Texas Water Code + BCRA
- 9 directors

2003
BANDERA COUNTY RIVER AUTHORITY & GROUNDWATER DISTRICT

- TCEQ authorized name change
- Continues all programs and activities of the SWMD
- Chapter 36, 49, and 51 of the Texas Water Code

Bandera County River Authority

In 1971, the 62nd Texas Legislature created the Bandera County River Authority under House Bill 988. It was created as a conservation and reclamation district under and pursuant to Article XVI, Section 59, of the Texas Constitution. As defined by Article 8280- 526, Vernon's Texas Civil Statutes, the River Authority encompassed all of the territory contained in Bandera County except the territory included in the Bandera County Fresh Water Supply District No.1 (Pebble Beach) and the Bandera County Water Control and Improvement District No.1 (City of Bandera). According to the provisions of the legislation, the Bandera County River Authority shall have and exercise and is hereby vested with all of the rights, powers, privileges, authority, and duties conferred and imposed by the general laws of this state now in force or hereafter enacted, applicable to water control and improvement districts created under authority of Article XVI, Section 59 of the Texas Constitution; but to the extent that the Provisions of any such general laws may be in conflict or inconsistent with the provisions of this Act, the provisions of this Act shall prevail. All such general laws are hereby adopted and incorporated by reference with the same effect as if incorporated in full in this Act.

Springhills Water Management District

In 1985, the Board of Directors began working with State and local officials, and concerned citizens to determine the most advantageous method to manage groundwater in Bandera County. After numerous public meetings, the decision was made to pursue legislation creating a joint surface and groundwater district in Bandera County. The result was the creation of the Springhills Water Management District.

Springhills Water Management District was created under Senate Bill 1636. The District's enabling legislation, appearing as Act of June 17, 1989, Ch. 654, 1989, Tex. Gen. Laws 2155 (Vernon), granted the District the rights, powers, privileges, authority, functions, and duties provided by Chapters 50 and 52; and the rights, powers, purposes, authority, and functions of the Bandera County River Authority. The legislation defines the District's boundaries as all of the territories contained within Bandera County. The legislation further stipulates that the Board of Directors will comprise nine (9) directors. The directors will be elected from commissioner precincts, with one director at large. The Springhills Water Management District continued all of the programs and activities initiated by the River Authority, and implemented the programs required of a groundwater conservation district.

Bandera County River Authority and Groundwater District

On April 10, 2003, the Texas Commission on Environmental Quality (TCEQ) authorized changing the District's name to Bandera County River Authority and Groundwater District (BCRAGD). The BCRAGD continues all the programs and activities of Springhills Water Management District. BCRAGD has all of the rights, powers, privileges, authority, functions, and duties now provided by Chapter 36, 49, and 51 of the Texas Water Code.

Purpose of the District

Texas Water Code, Chapter 51, Water Control and Improvement District

Section 51.121. Purposes of a District (River Authority)

A water control and improvement district organized under the provisions of Article XVI, Section 59, of the Texas Constitution, may provide for:

1. The control, storage, preservation, and distribution of its water and floodwater and the water of its rivers and streams for irrigation, power, and all other useful purposes;
2. The reclamation and irrigation, power, and all other useful purposes;
3. The reclamation, drainage, conservation, and deployment of its forests, water, and hydroelectric power;
4. The navigation of its coastal and inland water;
5. The control, abatement, and change of any shortage or harmful excess of water;
6. The protection, preservation, and restoration of the purity and sanitary condition of water within the state; and
7. The preservation and conservation of all natural resources of the state.

Texas Water Code, Chapter 36, Groundwater Conservation Districts

36.0015. Purpose (Groundwater)

In order to provide for the conservation, preservation, protection, recharging, and prevention of waste of groundwater, and of groundwater reservoirs or their subdivisions, and to control subsidence caused by the withdrawal of water from those groundwater reservoirs or their subdivisions, consistent with the objective of Section 59, Article XVI, Texas Constitution, groundwater conservation districts may be created as provided by this chapter. Groundwater conservation districts created as provided by this chapter are the state's preferred method of groundwater management.

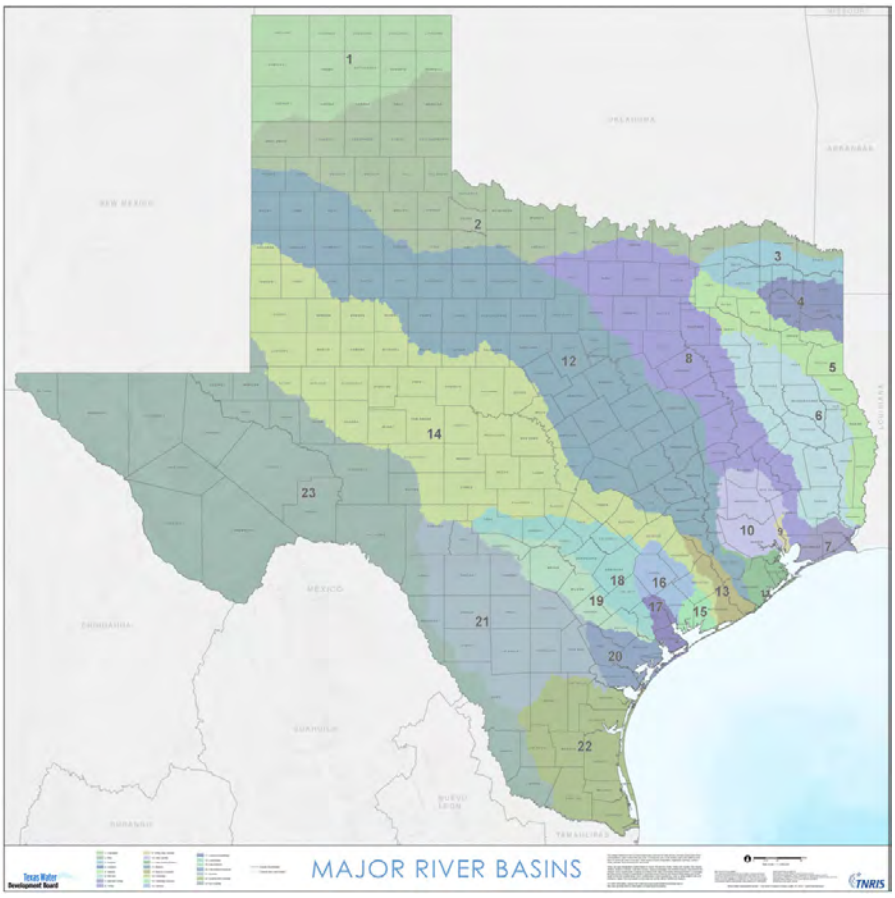
Medina River

Location

The District's office is located at 440 FM 3240 Bandera, Texas. Bandera County lies in the south-central part of Texas, in the hill country region of the Edwards Plateau. The County has an aerial extent of 797.6 square miles or 510,464 acres. The County seat, the city of Bandera, is centrally located at the intersection of South Highways 16 and 173. Kerr, Kendall, Bexar, Medina, Uvalde, and Real Counties bound the County, in a clockwise pattern. Bandera County River Authority and Groundwater District encompasses all of Bandera County.

River Basin

Bandera County contains parts of three major drainage basins. The Nueces River basin occupies approximately 25 percent of the County to the west and southwest, with drainage to the south. The San Antonio River basin occupies approximately 73 percent of the County; located from the north central, to the southeastern portion of the County, where the river has been dammed to form Medina Lake. Drainage from the San Antonio River basin is to the southeast. The Guadalupe River basin occupies approximately 2 percent of the County as a small portion of the central northern section. The two major rivers in the County are the Sabinal River, located in the Nueces River basin, and the Medina River, located in the San Antonio River Basin. The larger rivers are dominantly effluent and form wide valleys. Two dominant types characterize the smaller creeks and streams: the perennial spring-fed streams and the intermittent creeks that only transport precipitation runoff.

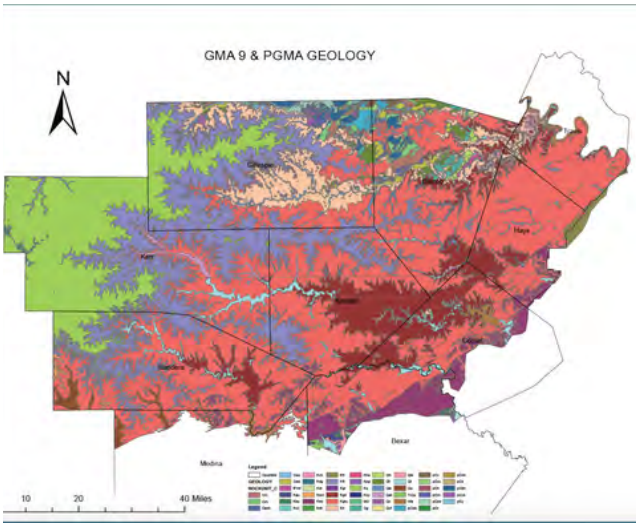


Major Aquifers

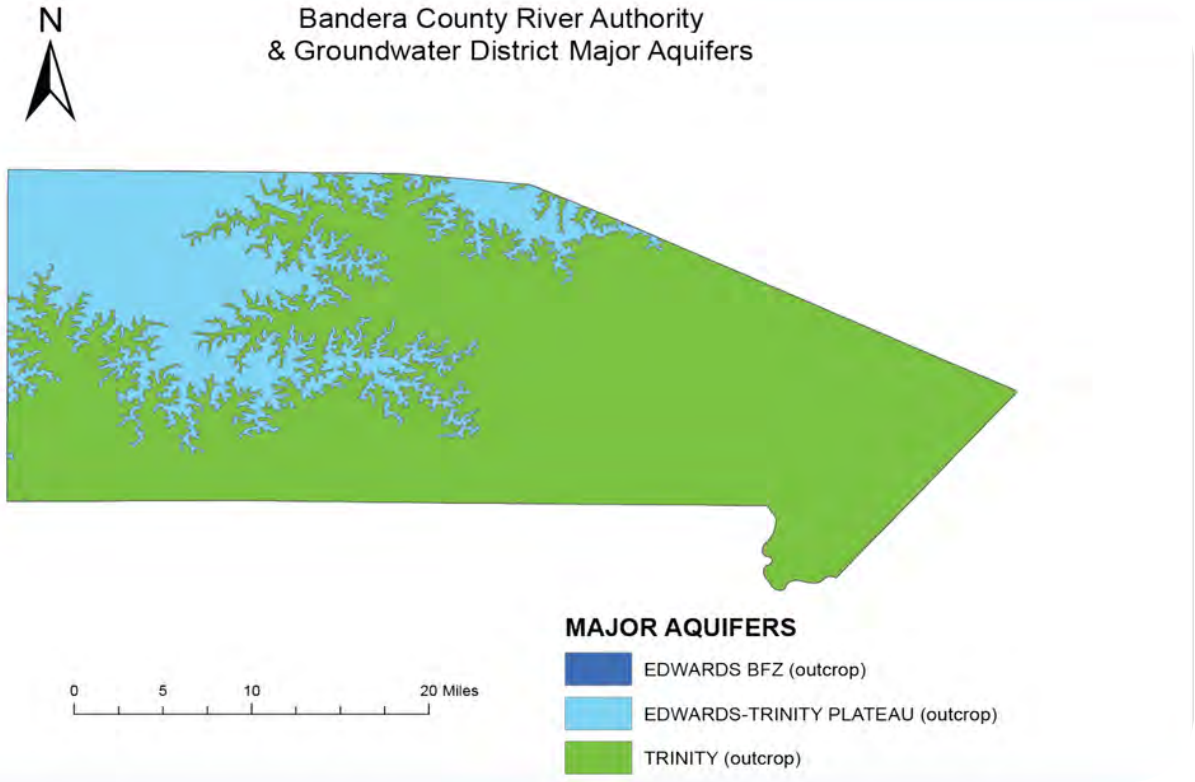
The Trinity Group aquifer underlies all of Bandera County, underlying the Edwards Plateau aquifer in the northwest portion of the County and extending south into Medina and Uvalde counties and east into Kendall and Bexar counties. The Trinity Group aquifer is the primary source of groundwater in Bandera County. This aquifer is divided into three groups: the Upper Trinity, Middle Trinity, and Lower Trinity. The Upper Trinity aquifer contains the Upper Glen Rose Limestone. The Middle Trinity aquifer contains the Lower Glen Rose Limestone, the Hensell Sand, and the Cow Creek Limestone. The Lower Trinity aquifer is composed of the Sligo Limestone and Hosston Sands. The Trinity Group aquifer yields groundwater from the Upper and Lower units of the Glen Rose Formation; and the Hensell, Cow Creek, Sligo, and Hosston members of the Travis Peak Formation of the

Trinity Group of Cretaceous age. Downdip from the outcrop area, in the artesian pressure a portion of the aquifer, groundwater production supplies water to all wells. Primary sources of recharge to the Trinity Group aquifer include the infiltration of precipitation on the outcrops to the north and northwest of Bandera County and infiltration of surface water from lakes and streams through vertical leakage from overlying formations. The Trinity Group aquifer primarily exists under water-table conditions along the outcrop and under artesian conditions downdip, where confining beds of limestone and shale bound the water-bearing units. The movement of shallow groundwater is primarily down gradient, from high to low elevations, and at right angles to the potentiometric surface contours, which denote the configuration of the water table. The overall groundwater movement is to the southeast with local movement away from groundwater highs and along with the surface of the drainage system, with groundwater lows that have developed as a result of production in large well fields.

Alluvial deposits are found in the flood plain of the major tributaries of streams, which make up the surface drainage system in the county. The alluvial deposits are highly permeable with a maximum thickness of approximately 50 feet and a small areal extent. They yield only



small amounts of good quality water. Due to the naturally occurring anhydrate and gypsum beds, the overall quality of groundwater obtained from the Upper Trinity aquifer, which contains the Upper Glen Rose formation is of poor quality, with small yield. The Middle Trinity aquifer, which contains the Lower Glen Rose Limestone, Hensell Sand, and Cow Creek Limestone formations, yields small to moderate amounts of water with a good to excellent water quality. The lower Trinity aquifer that contains the Sligo Limestone and Hosston Sand, yields moderate to large quantities of water of good to excellent quality.



District Staff

Dave Mauk, CFM

General Manager

The General Manager is the Chief Executive Officer responsible for the planning, development, and implementation of policies of the District for the protection, management, and conservation of groundwater and surface water, or any other natural resource within the District. The General Manager works closely with the elected Board of Directors to assure that the District's goals and policies are met in a timely manner. The General Manager is responsible for hiring, discharging, and supervising District Staff.

Prari Blair, M.Ed.

Finance & Human Resources Manager

The Finance & Human Resources Manager is under the direction of the General Manager and requires a high level of executive administration to support the General Manager and to ensure the continuity of District services. The position is primarily responsible for the successful implementation of financial and human resources operations ensuring all policies and procedures follow federal and state laws and regulations. The position also serves as the Records Management Officer and that all District records adhere to the TSLAC retention periods and disposition to compliance. Functional duties include completion of the annual Financial Audits and reports, execution of all standard operating procedures related to accounts payable and receivable, securing and maintaining all financial and personnel records, ensuring the District meets Performance & Management Goals, assisting with the Annual Report, implementing Human Resource policies, and disseminating training of district staff during new hire onboarding and throughout the year.

Hayli Hernandez (Phillips)

Intergovernmental Affairs Manager

The position of Intergovernmental Affairs Manager is under the direction of the General Manager and is primarily responsible for supporting the General Manager in implementing all District policies and programs. The Intergovernmental Affairs Manager serves as the supervisor for all intergovernmental affairs operations. Some of the primary duties include assisting the General Manager with issues during the Legislative session, interim changes, and any other political or policy issue. The position is also tasked with Board Meeting coordination, meeting minutes, agendas, Public Relations, serving as the District's Election Coordinator, and recording the minutes for Groundwater Management Area 9 meetings. This position is also tasked with providing confidential, complex, and high-level executive assistance to the General Manager.

Levi Sparks, M.S., CLM

Aquatic Ecologist

The Aquatic Ecologist is under the direction of the Field Operations Manager. The Aquatic Ecologist's primary responsibility is to support the implementation of the District's surface water quality, natural resources, and monitoring programs. Primary duties include implementing the District's laboratory operations, In-House Sampling program, Clean Rivers Program, environmental investigations, invasive species programs, and enforcement of all regulations and rules of the state and District. In addition, the Aquatic Ecologist is responsible for conducting site visits to verify that adherence to applicable rules and construction standards are followed during the drilling process of registered and permitted wells.

District Staff

Clinton Carter, PSM
Field Operations Manager

The Field Operations Manager is under the direction of the General Manager. He works closely with all departments of the District to coordinate and conduct field activities including, but not limited to, surface water quality programs, groundwater monitoring and protection programs, invasive species programs, field and aquatic studies, ecological assessments, and special projects. The Field Operations Manager's primary role is to help ensure projects are performed and completed to QA/QC standards and procedures while working closely with the District Staff to implement the District's programs and objectives. In addition, the Field Operations Manager is also the Lead Compliance and Enforcement Officer for the District's Environmental Investigations Team.

Charley Curd, MPH
Education & Outreach Coordinator

The Education & Outreach Coordinator is under the direction of the Education & Outreach Manager. The position is primarily responsible for promoting science-based educational programs and best management practices that promote water conservation and water quality protection. Some of the primary duties include providing educational presentations and hands-on learning activities to local schools and coordination of workshops for adults that promote water conservation and water quality protection and other natural resource issues. In addition, the Education & Outreach Coordinator is tasked with developing, creating, and disseminating educational and promotional content for the district's outreach via social media platforms that align with the District's management goals as well as the creation and design layout for the District's Annual Report.

Larry B. Thomas, CFM
Flood Science Manager

The Flood Science Manager is under the direction of the General Manager and is primarily responsible for supporting the implementation of the District's surface water quality, natural resources, and monitoring programs. The Flood Science Manager serves as the team leader for all rainfall monitoring and related programs. As the Chief Data Officer, the Flood Science Manager maintains collaborative efforts and is the liaison for BCRAGD / TWDB and USGS as the Flood Early Warning System Project Manager for the Medina and Sabinal Rivers in Bandera County. In addition, the Flood Science Manager holds a voting member position on the Nueces River Authority Board, representing Region 13 flood districts and as an expert member of the Region 13 flood planning group sub-committee.

Corrina Fox
Education & Outreach Manager

The Education & Outreach Manager is under the direction of the General Manager and serves as the supervisor for all education operations. The Education & Outreach Manager is primarily responsible for ensuring that the District's project and management goals are reached through the promotion and development of science-based educational programs that promote water conservation and water quality protection awareness. Duties include creating and providing water conservation and preservation educational presentations and hands-on learning activities to local schools that are aligned with the K-12 Texas State curriculum and coordination of workshops and programs for adults related to water conservation, water quality protection, and other natural resource issues. Additionally, the Education & Outreach Manager supervises the content of the District's Social Media pages ensuring the adherence of all policies and regulations. The Education & Outreach Manager is required to obtain CEUs to maintain Teacher Certification.

District Staff

Shelby Sckittone

Natural Resource Specialist

The Natural Resource Specialist is under the direction of the Field Operations Manager. The Natural Resource Specialist's primary responsibility is to support the implementation of the District's surface water quality, natural resources, and monitoring programs. Primary duties include implementing the District's laboratory operations, In-House Sampling program, Clean Rivers Program, environmental investigations, invasive species programs, and enforcement. In addition, the Natural Resource Specialist is responsible for conducting site visits to verify that adherence to applicable rules and construction standards are followed during the drilling process of registered and permitted wells.

Luke Whitmire, PhD

Assistant General Manager

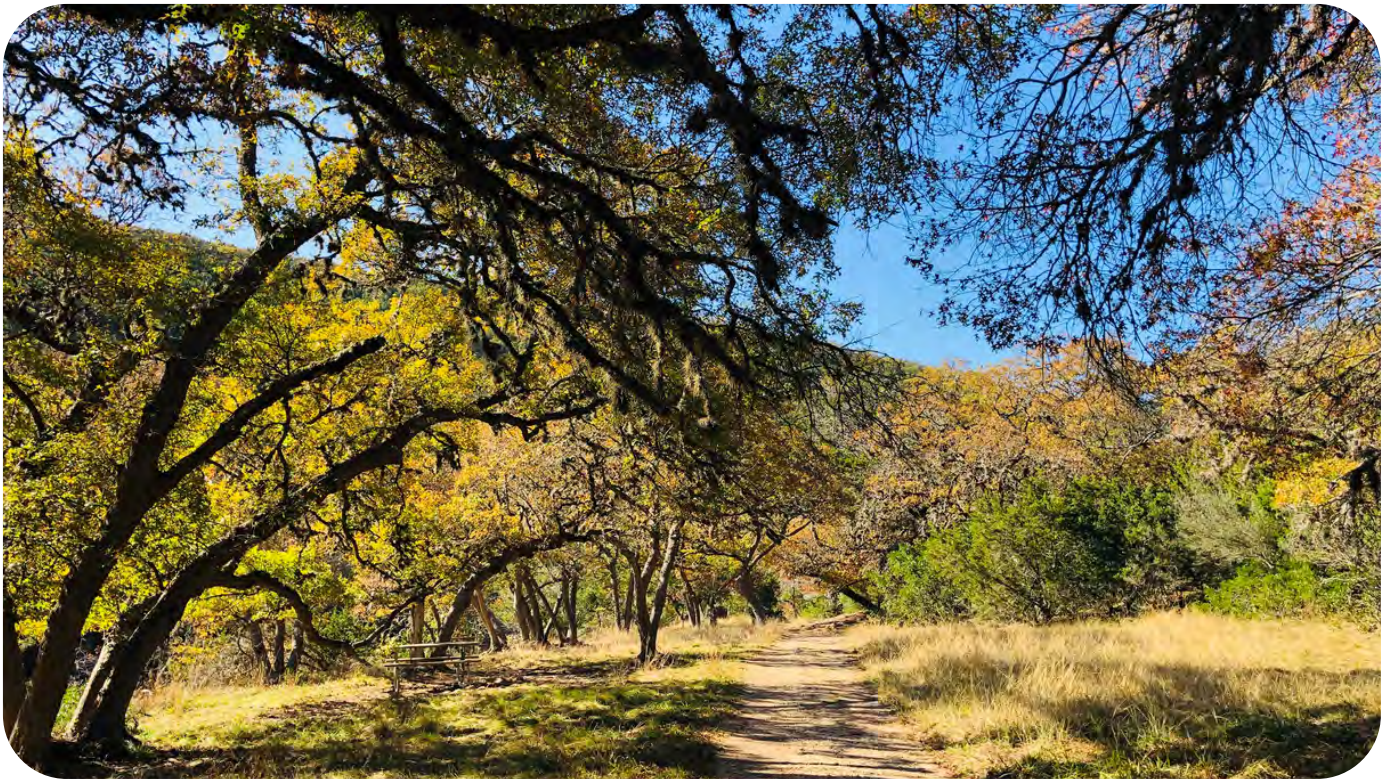
The Assistant General Manager is under the direction of the General Manager and is responsible for performing complex administrative duties through research, prioritization, and follows up on issues and concerns addressed to the General Manager. Additionally, the Assistant General Manager is responsible for supporting the General Manager in implementing all District policies and programs; ensuring both field and office operations are conducted efficiently, properly, and in accordance with District, Federal, and State, rules, policies, and regulations. Support includes oversight of the Groundwater Science and Surface Water Science Departments and collaboration with the Field Operations Manager, Education and Outreach Manager, Flood Science Manager, Finance & HR Manager, and Intergovernmental Affairs Manager.

Diane Irvin

Executive Assistant & Office Manager

The Executive Assistant & Office Manager is under the direction of the General Manager and is primarily responsible for supporting the General Manager in implementing all District Policies and programs; ensuring office operations are conducted efficiently, properly, and in accordance with District, Federal, and State rules, policies, and regulations. Additional Duties include office procurement, citizen assistance, front desk operations, serving as the District's Public Information Request Coordinator, coordination of office coverage, completion of well registrations, and assisting in developing office policies and procedures for improved work flow.

District Teams



Staff members are organized into 11 teams. Many employees serve on more than one team:

General Management

Finance/Human Resources

Office Operations

Groundwater Science Operations

Surface Water Operations

Field Operations

Flood Warning and Awareness

Water Resource Management & Policy

Education and Community Outreach

Performance Management and Quality Improvement

Data Management

General Manager's Statement

Bandera County tends to experience either period of drought or heavy rainfall. This year the State of Texas experienced a detrimental drought that our County has not yet recovered from.

Additionally, this region is one of the most flash flood prone areas in the world. In recent years, several rain events in our area have threatened life and property. Seeing the public safety need, the District applied for and received a TWDB grant for a USGS flood warning project in 2016. The Flood Early Warning System (FEWS) utilizes river gages and basin modeling, which will give Emergency Managers in Bandera County a set of predictive tools that will allow them to anticipate what areas will potentially flood during an event. This science-based project had its completion date in May of 2019. Regional Flood Planning Groups have been formed and BCRAGD has become involved with the San Antonio River Basin Regional Flood Planning Group and the Nueces River Basin Flood Planning Group.

Our region continues to be threatened by the spread of invasive species. The District is particularly concerned with Arundo donax and Zebra Mussels. Arundo donax is a noxious weed native to Europe and Asia which is easily spread and can obstruct habitat along our watercourses. The District has partnered with the Nueces River Authority and Texas Parks and Wildlife Department (TPWD) to aggressively control the weed in both the Sabinal and Medina river basins. Zebra Mussels are a fingernail-sized mollusk native to lakes in Ukraine and Southern Russia. Zebra Mussels spread primarily by clinging to boat hulls, bait buckets, and boat bilge tanks. This invasive species hinders water recreation and destroys aquatic ecosystems. The District, in conjunction with TPWD, have instituted a Zebra Mussel surveillance program for Medina Lake. Unfortunately, Medina Lake was classified as infested during FY 2021 following the Districts discovery of Zebra Mussel colonies and further investigation conducted by TPWD. The District will continue to monitor this situation.

The District continues to promote conservation, rainwater harvesting, and drought awareness. District personnel have assisted and counseled landowners on how to protect both their water quantity and quality. Moving forward, the District will continue to enforce rules and follow our management plan. BCRAGD continues to host events and educational talks over water conservation, drought awareness, invasive species management, and riparian information that is open to the public. The District will continue to implement key conservation and water quality programs including the Clean Rivers Program, Aquifer Monitor Well Program, Community Outreach and Education, Illegal Dumping Abatement, and our Flood Awareness Program. District personnel are constantly revisiting and improving operating procedures. We continue to strive to be as transparent as possible. As General Manager, I have an open door policy, making myself available for any citizen's questions and concerns.

As a District, we continue to be a regional player to help safeguard the rights and natural resources of the people of Bandera County. We have been an active participant in the Regional Water Planning Groups, Regional Flood Planning Groups, GMA-9, TCEQ's Clean Rivers Program, South Central Emergency Management Association and Bay and Basin Stakeholder Committee. Our District has established lasting collaborations with other Districts and community organizations. The District will continue to improve its programs and processes to further the policies of the Board. This continued progress and regional engagement will help ensure that the interests and water resources are protected for the people of Bandera County and the entire basin.

Very Respectfully,

Dave Mauk
General Manger

District Programs & Initiatives

District Programs & Initiatives

Groundwater Programs

Groundwater Management Plan

Registered/Exempt Well Program

Permitted Well Program

Monitor Well Program

Groundwater Sampling and Analysis

Geophysical Logging

Well Camera Inspections

Abandoned Well Plugging Program

Drought Management Plan

Rainfall Monitoring Program

Surface Water Programs

TCEQ Clean Rivers Program

In-House Surface Water Quality Monitoring Programs

Invasive Species Management

Medina Lake Management

USGS Flood Early Warning System (FEWS) Sabinal River- TWDB Flood Protection Grant

USGS Flood Early Warning System (FEWS) Medina River

Public Safety - Flood Preparedness

Enforcement / Investigations

Enforcement of State and District Rules

Environmental Investigations

- Illegal Dumping Litter Abatement Public Safety / Pollution

Education & Community Outreach

Public Education and Community Outreach Program

- Bandera, Medina, & Utopia ISD Programs
- Expanding Your Horizons

University Internship Program

Water Conservation & Natural Resource Stewardship

Invasive Species & Healthy Riparian Education

Annual Medina River Clean-Up

Resource Planning & Collaboration

GMA-9 Representative

Region J (Plateau) Water Planning Group

TAGD Member- Legislative and Education Committees

GSA BBASC Environmental Flows member and representative

US Department of Agriculture

Natural Resource Conservation Services

State Technical Committee

San Antonio Regional Flood Planning Group, Region 12

Nueces Regional Flood Planning Group, Region 13

Collaboration Highlights

BCRAGD highlights many of the local, regional, and state agencies and organizations that assist with programs and initiatives each year.

United States Geological Survey
BCRAGD contracted USGS to finalize, install, and maintain the Flood Early Warning System (FEWS) Tool Set for Bandera County and the Sabinal River under the grant awarded to the District by Texas Water Development Board. In addition, BCRAGD contracted USGS to implement the toolset for the USGS Flood Early Warning System (FEWS) of the Medina River under the grant awarded to the District by Texas Water Development Board.

Texas Water Development Board
On August 25, 2016, TWDB awarded $265,150 in Flood Protection Grant funding to BCRAGD for Bandera County. Working with USGS, this project will protect the lives of local residents and also the communities downstream through a food warning tool set.

Texas Commission on Environmental Quality
Environmental Investigations

San Antonio River Authority
Clean Rivers Program partners; Aquatic Life Monitoring, collaborators; Laboratory services

Nueces River Authority
Clean Rivers Program partners; ISD Education collaboration; Invasive plant collaboration - Arundo Donax

Edwards Aquifer Authority
Aquifer science, streamflow study collaboration, rainfall gages

TAMU AgriLife Extension Service
Educational Outreach; water conservation and land stewardship workshops

Schreiner University
Expanding Your Horizons Program

Texas Water Development Board (TWDB)
United States Geological Survey (USGS)
Texas Commission on Environmental Quality (TCEQ)
Texas Department of Licensing and Regulation (TDLR)
Texas Parks and Wildlife Department (TPWD)
Texas Alliance of Groundwater Districts (TAGD)
Texas Water Resources Institute
GSA BBASC Environmental Flows
Groundwater Management Area 9
Region J Water Plateau Planning Group
Texas Water Conservation Association (TWCA)
Texas A&M AgriLife Extension
US Dept of Agriculture-Natural Resource Conservation Services
State Technical Committee
San Antonio River Authority (SARA)
Nueces River Authority
Edwards Aquifer Authority
Blanco Pedernales Groundwater District
Central Texas Groundwater Conservation District
Hill Country Underground Water Conservation District
Schreiner University
Bandera Electric Cooperative
Bandera County Constables
Bandera County Sheriff's Department
Bandera, Medina, and Utopia ISDs
Bandera Co. Commissioners' Court
City of Bandera
LAMCOS
Medina River Protection Fund
Hill Country Alliance
San Antonio Regional Flood Planning Group, Region 12
Nueces Regional Flood Planning Group, Region 13

Groundwater Programs

Groundwater Management Plan

All Texas Groundwater Conservation Districts are required to develop and implement a TWDB-approved management plan to manage their groundwater resources effectively. BCRAGD revised and approved its Management Plan on July 14, 2022. The current Management Plan was approved by TWDB on January 20, 2023.

During FY 2022, BCRAGD:

- Upheld management plan as required by TCEQ, TWDB, and the DFC process.
- Ensured management goals were met and documented to compliance.

S. Sckittone collecting a water sample from a completed new well

Permitted Well Program

The District maintains a permitting program for non-exempt wells. Pumping reports are collected each January and the amount of water is tabulated. Newly permitted wells are inspected to ensure compliance with District and State rules and requirements. These pumping amounts will help the District to evaluate the groundwater resources in the county for Desired Future Conditions (DFC) compliance and management.

In order to protect groundwater resources in FY 2022, BCRAGD:

- Registered and issued authorization to drill domestic and livestock wells.
- Registered existing exempt wells.
- Ensured registered wells met exempt requirements.
- Maintained files and database of registered wells.
- Provided water logs to the general public when requested.
- 196 Registrations were issued in FY 2022.

Registered/Exempt Well Program

All exempt wells to be drilled are registered, approved, and inspected by the District to ensure compliance with both State and District rules and requirements. BCRAGD maintains a proactive policy of inspecting well sites before well registrations are issued. District staff inspect wells during the drilling and completion phases to ensure compliance with District and State rules. This approach has helped protect both the landowners and groundwater resources in Bandera County.

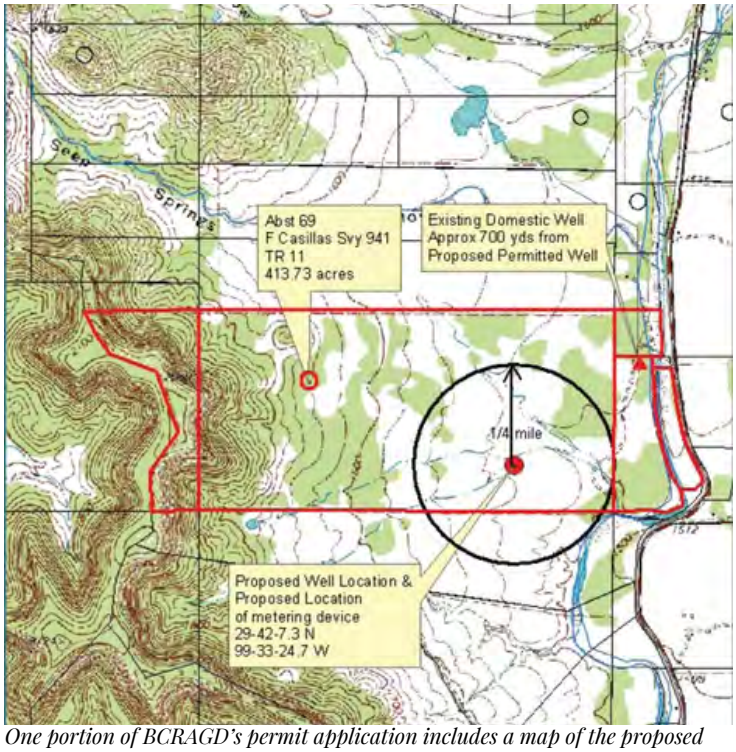
C. Carter conducting a post drill inspection

Groundwater Programs

In order to protect groundwater resources in FY 2022 BCRAGD:

- Identified wells that needed to be permitted.
- Permitted existing wells that required permits.
- Prepared permit applications for Board approval.
- Posted permit hearing information as required by District rules and by the Open Meetings Act.
- Gave permit recommendations to the Board as needed.
- Conducted contested case hearings.
- Ensured compliance with annual pumping reporting requirements.
- Transferred permits for changes in property ownership.
- Identified permits that require permit amendments.
- Tracked annual usage for DFC purposes.
- 16 Permits were issued in FY 2022.

Well Location



One portion of BCRAGD's permit application includes a map of the proposed well location with the property line and any other existing wells in the immediate area.

Monitor Well Program

The District maintains and operates a monitor well program to track and assess aquifer conditions in Bandera County. This is done through quarterly water level measurements and biannual water quality sample collection from designated monitor wells.

As a result of this program, during FY 2022 the District:

- Conducted surveillance of aquifer conditions.
- Tracked aquifer recharge.
- Managed for Desired Future Conditions (DFC). Reported data to Texas Water Development Board for DFC purposes.
- Kept the public informed via the District's website and quarterly meetings.
- Submitted to the local newspaper level aquifer information when available.

Example of water well.

Groundwater Programs

S. Sckittone conducting a post drill inspection.

C. Carter & L. Sparks conducting a well measurement

L. Whitmire conducting a post drill inspection.

C. Carter collecting a water sample from a completed new well.

Groundwater Programs

Geophysical Logging Program

BCRAGD is partnered with Blanco Pedernales Groundwater Conservation District, Hill Country Underground Water Conservation District, and Central Texas Groundwater Conservation District in shared ownership of a geophysical logging trailer, in which the geophysical properties of our aquifers are regularly recorded and monitored. Data recorded further informs aquifer science and groundwater management in the region.

BCRAGD field team conducting Logging trailer training.

Picture of a Geophysical Log in progress

Well Camera Inspection

BCRAGD's WellVu Camera is a recorded media used to assess collapsed and/or damaged wells. It can also be used as a tool to investigate compliance with district well construction rules. The District provides a camera well inspection service to identify problems and assess damaged wells to determine if the well needs to be rehabilitated or plugged.

BCRAGD field team conducting well camera run.

S. Sckittone conducting a post drill inspection

Groundwater Programs

Groundwater Sampling and Water Analysis Program

BCRAGD operates a non-certified laboratory that tests for the presence/absence of total fecal coliforms and E. coli and mineral testing, including total hardness, pH, TDS, and Specific Conductivity of water samples. BCRAGD tests groundwater samples collected from newly inspected wells at no cost to the owner and offers groundwater testing services to the public for a nominal fee.

Probe used to read a water's pH level in the BCRAGD lab.

This photo shows the water-quality probe being used to test the water of a monitor well. Some of the measurements taken here were temperature, pH, conductivity, and total dissolved solids.

Summary of Groundwater Services Provided by the District FY 2022:

- Conducted chemical and bacterial analysis of monitor well samples.
- Sampled and analyzed samples from newly drilled wells when possible.
- Tested groundwater samples brought in by the public.
- Provided information to the public on avoiding sources of contamination and disinfecting identified contaminated wells.
- Investigated complaints relating to contaminants and waste.
- Educated and counseled citizens about sources of possible contamination.
- Advised citizens about corrective and preventive measures for contamination.

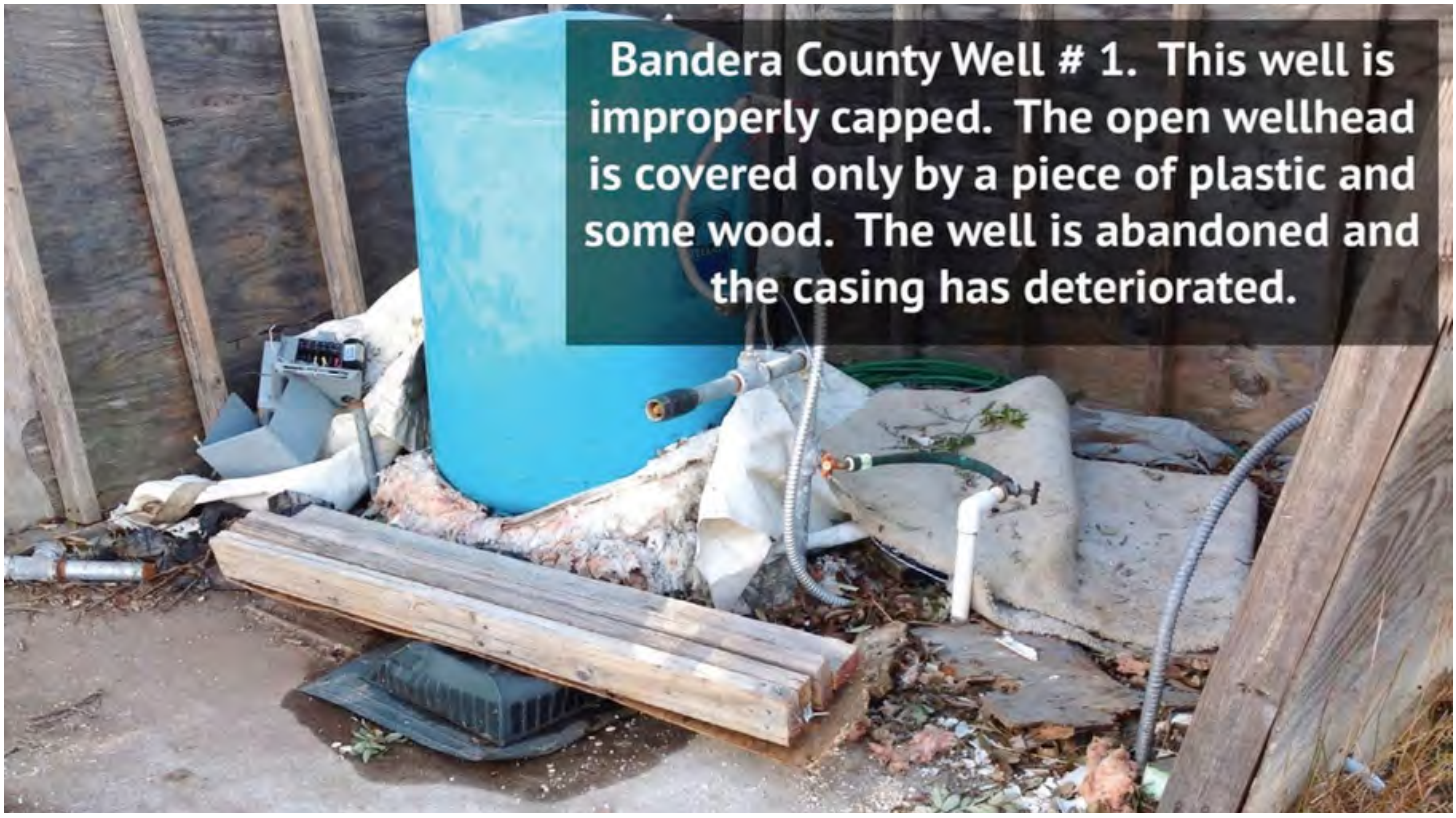
Abandoned Well Plugging Program

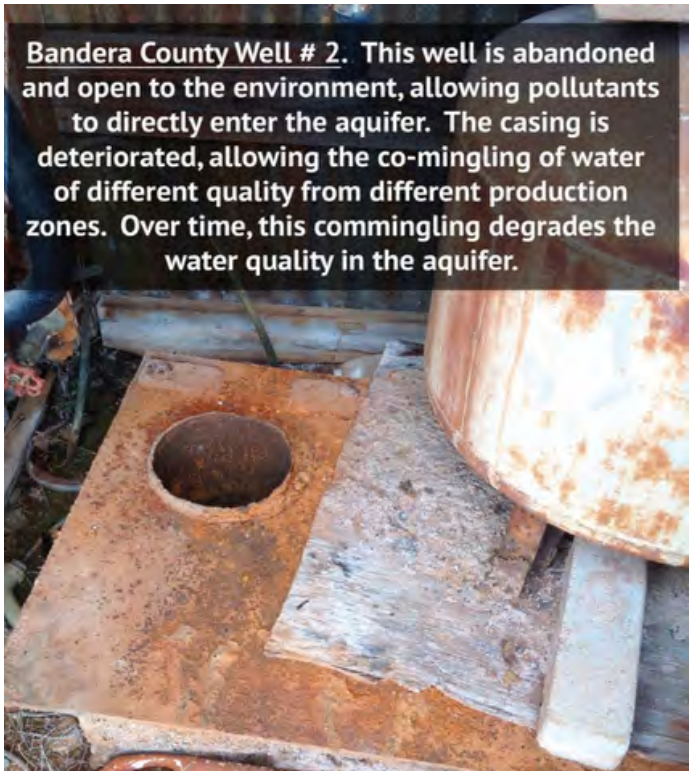
There is a high environmental risk associated with abandoned/deteriorated wells, as they are a direct conduit from the surface to our groundwater resources. In response to the existence and threat of abandoned wells to the health of Bandera County's groundwater, BCRAGD offers the public a well plugging program.

Below are descriptions of the FY2022 Abandoned Well Program accomplishments:

- The District plugged 1 well for the general public during the Fiscal Year 2022.
- BCRAGD issued violations to well owners to plug or repair abandoned wells.
- The District contributed abandoned well information to the presentation and aquifer model components of the Nueces River Authority Water Resource Stewardship Program and other outreach efforts.

Groundwater Programs





Graphics from a presentation given to the State Legislature illustrating the importance of plugging wells to protect groundwater quality for the public.

L. Sparks conducting a post drill inspection

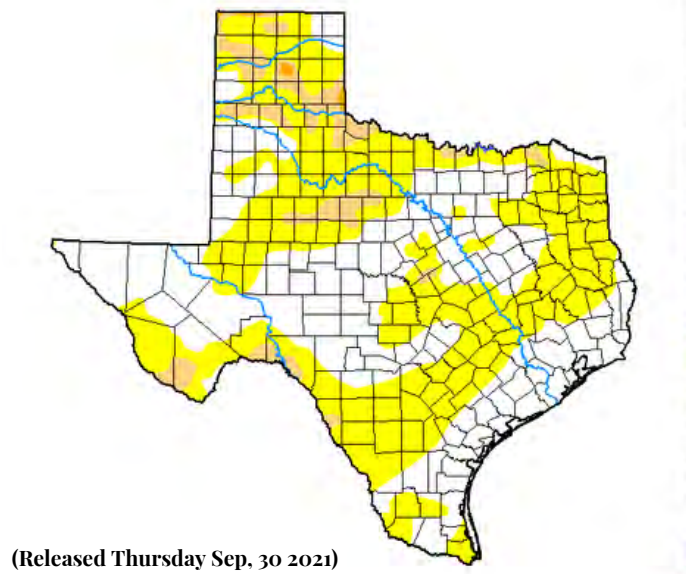
Groundwater Programs

Drought Management Plan

During FY 2022, BCRAGD:

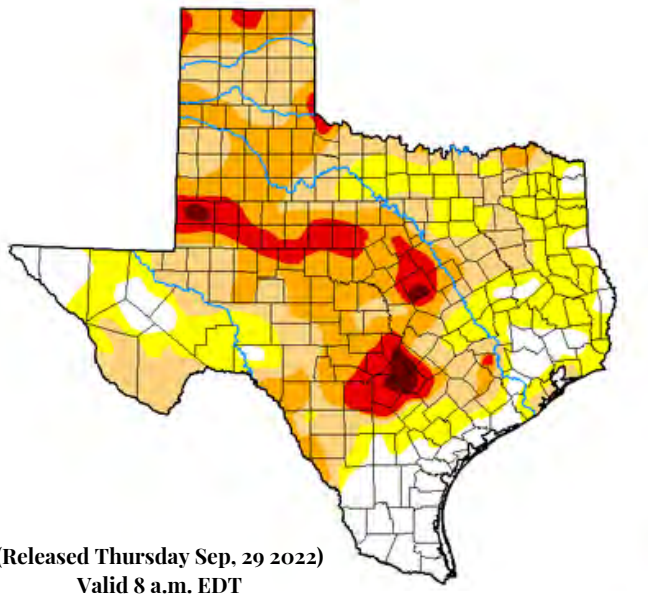
- Implemented drought stages.
- Notified permit holders of drought stages and restrictions.
- Investigated allegations of waste and issued Notices of Violation as warranted.
- Reported drought conditions at quarterly meetings.
- Record the Drought Severity Index each month, and when drought conditions exist, post the drought stage and any appropriate drought restrictions at the District's office.
- Reviewed Drought Management Plan.

September 28, 2021



(Released Thursday Sep, 30 2021)
Valid 8 a.m. EDT

September 27, 2022



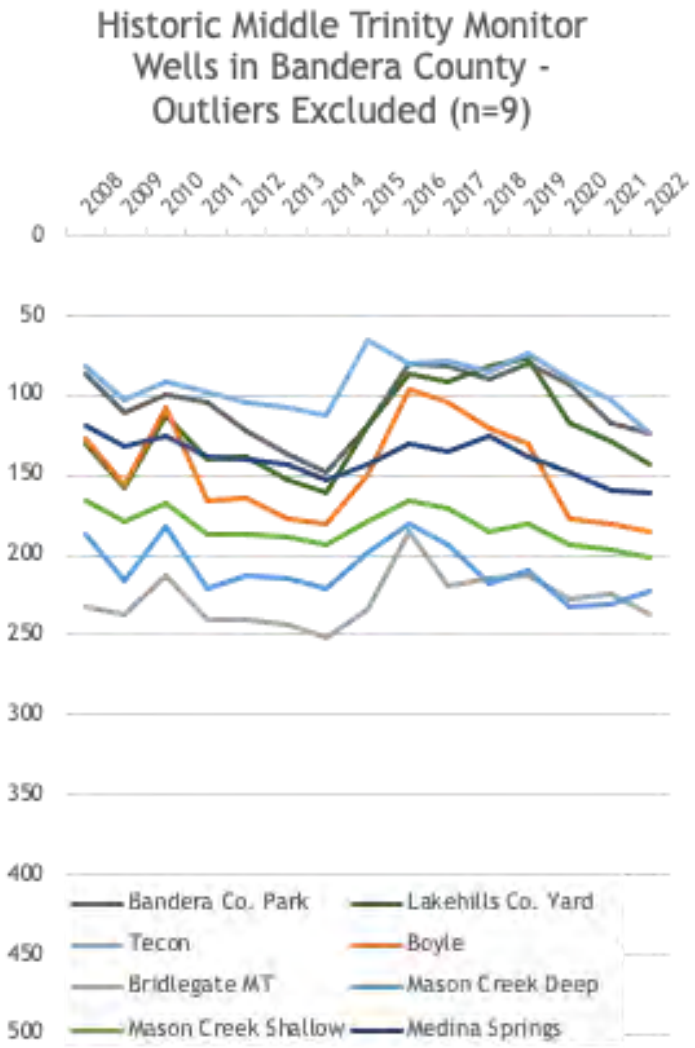
(Released Thursday Sep, 29 2022)
Valid 8 a.m. EDT

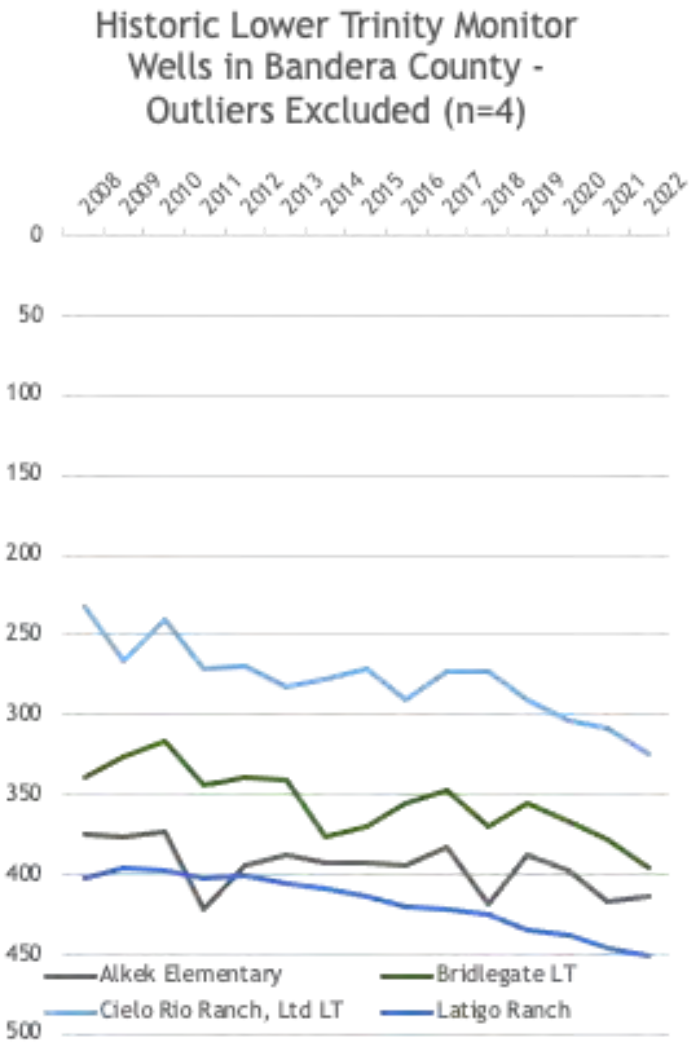
Drought Classification

- None
- Abnormally Dry
- Moderate Drought
- Severe Drought
- Extreme Drought
- Exceptional Drought

Groundwater Programs

Overall Average Change in Water Level

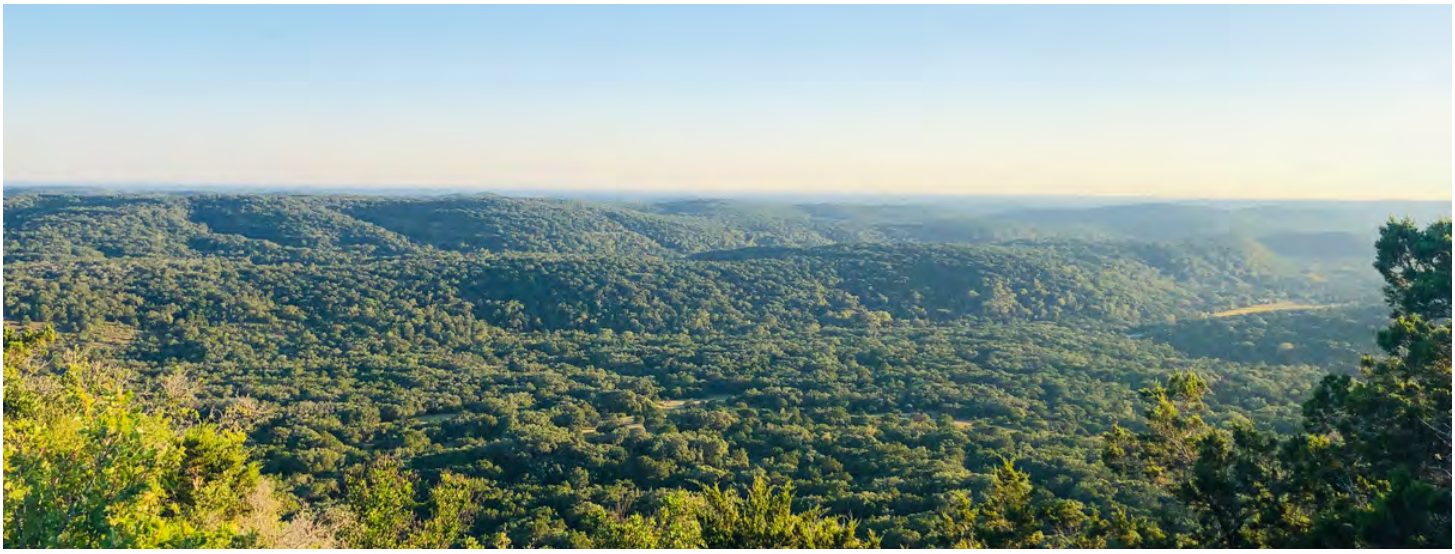




Diversion Lake photo taken July 2022

Diversion Lake photo taken February 2023

Groundwater Programs



Pictures taken by S. Sckittone throughout Bandera County

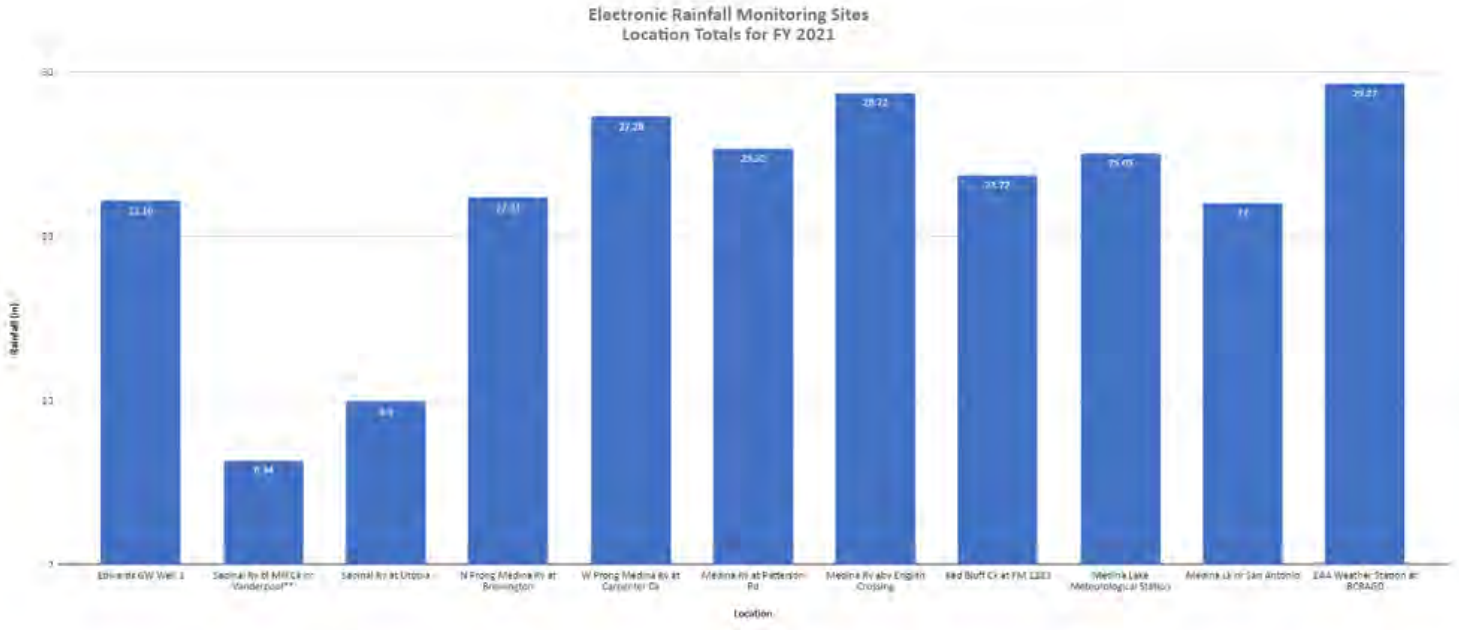
Groundwater Programs

Rainfall Monitoring Program

Gages and Weather Station:
BCRAGD is partnered with Bandera County and the Bandera Electric Cooperative in sponsorship of a USGS streamflow station for water surface stage and river flow and a rainfall gage at Patterson Road in Medina. This gage displays all parameters in real-time via a telemetry unit and is accessible to the public through the USGS website (www.usgs.gov). The Texas Water Development Board, Flood Protection Grants for the Medina River, Sabinal River, and West Sabinal River watersheds, allows significant expansion of USGS hydrologic conditions monitoring, resulting in a more comprehensive food warning toolset for Bandera County.

The District maintains an official Weather Station utilizing HOBOlink courtesy of the EAA's gage at BCRAGD's District office. Conditions can be accessed from the District's website, www.bcragd.org.

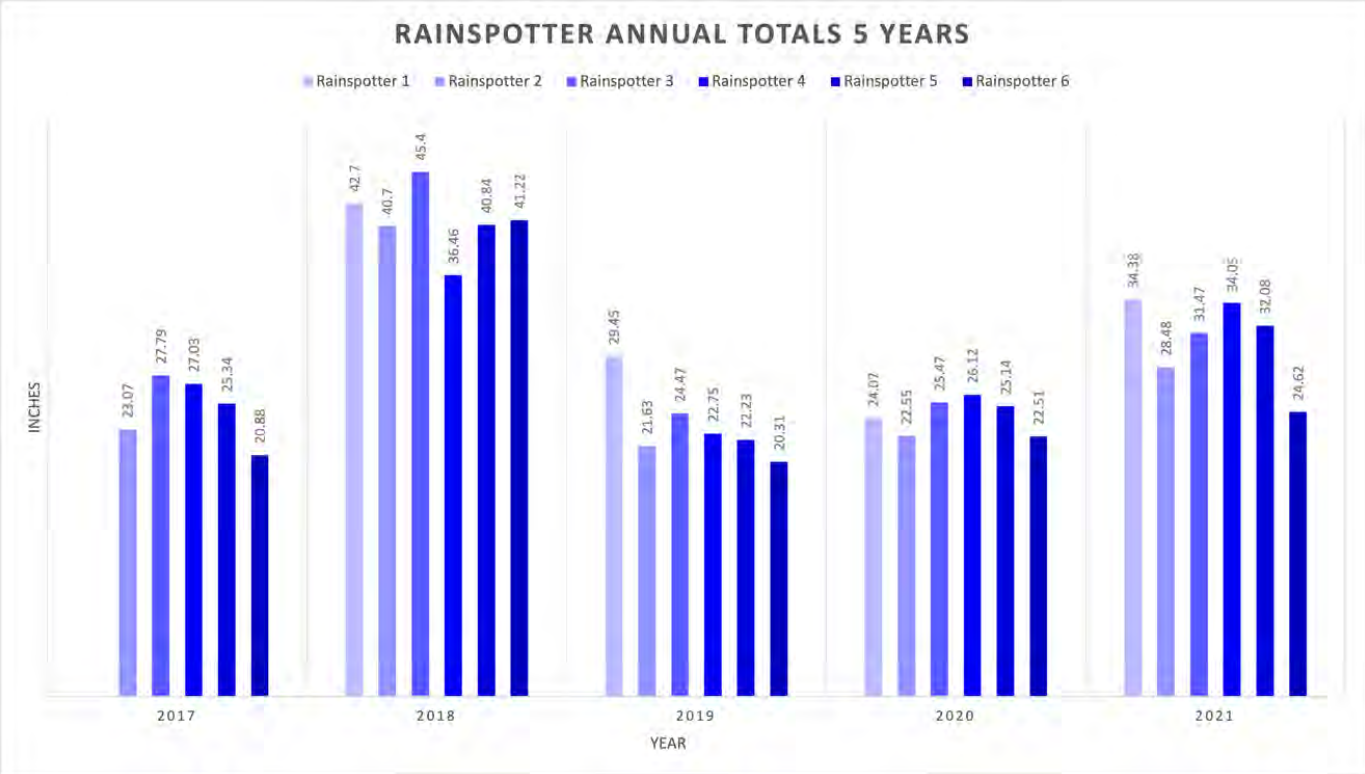
The image above shows the EAA weather station and rain gage that provides information to the HOBOlink.

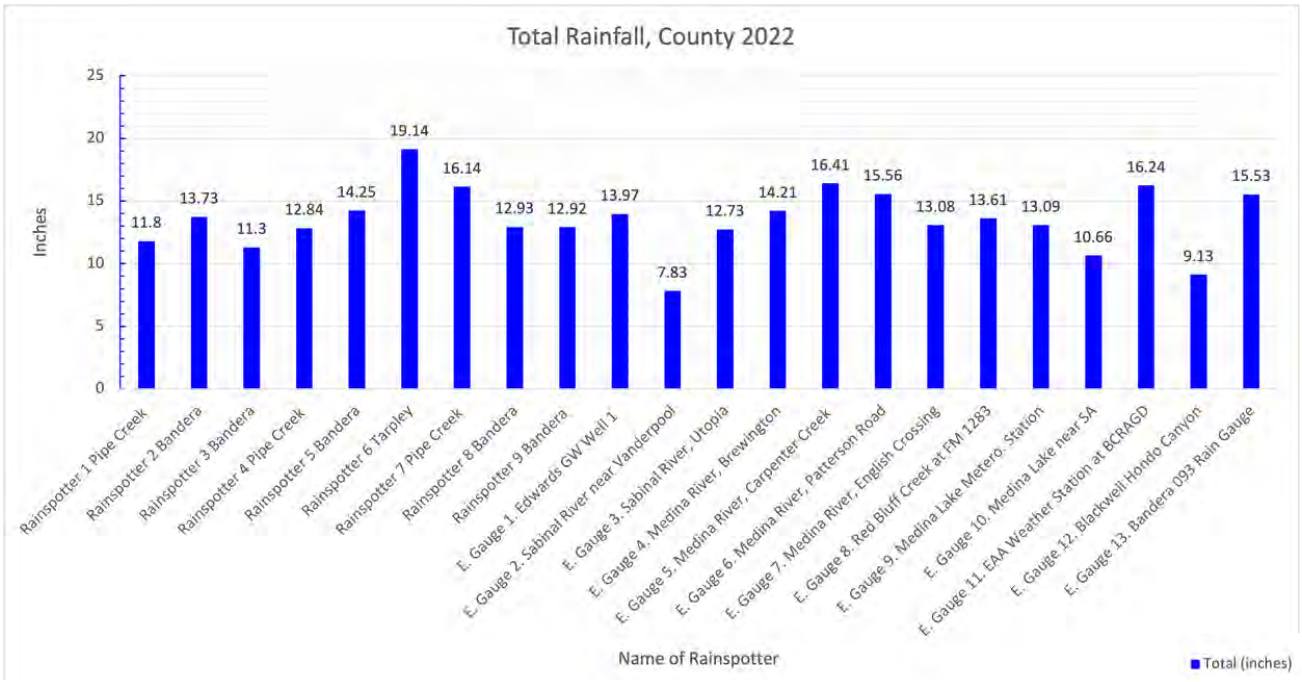


Groundwater Programs

Rainspotters Program

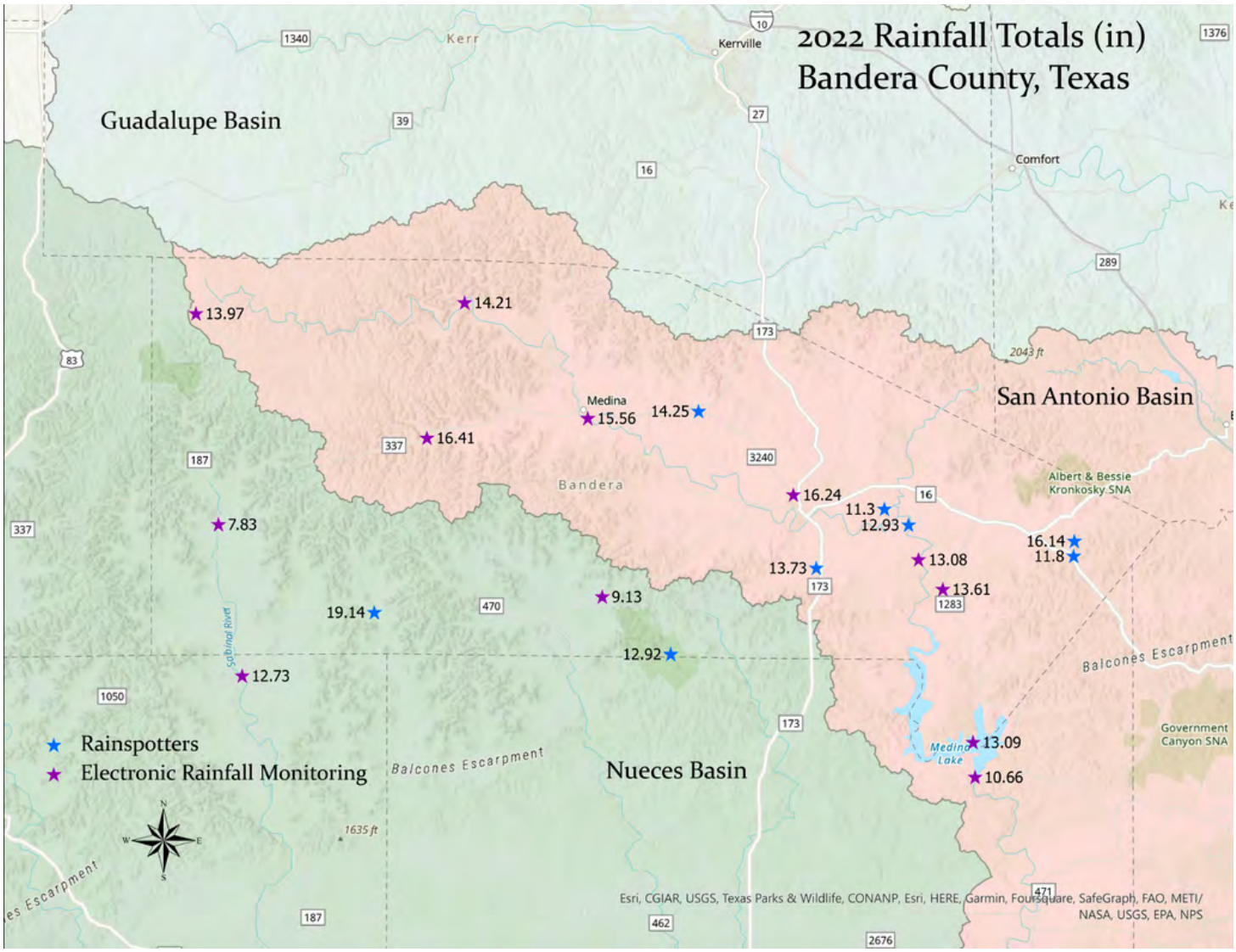
The District continues to support its all-volunteer Rainspotters Program. Bandera County residents report monthly rainfall amounts from their District issued gages on a quarterly basis. The data is presented in a report during each BCRAGD quarterly board meeting.





E. Gauge - electronic Gauge

Groundwater Programs



The availability of rainspotters has changed over the years during the duration of the program. Growth and decline of rainspotters within the program have been sporadic in number of participants. The increased opportunity of technological uses for automated rainfall data collection and dissemination is critical and additional active rainspotter participants are needed.

Medina River - Bandera County

Surface Water Programs

TCEQ Texas Clean Rivers Program

BCRAGD has a total of 21 Clean Rivers Program (CRP) sites throughout the San Antonio and Nueces River Basins. The table to the right lists all of the CRP sites that were sampled each quarter. They are separated into sections as follows: Medina River sites, Medina Lake sites, Diversion Lake sites, and Sabinal River / Nueces Basin sites.

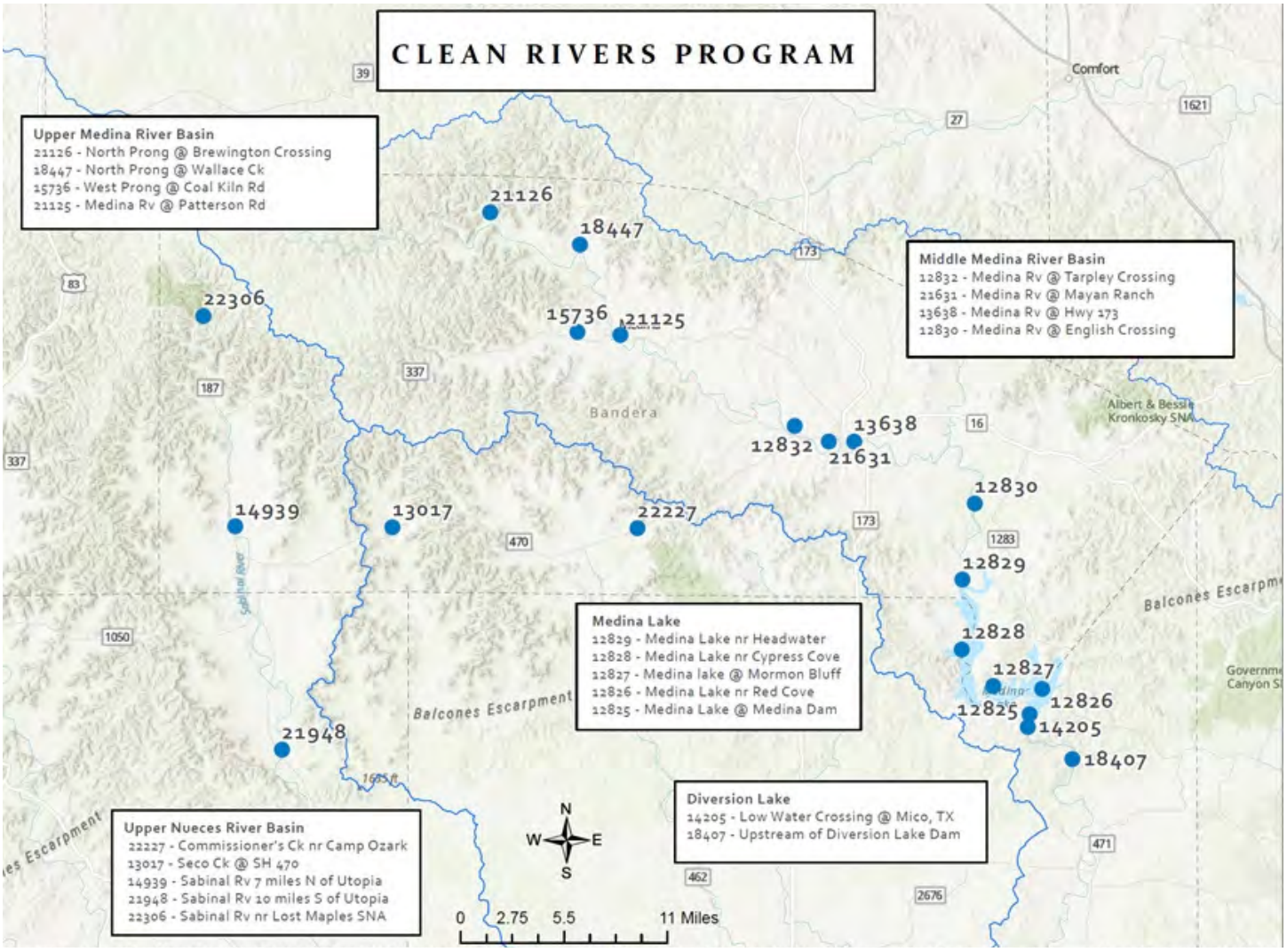
BCRAGD partnered with San Antonio River Authority (SARA) to participate in the Clean Rivers Program in the San Antonio River Basin in 2012. BCRAGD staff are responsible for sampling 8 sites, which are in Bandera County on the Medina River, and summarized to the right. The FY 2022 sample dates for Medina River were: October 21, 2021, November 4, 2022, January 18, 2022, January 19, 2022, May 12, 2022, May 18, 2022, July 7, 2022, August 18, 2022, August 31, 2022. The District was audited by SARA for the TCEQ Clean Rivers Program on July 27, 2022.

At the end of FY 2016, BCRAGD added 5 CRP sites on Medina Lake along with 3 CRP sites on Diversion Lake, partnering with SARA. The FY 2022 sample dates for Medina Lake were: November 2, 2021, November 16, 2021, January 13, 2022, February 9, 2022, May 26, 2022, August 10, 2022. Medina Lake was closed on May 27, 2022, due to drought conditions and low water levels. Sample dates for Diversion Lake were: November 17, 2021, February 23, 2022, May 19, 2022, July 26, 2022.

BCRAGD partnered with the Nueces River Authority (NRA) in 2016 to participate in the Clean Rivers Program in the Nueces River Basin. BCRAGD staff is responsible for the 5 sites shown in the chart to the right. The FY2022 sample dates for the Nueces River Basin were: November 18, 2021, November 29, 2021, November 30, 2021, January 26, 2022, February 1, 2022, May 11, 2022, May 17, 2022. July 7, 2022, and July 13, 2022. The District staff resampled for Chlorophyll-a at sites 22227, 21948, and 13017 on June 8, 2022.

Section ID	Site Name
12830	Medina R. @ English Crossing
18447	North Prong Medina R. @ HWY 16 - Wallace Creek
13638	Medina R. @ S HWY 173 (Bandera City Park)
12832	Medina R. @ FM 470 - Tarpley Crossing
21125	Medina R. @ Moffett Park
21126	N. Prong Medina R. @ FM 2107 - Brewington
15736	W. Prong Medina R. - Coalkiln Road
21631	Medina R. @ The Mayan Ranch
12829	Medina Lake near Headwater
12828	Medina Lake between Cypress & Spettel Coves
12827	Medina Lake @ Mormon Bluff
12826	Medina Lake near Red Cove
12825	Medina Lake @ ML Dam West of San Antonio
12824	Medina R. Downstream of Diversion Dam
18407	Diversion Lake just upstream of Diversion Lake Dam
14205	Medina R. Downstream Medina Lake Dam in Mico, TX @ low water Crossing
13017	Seco Creek @ RR 470
14939	Sabinal River @ FM 187
21948	Sabinal River @ Onion Creek
22227	Commissioner's Creek Downstream of Camp Ozark
22306	Sabinal River near Lost Maples SNA

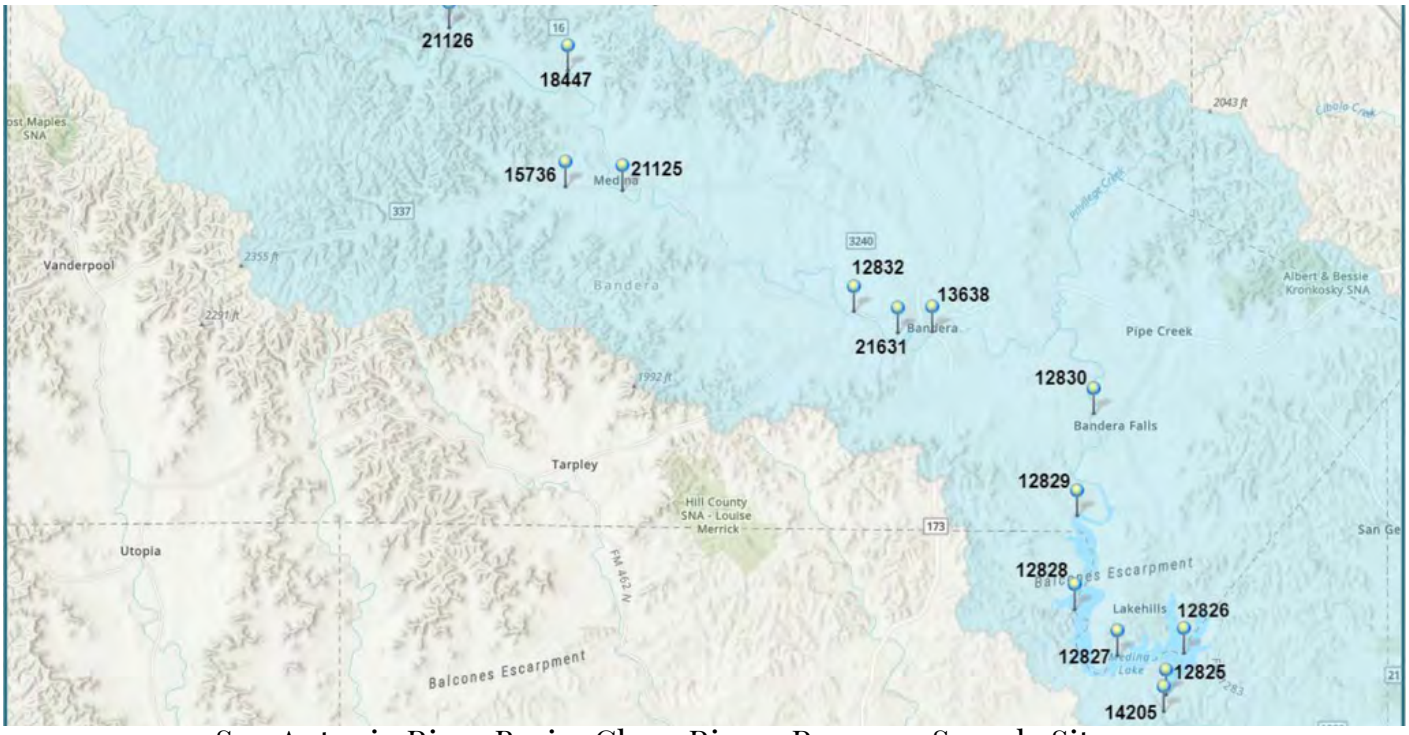
Surface Water Programs



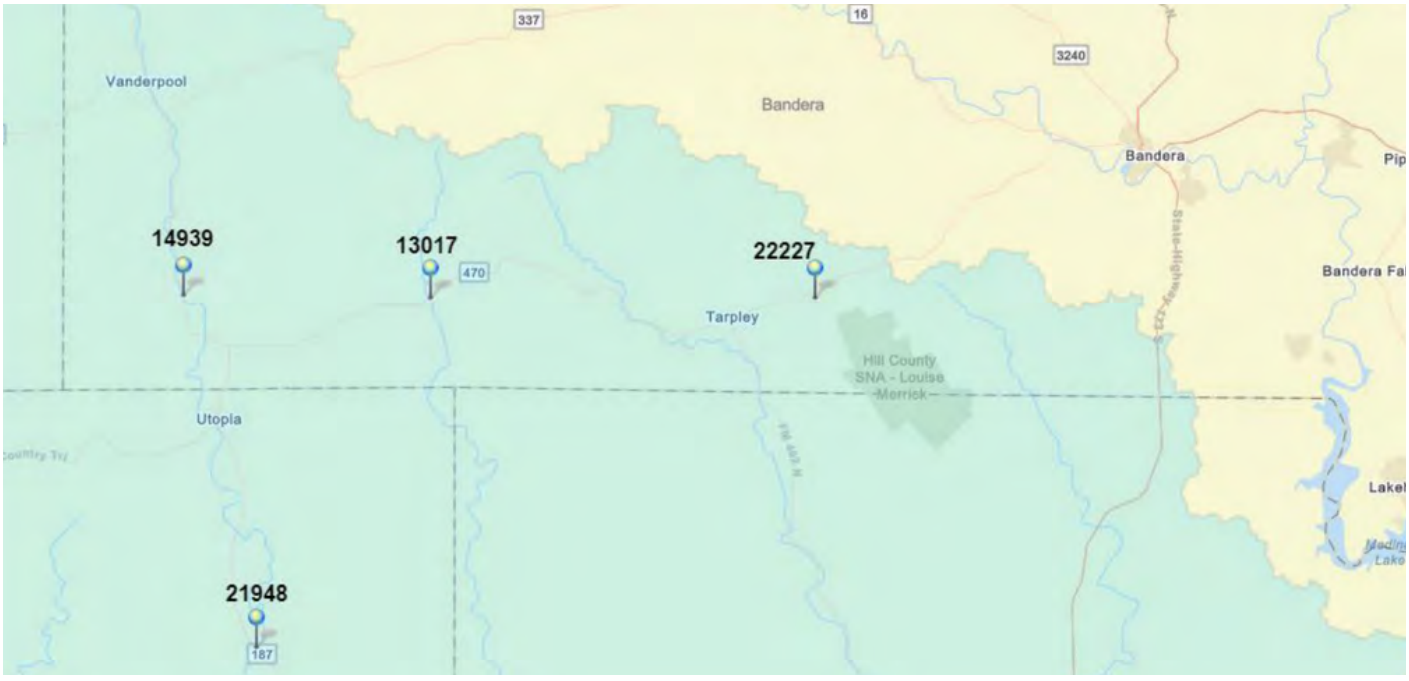
The map shown on the next pages show all of the CRP sites covered by the San Antonio River Authority and Nueces River Authority. The sites sampled by BCRAGD are included in both.

C. Carter & L. Sparks kayaking on Diversion Lake to conduct Surface Water sampling.

Surface Water Programs

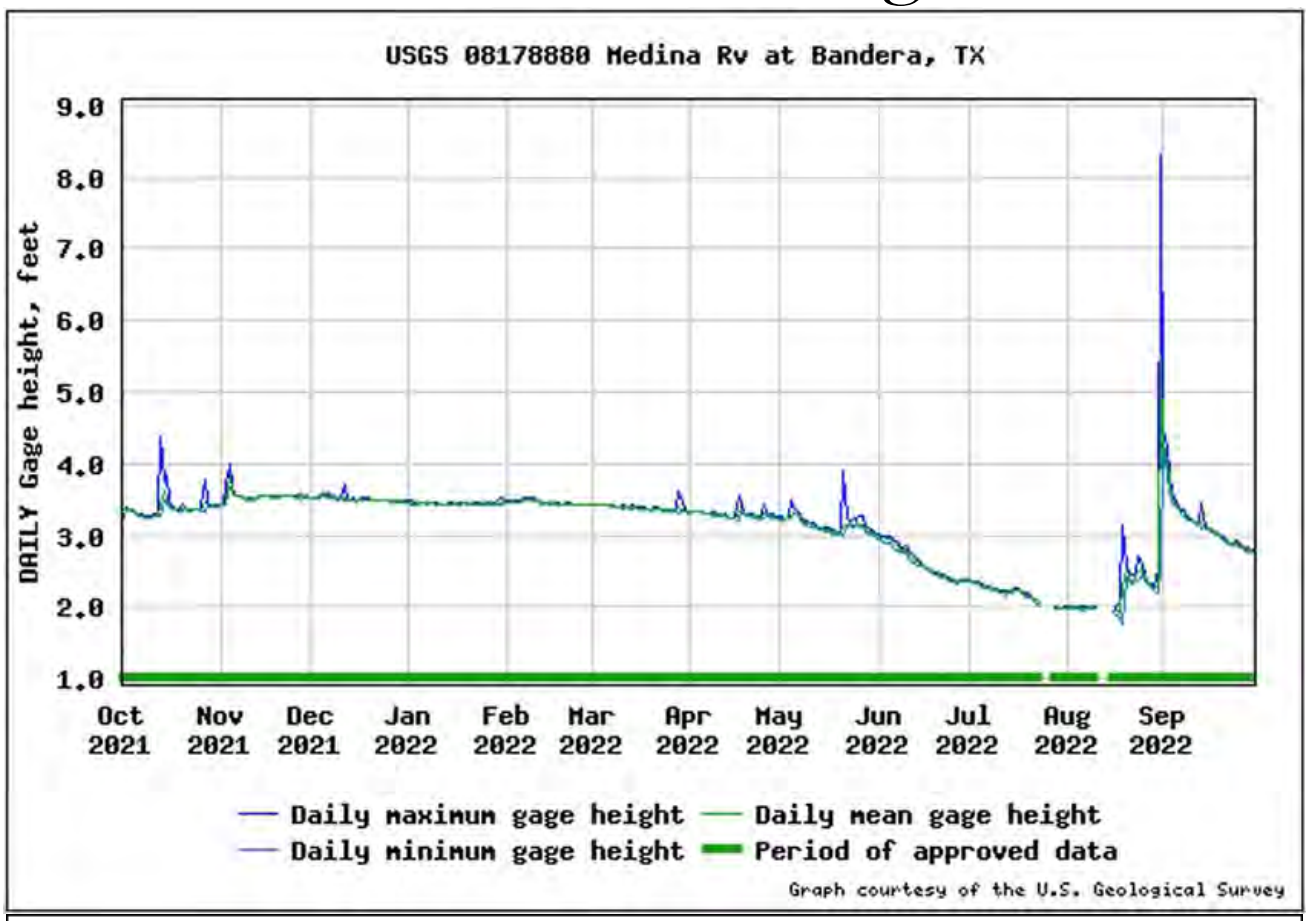


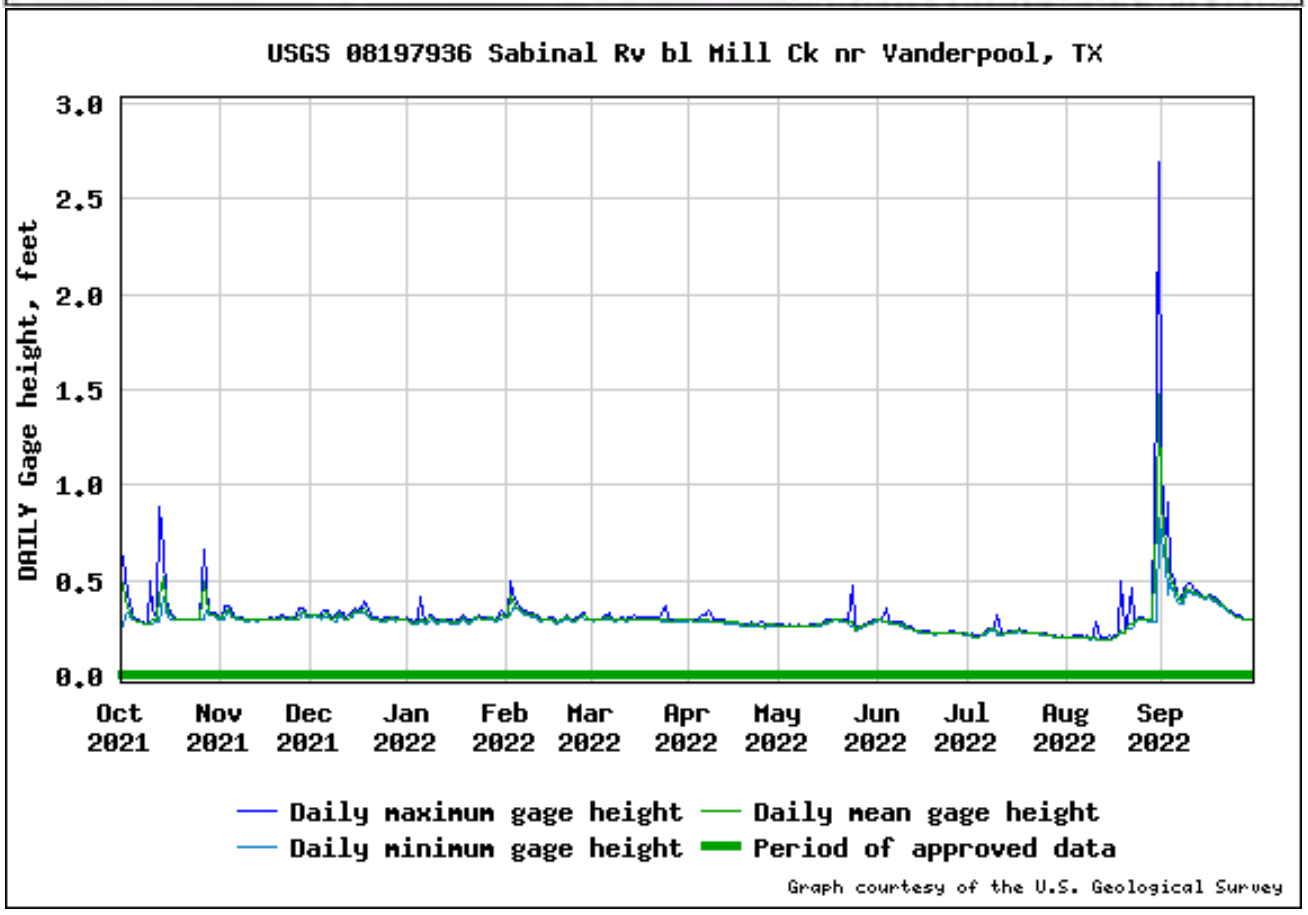
San Antonio River Basin Clean Rivers Program Sample Sites



Nueces River Basin Clean Rivers Program Sample Sites

Surface Water Programs





**Data retrieved from usgs.gov on 1/19/2023*

Surface Water Programs

Top Image: Diversion Lake; Middle Image: North Prong Medina River; Bottom Image: West Prong Medina River

Surface Water Programs

Image taken on the North Prong Medina River at Rocky Creek.

During FY 2022, BCRAGD District Staff completed/attended the following events related to Surface Water:

- 07-08.OCT.2021 Texas Water Leaders program
- 15.OCT.2021 Oenology Field Trip
- 22.OCT.2021 Wildfire and Water: General trends, lessons learned, and future directions
- 28.OCT.2021 TWL Mentor Call
- 03.NOV.2021 Medina River Field Experiment
- 09.NOV.2021 Informational Webinar: National Priorities
- 18.NOV.2021 Esri Fall Water User Group Meeting
- 23.NOV.2021 TCAFS Student Outreach Committee Meeting
- 23.NOV.2021 Ximenes & Associates, Inc. Meeting for Dec. 9th Public Meeting
- 29.NOV.2021 Ximenes & Associates, Inc. Meeting Prep
- 30.NOV.2021 TCAFS Pond Management Committee Meeting
- 02.DEC.2021 GDNC for Und. and Min. Arsenic Mob. in Aquifer Stge. & Rec, Projects
- 09.DEC.2021 Hill Country Watershed Stewardship Gathering
- 13.DEC.2021 Watershed Roundtable
- 16.DEC.2021 Christmas Water Conservation Event
- 05.JAN.2022 Journal Club Meeting: “Surface Water & Groundwater - Together Again?”
- 06.JAN.2022 Texas Water Leaders Program Meeting
- 11.JAN.2022 Water Sample Collection
- 12.JAN.2022 South Texas Geological Society Luncheon
- 20.JAN.2022 Riparian Project Meeting
- 27.JAN.2022 FWCO: Freshwater Mussel Conservation Webinar
- 27.JAN.2022 Intera Webinar
- 03.FEB.2022 Regional Environmental Task Force
- 09.FEB.2022 Annual Ethics and Data Integrity Training
- 11.FEB.2022 Texas Water Leaders Program Meeting

Surface Water Programs

- 15.FEB.2022 Central Texas Water Conservation Symposium Webinar
- 23.FEB.2022 Zebra Mussel Sampler Inspection
- 24.FEB.2022 Texas Chapter - American Fisheries Society Manual Revision Check-In
- 02.MAR.2022 Texas Water Leaders Program Webinar
- 08.MAR.2022 Mtg: Ponds near Hill Country State Natural Area
- 18.MAR.2022 NWS Austin/San Antonio Spring 2022 Climate Outlook
- 23.MAR.2022 Hill Country Land Team Spring Meeting
- 24.MAR.2022 Meeting CMS Changes
- 30.MAR.2022 Water Sample
- 30.MAR.2022 Roundtable on the upcoming projects
- 07.APR.2022 Tarpley Site Visit
- 11.APR.2022 Medina Lake Investigation
- 13.APR.2022 Healthy Creeks Initiative
- 19.APR.2022 Geographic Approach for Natural Areas Mngmt.
- 20.APR.2022 Los Lomas Ranch Site Visit - Pond Management
- 25-28.APR.2022 TELA Conference @ The Mayan
- 04.MAY.2022 Riparian & Watershed Protection Planning @ UGRA
- 05.MAY.2022 Texas Riparian Workshop
- 05.MAY.2022 Meeting of the South Central Texas Regional Environmental Task Force
- 09.JUN.2022 Send Data Sheets to NRA & Install Skegs
- 08.JUN.2022 Hill Country Land Team - Online Meeting
- 13.JUN.2022 Aquatic Life Monitoring
- 15.JUN.2022 GoToWebinar - Get Your Lab Ready for HABs
- 20.JUN.2022 Ranger Crossing Resample
- 21.JUN.2022 Brewington Site Visit
- 22.JUN.2022 Water Level Check
- 30.JUN.2022 Meeting with Harrison Killough (Water Master)
- 20.JUL.2022 Fish Relocation with Elena Bruess
- 22.JUL.2022 Diversion lake access
- 22.JUL.2022 Aquatic Vegetation Section Discussion
- 02.AUG.2022 Pond Management Committee Check-in and Progress Update
- 04.AUG.2022 Meeting: ArcGis Subscription Licenses
- 09.AUG.2022 Fish Relocation (Rocky Ck)
- 11.AUG.2022 Discuss Capstone Riparian Project Idea
- 18.AUG.2022 Master Naturalist Meeting
- 22.AUG.2022 Belle Gonzalez Natural Resource Specialist II Agricultural Water Conservation
- 23.AUG.2022 Discussing metrics to id. specific ag. water use
- 23.AUG.2022 Meeting Bobby Young
- 25.AUG.2022 GIS for Land & Wildlife Management
- 12-14.SEP.2022 Annual SWQM Workshop
- 14.SEP.2022 STGS Luncheon
- 15.SEP.2022 Master Naturalist Meeting
- 16.SEP.2022 HCI Call
- 29.SEP.2022 TCAFS PM Manual Revisions (Sections 1 - 4) Target Completion

Photo taken on Medina River at Bridelgate.

Surface Water Programs

District In-House Sampling Programs

In order to preserve and protect the headwaters of the Medina and Sabinal Rivers, as well as Medina Lake, BCRAGD conducts multiple In-House programs to monitor water quality and inform the public of any potential concerns.

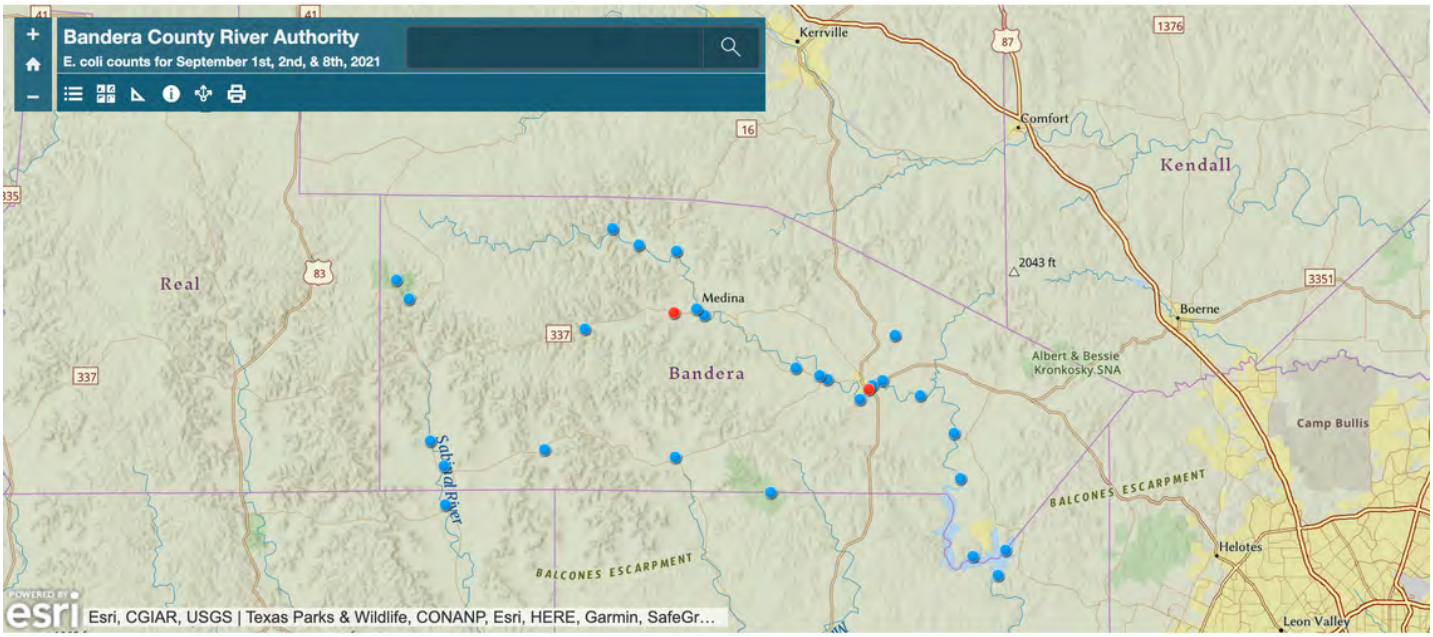
Surface Water Quality Monitoring

The Surface Water Quality Sampling Program was initiated in order to monitor water quality throughout Bandera County. It has been modified to better serve the community by increasing the number of sites for a more representative data collection, reporting E. coli counts via local newspapers and the District website to the citizens of Bandera County for safety. BCRAGD's In-House Surface Water Sampling Program allows District staff to detect bacteria spikes in the Medina and Sabinal Rivers, as well as Medina Lake, and follow up with an immediate investigation.

From October 2021 to September 2022, there were 18 instances with E.coli counts over the TCEQ standard of 399 MPN (most probable number) per 100 mL of sample water. The District recommends no swimming to take place in areas where the count is over the limit. That sample site area is then investigated, beginning with a re-sample effort. If the MPN remains above 399 MPN, further investigations are made.

Site #	Location	Site #	Location
ML-1.04	Medina Lake @ County Park NE of Boat Ramp	MP-3.01	Medina R @ Moffett Park
MR-1.01	Medina R @ English Crossing	MRN-3.01	N. Prong Medina R @ Rocky Creek Crossing FM 2107
MR-1.02	Medina R @ Bridlegate Park	MRN-3.03	N. Prong Medina R @ Brewington Crossing FM 2107
MR-1.03	Medina R @ Bandera River Ranch Park	WC-3.01	N. Prong Medina R @ Wallace Creek
BC-2.01	Bandera Creek @ SH 16	MRW-3.01	W. Prong Medina R @ Coal Kiln Rd RR 337
LMC-2.01	Lower Mason Creek @ Chipman Ln.	MRW-3.03	W. Prong Medina R @ Carpenter Creek @ RR 337
MR-2.025	Above Sewage Treatment Plant Effluent	SC-4.01	Seco Creek @ RR 470 Crossing
MR-2.03	Medina R @ Bandera City Park HWY 173	CC-4.01	Sabinal R @ Cornelius Rd Crossing
MR-2.05	Medina R @ Bandera City Park 1st Street Bridge	SR-4.03	Sabinal R in Vanderpool @ SH 187
MR-3.01	Medina R @ RR 337	LM-4.03	Sabinal R @ Lost Maples 1st Bridge
MR-3.04	Medina R @ Tarpley Crossing	WVC-2.01	Hill Country State Natural Area @ FM 1077
MR-3.05	Medina R @ Ranger Crossing HWY 16	WC-4.01	Williams Creek Crossing
UTOP	Utopia City park	CC-1.01	Can Creek @ Lost Maples
PC-1.01	Privilege Creek @ SH 16	MR-3.06	Medina @ Peaceful Valley
ML-2.07	Medina Lake @ Red Cove Marina	ML.1.06	Medina Lake Pop's Place
ML-2.06	Medina Lake @ Haby's Cove		

Surface Water Programs



The above map shows the most recent sampling locations and E. coli numbers. The pictures, if clicked, will appear in full screen. Click here to view map in full screen.

The surface water team built a digital map utilizing ESRI's ArcGIS software to create an interactive web application to allow the public to view water quality results on a mapping platform. Public users have access to the following information: site location, bacteria results, water temperature, and a snapshot of current stream conditions. The link to the map is located on the district website at www.bcragd.org.

BCRAGD Public Service Announcement:
Medina River & Sabinal River *E. coli* Counts July 12, 2022

Surface Water Staff from the Bandera County River Authority and Groundwater District (BCRAGD) collected water samples from sites along the Medina River, Medina Lake, Sabinal River, and their tributaries to assess levels of *E. coli* bacteria on July 12th, 2022.

E. coli is a bacteria found in the gut of warm-blooded animals and is known to potentially cause illness in humans if ingested. **No primary contact recreation should take place if the number of *E. coli* exceeds 399 most probable number (MPN) per 100 mL of water.** This standard is set by the Texas Commission on Environmental Quality (TCEQ) in the Texas Administrative Code (30 TAC §307.7). Meaning, no one should participate in activities that could result in the total submersion of the head under water if counts exceed the 399 MPN standard.

There is ALWAYS a possibility of infection from *E. coli* or other waterborne illness. **Never drink or ingest river water without proper disinfection, and always swim at your own risk.**

Results listed below were analyzed at the BCRAGD lab:

Medina Lake - Park @ PR 37	Inaccessible due to low water	Bandera City Park @ 1st St	9 MPN	Can Creek @ Lost Maples	8 MPN
English Crossing	214 MPN	Tarpley Crossing	65 MPN	Privilege Creek @ SH16	79 MPN
Bridlegate Park	1553 MPN*	Ranger Crossing	53 MPN	Medina Lake @ Pop's Place	26 MPN
Bandera River Ranch Park	Dry	Moffett Park in Medina	71 MPN	Medina Lake @ Haby's Cove	Inaccessible due to low water
W. Prong @ Coalkiln Rd	613 MPN*	N. Prong, Brewington	22 MPN	Utopia City Park	53 MPN
Medina Lake @ Red Cove	Inaccessible due to low water	Sabinal R @ Lost Maples	15 MPN	N. Prong, Wallace Ck	Dry
Bandera City Park @ SH173	488 MPN*	Medina Rv @ Peaceful Valley Rd	96 MPN		

*Indicates that the sample was over the TCEQ threshold

The above results can also be found on the BCRAGD website, www.bcragd.org, and the BCRAGD Facebook page. BCRAGD is not a certified lab. Results are for informational purposes only.

This image depicts the announcement of the In-House reports that are posted on the District Website and Social Media Platforms.

Sonde Meter being used to conduct surface water sampling

Surface Water Programs

Below is the combined summary of BCRAGD's In-House, Clean Rivers Program, and EAA Sampling:

1st Quarter: (October 2021 - December 2021)

- 21.OCT.2021 Upper Medina River CRP
- 02.NOV.2021 Medina Lake CRP
- 16.NOV.2021 Medina Lake CRP
- 17.NOV.2021 Diversion Lake CRP
- 18.NOV.2021 Diversion Lake CRP
- 29.NOV.2021 Upper Nueces CRP
- 29.NOV.2021 Sabinal River CRP
- 07.DEC.2021 Quarterly In-House Sampling
- 08.DEC.2021 Quarterly In-House Sampling

3rd Quarter: (April 2022 - June 2022)

- 11.MAY.2022 Sabinal River CRP
- 12.MAY.2022 Medina River CRP
- 18.MAY.2022 Medina River CRP
- 19.MAY.2022 Diversion Lake CRP
- 26.MAY.2022 Medina Lake CRP
- 01.JUN.2022 In-House Sampling
- 02.JUN.2022 In-House Sampling
- 14.JUN.2022 In-House Sampling
- 15.JUN.2022 In-House Sampling
- 16.JUN.2022 Diversion Lake CRP
- 28.JUN.2022 In-House Sampling
- 29.JUN.2022 In-House Sampling

2nd Quarter: (January 2022 - March 2022)

- 13.JAN.2022 Medina Lake CRP
- 18.JAN.2022 Medina River CRP
- 19.JAN.2022 Medina River CRP
- 26.JAN.2022 Sabinal River CRP
- 01.FEB.2022 Sabinal River CRP
- 09.FEB.2022 Medina Lake CRP
- 23.FEB.2022 Diversion Lake CRP
- 16.MAR.2022 Quarterly In-House Sampling
- 17.MAR.2022 Quarterly In-House Sampling
- 31.MAR.2022 Medina Lake In-House Sampling

4th Quarter: (July 2022 - September 2022)

- 12.JUL.2022 Summer In-House Sampling
- 13.JUL.2022 Sabinal CRP
- 26.JUL.2022 Diversion CRP
- 26.JUL.2022 CRP Audit prep
- 27.JUL.2022 Summer In-House Sampling
- 27.JUL.2022 Annual CRP Audit Assessment
- 28.JUL.2022 Summer In-House Sampling

C. Carter on the North Prong of the Medina River conducting CRP sampling.

Surface Water Programs

C. Carter & S. Sckittone taking stream discharge measurements. (Training on how to use Flow tracker equipment.)

C. Carter kayaking on the North Prong of the Medina River to conduct In-House Sampling.

L. Sparks conducting CRP sampling on the Sabinal River.

L. Sparks conducting an Arundo Survey near Brewington Crossing.

Surface Water Programs

Invasive Species Management

BCRAGD Staff monitor invasive species activity in Bandera County. Of particular interest is the invasive and noxious species Arundo donax (Giant Reed), classified as a “noxious plant species” under the Administrative Code, Title 4, Part 1, Chapter 19, Subchapter T. The classification means Arundo donax has “serious potential to cause economic or ecological harm to the State.”

The Nueces River Authority has been actively and successfully managing Arundo donax along a portion of the Sabinal River in Bandera County for the past 12 years. BCRAGD has provided funding for the Nueces River Authority to continue treating the Arundo donax within their original project boundaries. BCRAGD Staff has also assisted the Nueces River Authority in the chemical treatment and physical removal of Arundo.

The District is currently implementing Arundo donax management on the headwaters of the Medina River by joining the Healthy Creeks Initiative partnership with the Texas Parks and Wildlife Department. This initiative offers workshops and no-cost treatment of Arundo, which began in the summer of 2018, and maintains ongoing monitoring and re-treatment as needed. If you have Arundo donax on your property and want more information on how to properly control it; please call BCRAGD at (830) 796-7260. To learn more about the Healthy Creeks Initiative, visit the Texas Parks and Wildlife Department website: https://tpwd.texas.gov/landwater/water/aquatic-invasives/healthy-creeks.html.

BCRAGD also monitors Zebra Mussels- small, fresh-water mussels that spread by clinging to boat hulls, bilges, and bait buckets. Zebra Mussels hinder water recreation, destroy aquatic ecosystems, ruin beaches, and damage municipal water supplies and intake structures. To prevent this, remove all debris from your boat and trailer, and drain all water from the boat, engine, and bait bucket. Then, let the boat dry for at least a week or wash it with high-pressure, hot, soapy water before boating on another waterbody.

BCRAGD District staff preparing for Medina Lake Sampling.


Photo example of Zebra Mussel size comparison.


L. Whitmire & C. Carter on Medina Lake conducting sampling.

Surface Water Programs

Zebra Mussels

On March 16, 2021, the Texas Parks and Wildlife Department (TPWD) designated Medina Lake as infested with the invasive species Zebra Mussels. The first sighting in Medina Lake was on February 11, 2021, by a member of the community who contacted TPWD for verification. Shortly after this, TPWD conducted their own searches and located at least 1 more Zebra Mussel. BCRAGD also conducted a search on February 24, 2021, locating a single Zebra Mussel. Diversion Lake as since had Zebra Mussel detection. BCRAGD continues to partner with TPWD to continue monitoring Medina Lake for the further spread of Zebra Mussels.

C. Carter checking the District's Zebra Mussel Samplers

Zebra Mussel cluster

Surface Water Programs

During FY 2022, BCRAGD District Staff completed/attended the following for Invasive Species Management:

- BCRAGD District staff conducted a check on the Zebra Mussel Sampler on 13.JAN.2022, 23.FEB.2022, 29.APR.2022, 06.MAY.2022, 22.MAY.2022, 10.JUN.2022
- BCRAGD District staff conducted Arundo Surveys on 13.OCT.2021, 14.OCT.2021, 15.OCT.2021, 21.JUL.2022, 25.AUG.2022, 06.SEP.2022, 07.SEP.2022, 08.SEP.2022, 21.SEP.2022, 27.SEP.2022
- 30.NOV.2021 TCAFS Pond Management Committee Meeting
- 09.DEC.2021 Hill Country Watershed Stewardship Gathering
- 05.JAN.2022 Journal Club Meeting: Surface Water & Groundwater - Together Again
- 20.JAN.2022 Riparian Project Meeting
- 27.JAN.2022 FWCO: Freshwater Mussel Conservation Webinar
- 24.FEB.2022 Texas Chapter - American Fisheries Society Manual Revision Check-In
- 08.MAR.2022 Mtg: Ponds near Hill Country State Natural Area
- 07.APR.2022 Riparian Site Visit
- 11.APR.2022 Medina Lake Investigation
- 13.APR.2022 Healthy Creeks Initiative
- 20.APR.2022 Los Lomas Ranch Site Visit - Pond Management
- 04.MAY.2022 Riparian & Watershed Protection Planning @ UGRA
- 05.MAY.2022 Texas Riparian Workshop
- 02.AUG.2022 Pond Management Committee Check-in and Progress Update
- 11.AUG.2022 Discuss Capstone Riparian Project Idea

Pictured Above is an Arundo Rhizome Structure.

Arundo Donax stand in Bandera County.

Arundo Donax stand in Bandera County.

Surface Water Programs

Photo taken of Medina Lake.

Photo of Medina Lake topographic map from USGS.

Photo taken from the Medina Lake Camera hosted by USGS, reporting realtime images of the Lake.

Medina Lake Management

Medina Lake is an important natural resource for the citizens of Texas. The lake serves not only as an irrigation water source and a popular recreational site, but it also is an important drinking water reservoir for the entire region. The waters in the lake are some of the most pristine in the county. It is imperative that the lake be preserved and protected.

The Bandera County River Authority and Groundwater District is committed to protecting, preserving, and monitoring Medina Lake. Since 2015, the BCRAGD has taken a much more active approach in protecting the quality of Medina Lake. In recent years, the organization has created a Zebra Mussel monitoring program in partnership with TPWD. The District also monitors the quality of the water through the CRP program and a study in partnership with USGS.

The BCRAGD has an interest in the human health and safety associated with Medina Lake as well. BCRAGD Staff acquired a Hazard Buoy for immediate deployment in the lake to warn boaters of hazards. Staff have also advised numerous people all around the lake on potential best management practices for improvements of both their land and reducing the environmental impacts harmful practices could have on Medina Lake. BCRAGD also participated in numerous Fish Surveys and Fish Stockings completed by TPWD in the lake over the past few years.

Surface Water Programs

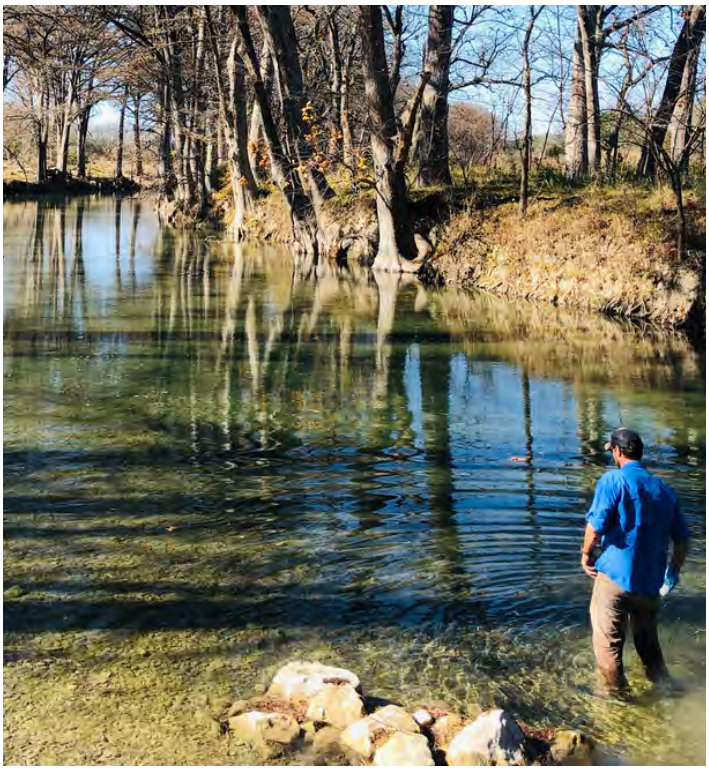
Photo taken at Lost Maples Sampling Site during an In-House Sampling event

C. Carter conducing In-House Sampling on North Prong Medina River at Brewington.

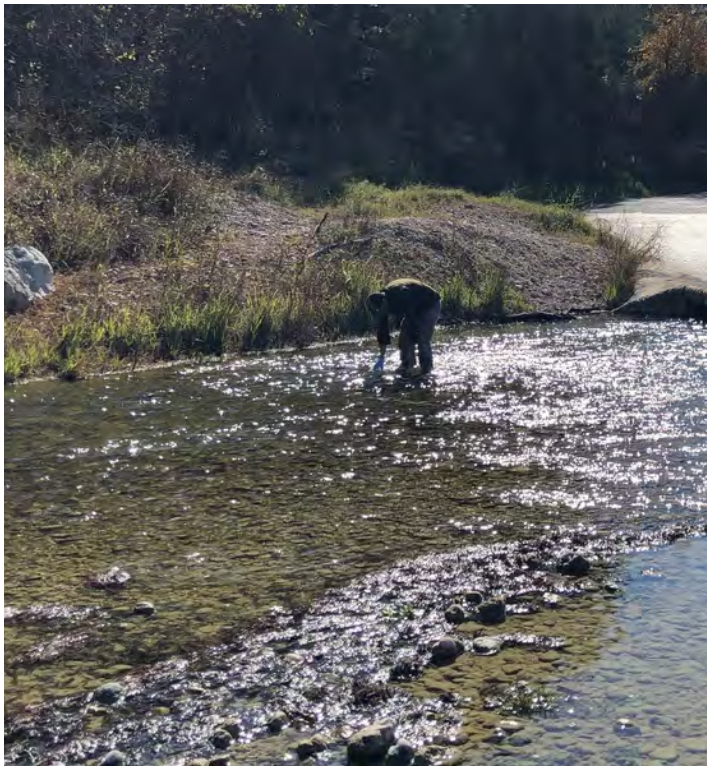
C. Carter conducting a post drill inspection of a new water well in Bandera County.

Surface Water Programs

C. Carter biking Lost Maples Park State Park to conduct In-house Sampling



C. Carter gathering water sample for CRP at Moffet Park.



C. Carter collecting water sample for In-House at English Crossing

S. Sckittone gathering a water sample at Lost Maples State Park

Surface Water Programs

Aquatic Life Monitoring with San Antonio River Authority

On June 13, 2022, BCRAGD District Staff assisted the San Antonio River Authority in conducting an Aquatic Life Monitoring event on the Medina River. This assessment is used to identify species diversity and community composition of freshwater fish and to measure physical habitat conditions along a specific reach of the Medina River. These events help to determine if the designated aquatic life uses are being attained.

San Antonio River Authority working in conjunction with BCRAGD to conduct Aquatic Life Monitoring.

Surface Water Programs

BCRAGD Surface Water Highlights FY 2022

BCRAGD staff has recently provided pond consultation services at the request of private landowners throughout Bandera County. These services have included site visits and professional guidance on pond management aimed at improving water quality and water quantity within the watershed.

C. Carter & L. Sparks reviewing land owners pond.

L. Sparks & S. Sckittone conducting fish relocation from Medina River.

C. Carter & L. Sparks reviewing land owners pond.

S. Sckittone conducting fish relocation from Medina River.

The District's Surface Water Team has initiated several fish relocation efforts along the Medina River in response to severe and extreme drought conditions. A total of 187 fish, including several Guadalupe Bass (the State Fish of Texas), were removed from their drying pools and successfully relocated to more suitable habitats along deeper portions of the Medina River. The Surface Water Team is proud to report that o fish mortalities were observed during the course of the project.

Surface Water Programs

USGS Flood Early Warning System (FEWS)

Medina River Flood Early Warning System

On June 1, 2016, the Bandera County River Authority and Groundwater District (BCRAGD) applied for and received a 50/50 cost-shared funding grant from the Texas Water Development Board (TWDB) (total project cost - $530,300.00) to contract with the U.S. Geological Survey (USGS) for development of a flood warning tool set for the Medina River in Bandera County, Texas. A contract agreement was approved and signed by both agencies (TWDB and BCRAGD) on August 25, 2016.

The study area encompassed a 23-mile reach of the Medina River from the confluence of Winans Creek to English Crossing Road above Medina Lake (Figure 1). A Hydrologic Engineering Center-River Analysis System (HEC-RAS) model was utilized by the USGS to apply data from existing streamflow-gaging stations, including two newly installed 'stage only' streamflow-gaging stations with rainfall monitors along the headwaters of the North and West Prongs of the Medina River. A flood atlas, consisting of a library of flood-inundation maps for a range of streamflow conditions, was developed and included on the USGS Flood Inundation Mapping Program (FIMP) website (http://water.usgs.gov/osw.flood_inundation). The Flood Inundation Maps (FIMS) depict estimates of the area extent and depth of flooding corresponding to selected water levels (stages) at the USGS streamflow-gaging station 08178880 on the Medina River at Bandera, Texas.

USGS Twitter

- #TX RainWatch https://twitter.com/USGS_TexasRain
- #TX FloodWatch https://twitter.com/USGS_TexasFlood
- #USGS[streamgage number] (e.g.#USGS08178880)

BCRAGD's Flood Science Manager L. Thomas, presenting the installed USGS stream gages to the Texas Water Development Board.

They are:

- USGS National Water Information System https://waterdata.usgs.gov/nwis/
- North Prong gage at Brewington Creek https://waterdata.usgs.gov/nwis/inventory/?site_no=08178861
- West Prong gage at Carpenter Creek Road https://waterdata.usgs.gov/nwis/inventory/site_no=08178871
- Patterson Rd. gage https://waterdata.usgs.gov/nwis/inventory/site_no=0817887350
- Bandera gage https://waterdata.usgs.gov/tx/nwis/inventory/site_no=08178880
- USGS Texas Water Dashboard https://txpub.usgs.gov/txwaterdashboard/
- USGS WaterAlert https://water.usgs.gov/wateralert/
- USGS Water On-The-Go https://txpub.usgs.gov/water-onthego/

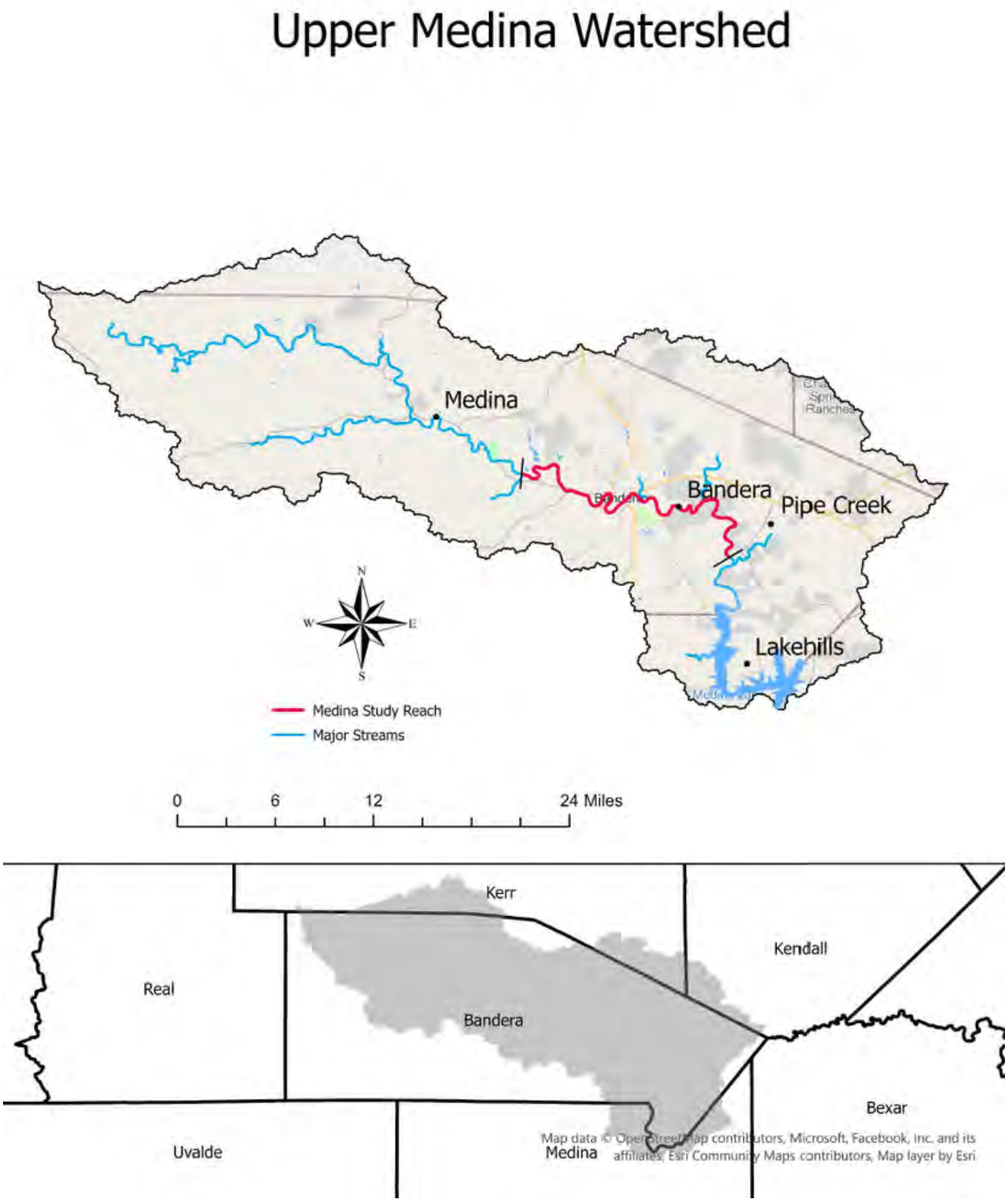


Figure 1: Upper Medina Watershed

Surface Water Programs

Sabinal River Flood Early Warning System

On November 12, 2018, the Bandera County River Authority and Groundwater District (BCRAGD) received a cooperative agreement funding grant from the Texas Water Development Board (TWDB). A contract was entered into agreement by TWDB and BCRAGD to contract with a third-party Federal Contractor, the U.S. Geological Survey (USGS) for development of a Flood Early Warning System (FEWS) for Western Bandera County, Texas of the Upper Sabinal, and West Sabinal River watersheds. The U.S. Geological Survey also agreed to a cost-sharing agreement with BCRAGD for this project. The study includes a 10-mile river reach of the Sabinal River in western Bandera County from Vanderpool, TX to Uvalde County at Utopia, TX and encompasses portions of the West Sabinal River above Utopia, TX. (See figure 2). In May 2021, USGS requested an extension of the Sabinal River FEWS project completion timeline in hopes of securing much-needed hydrologic data for Flood Inundation Maps (FIMS). BCRAGD submitted a project extension request to TWDB and was approved for a full 1-year extension from the contractual expiration date of August 31, 2021, to August 31, 2022.

One of Five USGS Insitu Pressure Transducer, Water Level Electronic Data Loggers – Installed Above Utopia, TX, along the Sabinal and West Sabinal River.

USGS Stream Gage at Sabinal River Bridge at Utopia, TX FM-1050, 08197970 Sabinal Rv at Utopia, TX. The photo was taken on March 4, 2020. Stream Gage is located on the Left Bank-Downstream side of the bridge near the top of the stream bank.

The Sabinal River FEWS flood-inundation maps depict estimates of the area extent and depth of flooding corresponding to selected gage heights (stages) at the USGS streamflow-gaging station 08197970 Sabinal River at Utopia, TX. (Utopia gage). Water-surface elevations were computed for the stream reach by means of an unsteady-state two-dimensional diffusion wave model with the Hydrologic Engineer Center's River Analysis System 5.0.7 (HEC-RAS; Davidian, 1984; U.S. Army Corps of Engineers, 2016a, b, c). A stage-discharge relation at the Utopia gage was synthetically developed using a regional regression equation (Asquith and others, 2013) to construct the model boundary condition inputs as well as a calibration target, and the July 2002 flood event was reconstructed as the highest modeled river stage. The hydraulic model was used to compute 35 layers of water-surface elevations for gage heights at half-foot (ft) intervals referenced to the station datum and ranging from 7 ft, near bank full, to 24 ft.

Surface Water Programs

The model terrain was constructed using the digital elevation model, derived from high resolution light detection, and ranging data of one-meter (3.28 ft) horizontal resolution with vertical accuracy of ± 42.8 cm (± 1.4 ft). These flood-inundation maps, in conjunction with the real-time stage data from the Utopia gage, are intended to help guide the public in taking individual safety precautions and intended to provide emergency management personnel with a tool to efficiently manage emergency flood operations and post flood recovery efforts. BCRAGD's Flood Science Manager, Larry Thomas, serves as the Project Manager on all Flood Early Warning Systems for Bandera County.

The Sabinal River FEWS / USGS stations are:

- Sabinal River at Panther Hill Rd. near Vanderpool, TX USGS station ID: 08197938
- Sabinal River below Mill Creek near Vanderpool, TX USGS station ID: 08197936
- Sabinal River Up Stream of Long Hollow, near Utopia, TX. USGS station ID: 08197940
- Sabinal River Down Stream of Blackjack Hollow, near Utopia, TX. USGS station ID: 08197945
- Sabinal River located on FM-1050, below Utopia Park at Utopia, TX Station ID:08197970
- West Sabinal River at West Sabinal Road near Utopia, TX. USGS station ID: 08197965
- West Sabinal River at Spring Branch Road near Utopia, TX. USGS station ID: 08197968

Figure 2: Upper Sabinal Watershed.

Moffett Park Patterson Rd: Flood photo taken on March 20, 2012.

Surface Water Programs

Photo taken at the Medina Lake Dam during the July 5th 2002 Flood. Photo taken by Jerry Sides

Photo taken at the Flood at Medina River above Bandera on July 5th, 2002 . Photo taken by Jerry Sides

Surface Water Programs

BCRAGD hosted and attended multiple meetings concerning flood awareness as well as administratively prepared data spearheaded by BCRAGD's Flood Science Manager. See details below:

- 05.OCT.2021 Conference Call: Mail USGS Checks
- 12.OCT.2021 Meeting: USGS Checks Delivered & Any Outstanding Checks Remaining
- 26.OCT.2021 Meeting: USGS Invoicing Updates & Prep
- 04.NOV.2021 Meeting: Deposited Money TWDB, Invoices TBP & CFMs
- 15.NOV.2021 Mail USGS Checks #001019 & #001020 for Bill#90913607 & #9092769
- 15.NOV.2021 Meeting: CECs & TFMA
- 16.NOV.2021 Meeting: USGS Checks Mailed Status & Draft Email
- 23.NOV.2021 Ximenes & Associates, Inc. Meeting for Dec. 9th Public Meeting
- 29.NOV.2021 Ximenes & Associates, Inc. Meeting Prep
- 09.DEC.2021 Region 12 Flood Planning Group Public Forum & Stakeholder Forum
- 20.JAN.2022 SCEMA (South Central Emergency Management Association) Meeting
- 20.JAN.2022 Mtg: Research, Payments, Review- Flood Acct Chk#001012-Chk#001020
- 26.JAN.2022 Meeting: USGS Billing & Invoices Paid & Open
- 22.FEB.2022 Mail O&M Gage Chk#14806
- 16.MAR.2022 Distribute Rain Gages on Western end of County
- 17.MAR.2022 SCEMA (South Central Emergency Management Association) Meeting
- 23.MAR.2022 Meeting: USGS Invoicing
- 23-27.MAY,2022 Flood Awareness Week Social Media Campaign
- 22.JUN.2022 Rainspotters Outreach Meeting
- 27.JUN.2022 TWDB - Sabinal FEWS DRAFT Final report emailed
- 27.JUN.2022 Completed The DRAFT FINAL Sabinal FEWS report
- JUNE.2022 Phone conf. received from various Ind. sources requesting info. Regarding FEWS's
- JUNE.2022 Prepared TWDB quarterly reports
- JUNE.2022 Prepared payments requests for the Sabinal FEWS for USGS invoices received
- JUNE.2022 Meeting with Bandera City EMS: staff training for disaster-specific responses
- JUNE.2022 Working on the 3rd of 5 Medina FEWS Annual Reports
- 27.JUL.2022 SCEMA Meeting
- 04.AUG.2022 SCEMA Meeting
- 04.AUG.2022 Meeting: USGS Invoicing Review
- 09.AUG.2022 Meeting: USGS Invoicing & TWDB Payment Requests
- 12.SEP.2022 Meeting: Rainwater Harvesting Content
- 26-30.SEP.2022 Rainwater Harvesting Social Media Campaign

Public Safety- Flood Preparation Programs

BCRAGD has several Certified Floodplain Managers in its employ and is an active member of the Texas Floodplain Management Association.

Enforcement/Investigations

The images above are from an environmental investigation from 2019 regarding an algae bloom in Utopia City Park.

Environmental Investigations

Illegal Dumping Litter Abatement Program

BCRAGD operates an illegal dumping litter abatement program to proactively protect and manage surface water and groundwater resources. The District adopted Rules out of Chapter 51 of the Texas Water Code, dealing specifically with illegal dumping that affects water quality. The Rules are in both the civil and penal code.

Enforcement of State & District Rules

BCRAGD proactively enforces both State and District rules for Well Drilling. These rules are taken from TDLR Administrative Code and BCRAGD's Adopted Chapter 36 Rules. As a result of this program, during FY 2022, the District:

- Inspected all permitted and registered wells in Bandera County to ensure compliance with both District and State Rules
- Investigated Nuisance Complaints
- Issued Notice of Violations and ensured compliance with Notice of Violations
- Conducted investigations with TDLR

Chapter 36 Administrative Requirements

During FY 2022, the District maintained and reviewed policies mandated by Chapter 36 of the Texas Water Code, including the Public Funds Investment Policy, Ethics Policy, Financial Management Policy, and Travel Policy. Additionally, the District reviewed and adjusted rules and District activities.

The image above is from an environmental investigation from 2019 regarding an oil and tire dump.

Enforcement/Investigations

Environmental & Enforcement Training

- On April 25th - 28th, 2022, BCRAGD staff attended the Texas Environmental Law Enforcement Association Training
- On September 12th - 14th, 2022 BCRAGD staff attended the Surface Water Quality Monitoring Workshop

During FY 2022, BCRAGD attended or conducted the following Illegal Dumping / Environmental Investigation / Regulatory Compliance programs:

- BCRAGD District Staff conducted environmental investigations throughout the fiscal year.
- 03.FEB.2022 Regional Environmental Task Force
- 16.FEB.2022 Meeting: Investigation Process
- 07.APR.2022 Mtg: Wells, Inv., and NoV
- 27.APR.2022 Conference call: Property near HWY 46 & 16
- 02.MAY.2022 Meeting @ Vanderpool Dam
- 13.MAY.2022 Investigation Write-Ups
- 15.JUN.2022 Investigations Action Meeting
- 17.JUN.2022 Go over Investigations
- JUL.2022 Environmental Investigations site visits and review
- 04.AUG.2022 South Central Texas Regional Environmental Task Force
- AUG.2022 Environmental Investigations site visits and review
- SEP.2022 Environmental Investigations site visits and review

Sonde Meter - Water analysis tool used by BCRAGD for surface water quality monitoring.

Public Safety / Pollution

BCRAGD serves as a first responder in cases of possible surface water or groundwater pollution or contamination. The District investigates and identifies the potential problem and refers to outside regulatory agencies when warranted.

The District's In-House Surface Water Quality Programs allow Staff to detect bacteria spikes and follow up with immediate investigation and re-sampling.

Education & Outreach Programs

Public Education and Outreach Programs

The District prioritizes the education of students and the public regarding surface water and groundwater in Bandera County. Educational strategies emphasize hands-on activities, presentations, and workshops bringing water quality, water conservation, and water preservation awareness to community members.

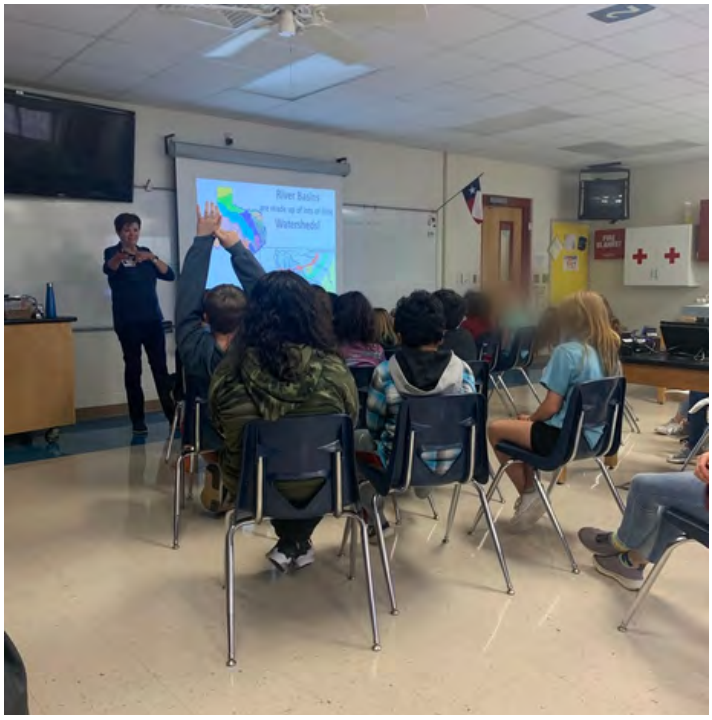
Educational Programs in the ISDs

Since 2012, BCRAGD has sponsored and co-facilitated the Nueces River Authority Water Resource Stewardship Education Program for Bandera, Medina, and Utopia 5th and 7th grade students. The program features a water use and conservation presentation and presents the demonstration of a surface water runoff model and an aquifer model, emphasizing non-point source pollution.

The Nueces River Authority Water Resource Stewardship Program, in collaboration with BCRAGD, heavily emphasizes water conservation, water quality protection, and natural resource systems to the 5th and 7th grade students in Bandera County throughout each Spring season. The District sponsors and co-facilitates the program every year. Students learned about watersheds, water conservation, and riparian ecosystems. They were engaged in a hands-on experiment with a river basin model to demonstrate how pollution travels into water streams and ends up in the ocean and had a thorough discussion on ways to be good stewards of our streams and waterways.

The BCRAGD Education & Outreach Manager and the Education & Outreach Coordinator held Educational Programs with NRA on the following dates: April 13, 2022, at Utopia ISD and April 29, 2022, at Medina ISD. The District was in Bandera ISD on April 25 & 26, 2022, at Alkek Elementary School on May 6, 2022, at Hill Country Elementary School on May 6, 2022, May 18, 2022, and at Bandera Middle School.

C. Fox & NRA Staff working through the model before presenting to students.



Mary Bales with NRA presenting at Alkek Elementary School Visit

Education & Outreach Programs

EYH @ Schreiner University - "Build Your Own Watershed" activity.

Expanding Your Horizons
Expanding Your Horizons (EYH) is hosted by Schreiner University and is a fun day filled with STEM activities for young 6th through 8th grade girls to engage in STEM as high school approaches. This EYH hosted approximately 200 young girls.

On October 16, 2021, the BCRAGD educational team hosted an Environmental 'Scientist for a Day' Lab at Schreiner University's EYH experience. This lab allowed the participants to learn what a watershed is and how humans impact the quality and function of those watersheds. The participants built their watershed and facilitated a rain event to model how pollution moves through a watershed. The activity was followed by discussions on how to protect watersheds and also ways to conserve water.

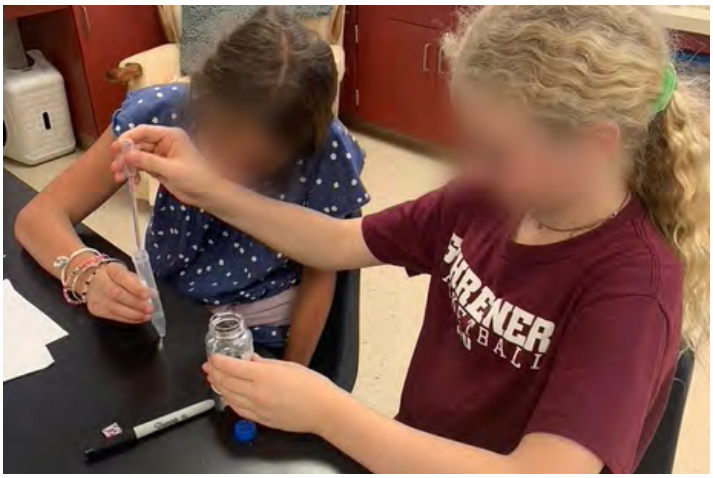
Women's Leadership Conference
On October 13, 2021, the BCRAGD Education team attended the Women's Leadership Conference hosted by Schreiner University. This conference was about how women embrace and manage personal, professional, social, and technological change. The District team hosted a table to promote water conservation and preservation career possibilities to young women.

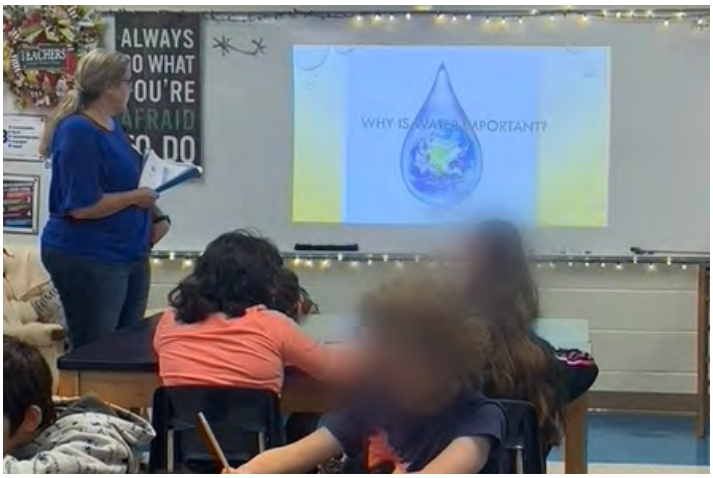
C. Curd at the BCRAGD table at the Women's Leadership Conference.

Education & Outreach Programs

District's Water Quality Program
On May 23-24, 2022, the BCRAGD Education and Outreach Team visited Alkek Elementary School 5th Grade classes to present the District's Water Quality program. This Texas State Curriculum-aligned program engages students in a hands-on experience where they perform scientific testing and analysis of local tap water samples. The mission of the program is to connect water quality issues to their own life experience through scientific experimentation and discussion of water issues and future solutions to those water issues. Approximately 200 students attended the event.

Mary Bales with NRA presenting the watershed model at Youth Water Awareness Day.





Top: Alkek 5th-grade students conducting the water test experiment. Bottom: C. Fox presenting the "What's in Your Water?" PowerPoint at Alkek Elementary.

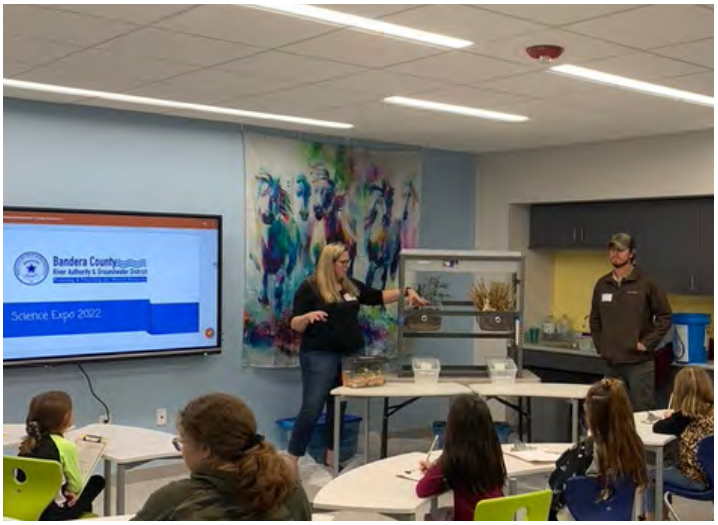
Youth Water Awareness Day
On May 12, 2022, the BCRAGD Education and Outreach Team assisted the Nueces River Authority with the Youth Water Awareness Day held at the University of Texas Marine Science Institute in Port Aransas, Texas. This event was for all of the 6th, 7th, and 8th grade students of the Port Aransas Middle School. During this event, the students learned about the connectivity of River Basins and watersheds with the Ocean and were able to explore the flow of pollution from River Basins to the Ocean with a topographical model.

Education & Outreach Programs

Tom Daniels Elementary School Science Expo

On March 11, 2022, The Education Team Charley Curd and Corrina Fox, along with the Field Operations Manager, Clint Carter, attended the annual Tom Daniel's Elementary Expo in Kerrville, Texas. This event served as a way for the District to expand into the hill country region and connect with similarly tasked entities, like the Upper Guadalupe River Authority, to provide water conservation and preservation education. The presentation included a life-like model representing the components of 2 types of watersheds. Seventy second grade students and four teachers were in attendance. The Education Team presented concepts regarding the hydrological cycle, watersheds, river basins, riparian plants, aquifers, surface water, groundwater, pollution issues, and ways to conserve freshwater.

C. Carter describing the riparian plant simulation.



C. Carter & C. Fox conducting the riparian simulation.

Texas Parks & Wildlife, park ambassador Growing up Wild training.

Texas Parks and Wildlife - Growing Up Wild

On March 13, 2022, the Education Team Charley Curd & Corrina Fox attended the workshop to help current facilitators gain more knowledge and experience facilitating the Project Wild curriculum. This program will enable the Education Team to provide needed CEUs for educators while meeting BCRAGD's performance and management goals set forth by the State of Texas.

Education & Outreach Programs

Community Library Events

BCRAGD presented at three separate Community Library events. The Education team works to present hands-on activities with a presentation or with a children's storybook that emphasize the themes of conservation.

- 21.JUN.2022 Medina Library: All water goes to the ocean
- 05.JUL.2022 Bandera Library: It All Goes to the Ocean Pres. & Activity
- 27.JUL.2022 Medina Library - Saving Tally Pre-K story time/activity

C. Fox Presenting at Bandera Library.

C. Curd Reading at Medina Library Story Time

C. Curd Presenting activity at Medina Library Story Time

C. Fox Presenting at Medina Library Summer Library program.

Medina Library Summer Activity.

Education & Outreach Programs

Hydro Geo Workshop

The Hydro-Geo Workshop association held a workshop on April 2, 2022, at the "Cave without a Name" in Boerne, TX. BCRAGD Staff provided two workshops for participants. The first covered the details of the TCEQ Clean Rivers Program. They demonstrated sampling methods for both water quality and biological portions.

In addition, the staff collaborated in hosting a "Developing a career in Geological Science" Q&A module for this event. The information included; why and how to become a professional Geologist, how to start building a career in college, networking, hydrogeology-specific careers, working for a groundwater district, and the value of a Professional Geologist license. Literature containing a list of professional societies and frequently asked career-related questions was distributed to participants during this session.

Hydro Geo Workshop River sampling interactive activity.

Education & Outreach Programs

Top: C. Fox at the SWCD Environmental Day Workshop
Bottom: C. Curd working with kids to test a water sample

BCRAGD made a donation of school supply baskets to the Back-to-School Bash hosted by the Hill Country Good Samaritans. The Back-to-School Bash campaign gets the community together to provide needed school supplies and connect families with useful resources. This fiscal year, the event was held in Lake Hills and in Medina to reach more families in Bandera County.

Soil & Water Conservation District Environmental Day Workshop

On April 8, 2022, the Education and Outreach Team participated in the Soil & Water Conservation District Environmental Day Workshop in collaboration with the Nueces River Authority Education team. All 6th and 7th grade students in Bandera County benefited from this educational event. Students were given information on various water contaminants and the effects of these contaminants on water quality and human health. Students were given a demonstration of how these contaminants are tested. Corrina Fox and Charley Curd guided students through in-depth discussions on the importance of water-related issues such as water conservation, water preservation, and water availability. Approximately 180 students participated.

Student Won Donation from BCRAGD at the Hill Country Elementary Fall Festival

Education & Outreach Programs

For FY2022, the District completed/attended the following for Education & Community Outreach:

- 04.OCT.2021 Edu. Team Meeting: quarterly documents, watershed content lesson plan
- 05.OCT.2021 Edu. Team Meeting: EYH timeline & materials; Upcoming events & training
- 06.OCT.2021 Work on Quarterly Newsletter
- 06.OCT.2021 Your Brain on Nature: Why Time Spent Outdoors is Good for our Mental Health
- 07.OCT.2021 Create & Schedule EYH Social Media Content
- 07.OCT.2021 Design, develop and print BCRAGD District Brochures
- 07.OCT.2021 Meeting to set up Talk w/ St. Mary's Law School Environmental Law Class
- 12.OCT.2021 Prepare supplies together for Women Expo, slides made, table image
- 12. OCT.2021 Texas Children in Nature Network Virtual Meet-Up
- 13.OCT.2021 Schreiner University Women's Leadership Conference
- 14.OCT.2021 Gather and prepare EYH Materials
- 14.OCT.2021 Meeting: Education Planning & Upcoming Event Coordination
- 16.OCT.2021 Expanding Your Horizons (EYH)
- 22.OCT.2021 Virtual Presentation to St. Mary's Law School Environmental Law Class
- 27.OCT.2021 Best Tips for Gov't on Using New Facebook Pages + Q&A
- 02.NOV.2021 Cibolo Center for Conservation Field Trip
- 09.NOV.2021 Mtg: Education Purchases, District Sam's Club Membership
- 11-12.NOV.2021 Social Marketing Online Training
- 15.NOV.2021 Work on the Design of the FY21 Annual Report
- 15.NOV.2021 Design and Create Holiday Social Media Campaign
- 16.NOV.2021 Canva Create Conference
- 18.NOV.2021 Social Media Content Creation
- 07.DEC.2021 Educational Team Meeting: Upcoming Events
- 08.DEC.2021 Future Education Items Needed for Events & Planning
- 13.DEC.2021 Newsletter Redesign and Development for FY 22
- 16.DEC.2021 Christmas Water Conservation Event
- 03.JAN.2022 Ed. Team Meeting: Winterizing Social Media Campaign Mapping
- 05.JAN.2022 A Policy Scan of Children in Nature
- 06.JAN.2022 Website Updates: BCRAGD Lab Information
- 20.JAN.2022 Riparian Project Meeting
- 27.JAN.2022 Hydro-Geo Workshop ideas meeting
- 01.FEB.2022 Ed. Team Meeting: Upcoming Events in March
- 08.FEB.2022 Phone Conference: Updates & Upcoming Events
- 09.FEB.2022 Ed. Team Meeting: Set up Educational Events
- 09.FEB.2022 Meeting: CEU's Accreditation Set Up
- 09.FEB.2022 Meeting: Education Updates, Paperwork, Administration, CC Signatures
- 15.FEB.2022 Ed. Team Meeting
- 18.FEB.2022 Meeting: TPWL Growing Up Wild Presentation
- 23.FEB.2022 Ed. Team Meeting
- 01.MAR.2022 Ed. Team Meeting: Tom Daniels Science Expo Preparations
- 02.MAR.2022 Ed. Team Meeting: Tom Daniels Science Expo Supply Prep.
- 08.MAR.2022 Meeting: Review HR Catered to Resume Questions for Potential Intern
- 08.MAR.2022 Meeting: Education Items; Future Morale Boosting Activities

Education & Outreach Programs

- 09.MAR.2022 Ed. Team Meeting
- 09.MAR.2022 TCINN Webinar
- 11.MAR.2022 Tom Daniels Science Expo
- 13.MAR.2022 Growing Up Wild Presentation for TPWD Park Ambassador Program
- 16.MAR.2022 HR: Pre-Intern Interview Meeting Review
- 16.MAR.2022 HR: Interview Potential Intern Candidate
- 17.MAR.2022 Field Trip: Crossings near Medina Photos for Social Media
- 01-02.APR.2022 Texas Hydro-Geo Workshop
- 05.APR.2022 Educational Team Meeting: Upcoming projects
- 06.APR.2022 Meeting: Education Items for Purchase; Budget Categories
- 08.APR.2022 Soil & Water Conservation District Environmental Day Workshop
- 12. APR.2022 Work on Newsletter
- 13.APR.2022 Utopia ISD School Visit w/ NRA
- 14.APR.2022 Scheduled social media posts, and prepped materials for library events
- 20.APR.2022 Educational Team Meeting: upcoming social media campaigns
- 20.APR.2022 Learn Later in 30 Minutes Webinar
- 25-26.APR.2022 Alkek Elementary School Vitis w/ NRA
- 05.MAY.2022 Educational Team Meeting: Alkek Pres. & Lab prep, SM analyzing
- 06.MAY.2022 Hill Country Elementary School Visit w/ NRA
- 11-13.MAY.2022 Youth Water Awareness Day Assisted NRA w/ Watershed Presentation
- 17.MAY.2022 Alkek Presentation & Lab Prep
- 17.MAY.2022 Youtube video - conversation
- 18.MAY.2022 Bandera Middle School Visit w/ NRA
- 23-24.MAY.2022 Alkek Water Quality Pres. & Lab
- 26.MAY.2022 Follow up on dates and times for upcoming presentations
- 01.JUN.2022 Create color sheets & activity sheets
- 01.JUN.2022 How to Develop Activities that Students Love and Teachers Use
- 15.JUN.2022 Lakehills Library Meeting for future presentations
- 15.JUN.2022 Preparations for Medina Library Event
- 21.JUN.2022 Medina Library: All water goes to the ocean
- 23.JUN.2022 Research, Film, & Edit Videos for district
- 22.JUN.2022 Rainspotters Outreach Meeting
- 30.JUN.2022 Meeting: educational events, scheduling, upcoming need
- 05.JUL.2022 Bandera Library: It All Goes to the Ocean Pres. & Activity
- 05.JUL.2022 Meeting- Scheduling, Looking Ahead, Budgetary Items
- 12.JUL.2022 Paint magnet boards for Library story time
- 12.JUL.2022 Education Mtg- Scheduling, Upcoming Outreach Projects
- 13.JUL.2022 Cut and Laminate storyboard pieces
- 14.JUL.2022 Finish painting storyboards
- 14.JUL.2022 SAFRPG Outreach Meeting
- 26.JUL.2022 Back to School Bash : Back to school Donation Shopping
- 26.JUL.2022 Library Visit prep
- 27.JUL.2022 Medina Library - Saving Tally Pre-K story time/activity
- 08.AUG.2022 Utopia Community Correspondence
- 15.AUG.2022 Ed. & Outreach Team Meeting: Future projects and outreach
- 19.AUG.2022 Community Meeting - water conservation and Q&A panel

Education & Outreach Programs

- 25.AUG.2022 Meeting: Education Updates, Scheduling, Items Needed
- 25.AUG.2022 Meeting: Future Education Planning; Per Diems; Profit Loss
- 30.AUG.2022 Groundwater Education Collaborative Luncheon
- 07.SEP.2022 Designed water conservation Social Media content
- 07.SEP.2022 Literacy in the Garden: Creating an Engaging Story Walk Workshop
- 09.SEP.2022 Get to Know the Texas Parks and Wildlife Education Programs
- 12.SEP.2022 Meeting: Rainwater Harvesting Content
- 21.SEP.2022 Ed. & Outreach Meeting
- 26-30.SEP.2022 Rainwater Harvesting Social Media Campaign
- BCRAGD staff Shelby Sckittone began work to receive the Texas Master Naturalist certificate. Shelby attended classes on 18.AUG.2022, 25.AUG.2022, 01.SEP.2022, 08.SEP.2022, 15.SEP.2022, 20.SEP.2022, 22.SEP.2022, 29.SEP.2022. This certificate was continued into FY2023 and completed in November 2022.

C. Curd, M. Bales (NRA), & C. Fox at Youth Water Awareness Day

M. Bales showing the litter bags that are handed out at NRA ISD visits.

Master Naturalist Program & Certification

In November 2022, Shelby Sckittone completed her training for the Alamo Area Master Naturalist Program and received certification. Like other chapter requirements, Shelby attended weekly courses on various natural science subjects and attended field trips led by local experts. Her courses covered multiple subjects, such as mammology, hydrology, herpetology, entomology, archeology, landscaping and wild scaping, soil science, ornithology, geology, forestry, and ecology. By being familiar with these topics, Shelby is better equipped to understand the ecological health of Bandera County. This will directly impact residents during consultation and education events and serves BCRAGD's core mission to preserve and protect the county's natural resources.

Education & Outreach Programs

Internship Program

BCRAGD provides opportunities for any undergraduate and graduate students to obtain real life skills working in surface water and groundwater. Interns are exposed to ongoing projects, services provided to the community, and learn about water legislation.

Bandera County River Authority and Groundwater District hired an intern, Paul Schnoebelen, who started on June 7, 2022.

BCRAGD was pleased to have Paul Schnoebelen. Paul is working on his Bachelor's Degree studies at Texas Tech University, in Computer Engineering. The internship program is an introduction to the world of water that allows hands-on experience in conducting surface water monitoring, groundwater monitoring, and providing education to the community.

Education & Outreach Programs

Invasive Species /Healthy Riparian Education Programs

In addition to working in the field to manage invasive species, BCRAGD provided many different educational programs and presentations to spread awareness:

- 30.NOV.2021 TCAFS Pond Management Committee Meeting
- 09.DEC.2021 Hill Country Watershed Stewardship Gathering
- 05.JAN.2022 Journal Club Meeting: Surface Water & Groundwater - Together Again
- 20.JAN.2022 Riparian Project Meeting
- 27.JAN.2022 FWCO: Freshwater Mussel Conservation Webinar
- 24.FEB.2022 Texas Chapter - American Fisheries Society Manual Revision Check-In
- 08.MAR.2022 Mtg: Ponds near Hill Country State Natural Area
- 07.APR.2022 Riparian Site Visit
- 11.APR.2022 Medina Lake Investigation
- 13.APR.2022 Healthy Creeks Initiative
- 20.APR.2022 Los Lomas Ranch Site Visit - Pond Management
- 04.MAY.2022 Riparian & Watershed Protection Planning @ UGRA
- 05.MAY.2022 Texas Riparian Workshop
- 02.AUG.2022 Pond Management Committee Check-in and Progress Update
- 11.AUG.2022 Discuss Capstone Riparian Project Idea
- BCRAGD staff Shelby Sckittone began work to receive the Texas Master Naturalist certificate. Shelby attended classes on 18.AUG.2022, 25.AUG.2022, 01.SEP.2022, 08.SEP.2022, 15.SEP.2022, 20.SEP.2022, 22.SEP.2022, 29.SEP.2022. This certificate was continued into FY 2023 and completed in November 2022.
- BCRAGD District staff conducted a check on the Zebra Mussel Sampler on 13.JAN.2022, 23.FEB.2022, 29.APR.2022, 06.MAY.2022, 22.MAY.2022, 10.JUN.2022
- BCRAGD District staff conducted Arundo Surveys on 13.OCT.2021, 14.OCT.2021, 15.OCT.2021, 21.JUL.2022, 25.AUG.2022, 06.SEP.2022, 07.SEP.2022, 08.SEP.2022, 21.SEP.2022, 27.SEP.2022

If you identify any invasive species on your property, such as Arundo donax or Zebra Mussels, take a picture of it, record the location, and call BCRAGD at (830) 796-7260.

C. Carter & L. Sparks Hiking to conduct an Arundo Survey.

Zebra Mussels found by BCRAGD at Medina Lake.

Education & Outreach Programs

Water Conservation Programs & Natural Resource Stewardship

The District prioritizes the conservation of Bandera County's surface and groundwater, as well as the stewardship of natural resources as a whole. This priority is reflected in the execution of District programs and initiatives and being an integral part of the District's overall Education and Community Outreach Program.

Annually, BCRAGD hosts a Water Conservation Christmas Event. Typically, information is shared regarding the District's ongoing projects and shared tips for Water Conservation. This event is part of the District's goal to improve intergovernmental relations and work collaboratively with other county and city agencies to provide services to the community better, as well as to provide Water Conservation information to the public. This event was hosted on December 16, 2021.

The District continues to partner with local entities to educate the community on natural resource stewardship. Bandera's Texas A&M AgriLife Extension Service (AgriLife) and Texas Parks and Wildlife and Hill Country Alliance (HCA) have been essential partners in various community outreach efforts.

Annual Medina River Cleanup

The Medina River Cleanup is an annual event that is held the first Saturday in May and supports a healthy ecosystem through the organization of volunteers to remove trash and debris from the Medina River. BCRAGD supports and participates annually through donation and advertising in local papers, radio ads, District social media, the District's website, and at the District's office.

For FY2022, what would have been the 22nd annual Medina River Clean Up, unfortunately, was canceled due to the COVID-19 Pandemic. Typically, our District staff volunteers, along with BCRAGD Directors. The last Clean Up was held in FY 2019- there were about 250 participants from 35 cities and towns in Texas who attended, and two large dumpsters were filled with debris removed from the river, one of which was full of metal that was recycled. For FY2019, The cleanup removed approximately 7,000 pounds of recyclable metal including an entire automobile. A second dumpster was filled with trash that could not be recycled.

Prior to the COVID-19 Pandemic, The Medina River Cleanup recycling effort produced dividends for the Medina River Protection Fund, which hosts the clean-up each year. For FY2019, Kerrville Recycling loaned the dumpsters. While FY2022's Medina River Cleanup Event was canceled due to the COVID-19 Pandemic, we are hopeful that it will resume in FY2023. For more information or if you would like to become a volunteer please visit http://www.medinariver.net/.

Education & Outreach Programs

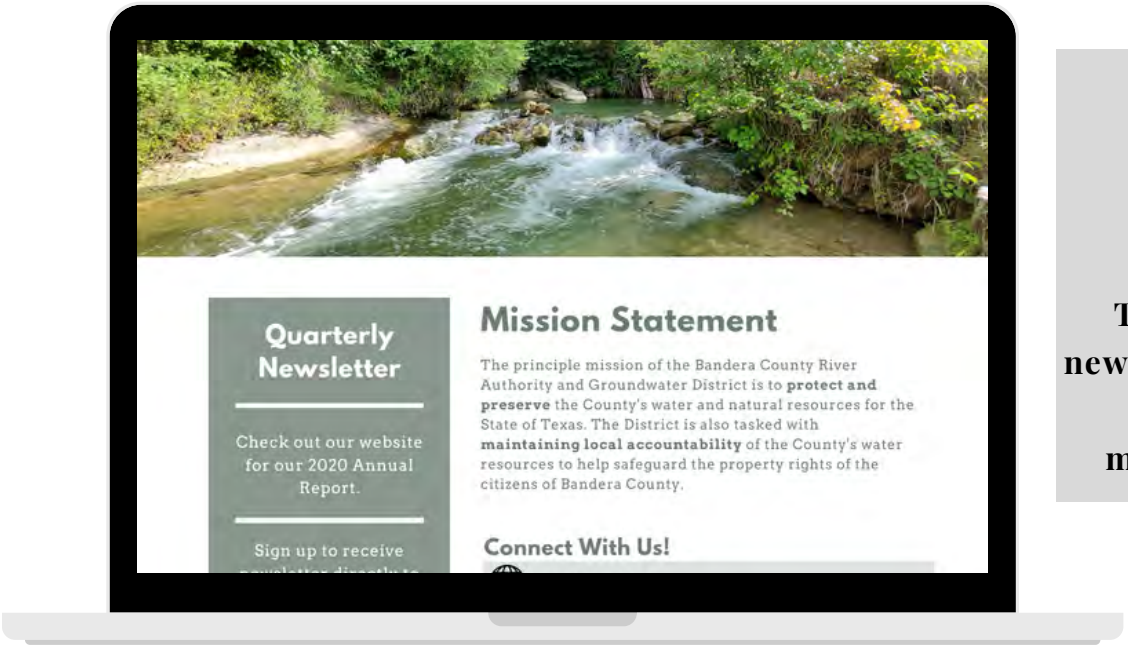
District Highlights

BCRAGD hosted a Region 12 Flood Planning Group Public Forum & Stakeholder Forum
On December 9, 2021, BCRAGD hosted the Region 12 Flood Planning Group Public Meeting to bring stakeholders and the public to discuss Flood Planning needs and issues, along with potential solutions.

Education & Outreach Programs

Social Media Highlights

For FY2022, the BCRAGD Education Team has been working diligently on public outreach. One of the most effective means of public outreach is through social media. Through Facebook, Instagram, Twitter, Pinterest, Linked In, and YouTube. The team has the ability to provide vital information to targeted audiences and provide public awareness to changing weather patterns and ongoing projects of the District that will directly benefit the community. As a political subdivision of the state, the District has an obligation of transparency to the public, which is met through social media and provides additional open lines of communication between the District and the general public. Social Media outlets allow the District to share and promote resources from collaborating agencies such as National Weather Service, the Texas Ag-Extension office, Texas Floodplain Managers Association, Texas Water Development Board, Texas Runs on Water, and many others.



To sign up for the newsletters scan the QR code or email media@bcragd.org

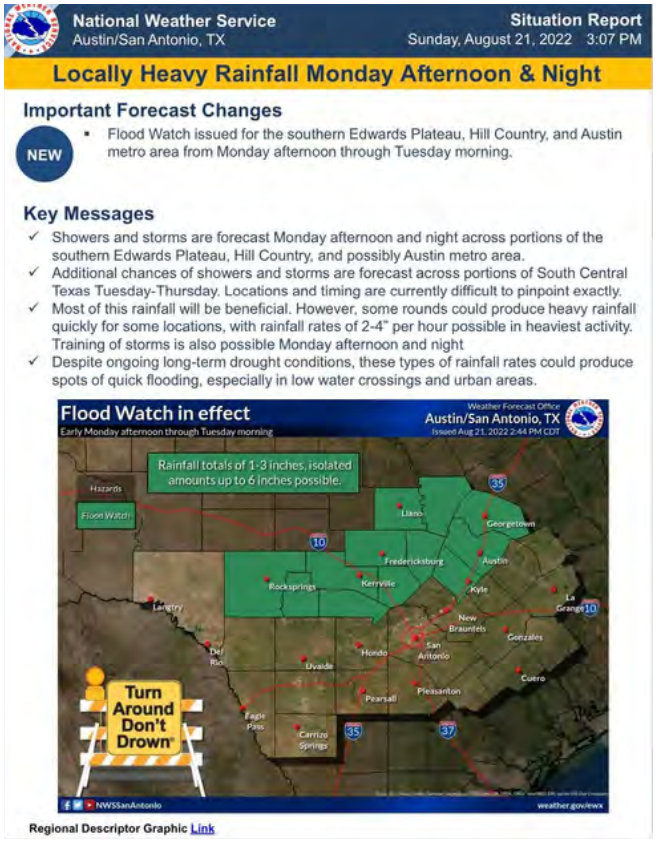
Digital Newsletter

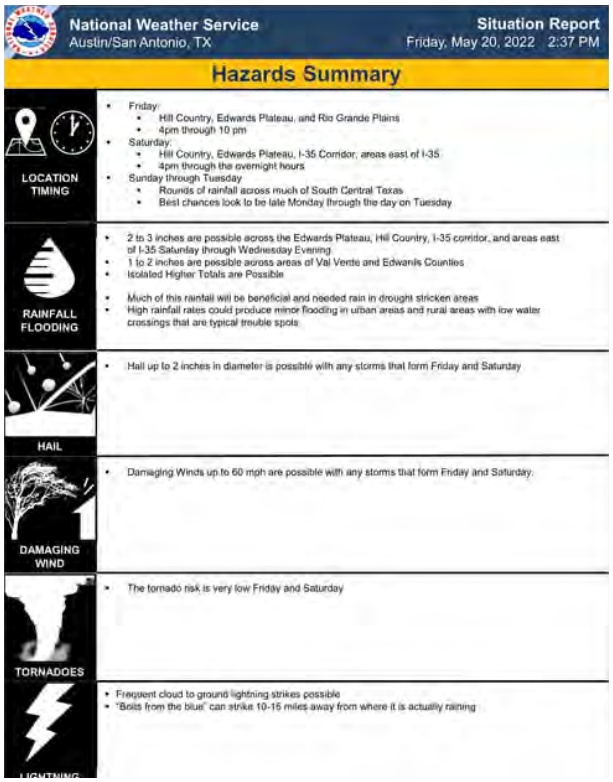
BCRAGD revived the use of a digital newsletter. The digital newsletter is a quarterly publication that contains information regarding district policies, projects, and other service information that is pertinent for the Bandera County community. This platform provides a direct connection of the District to the public.

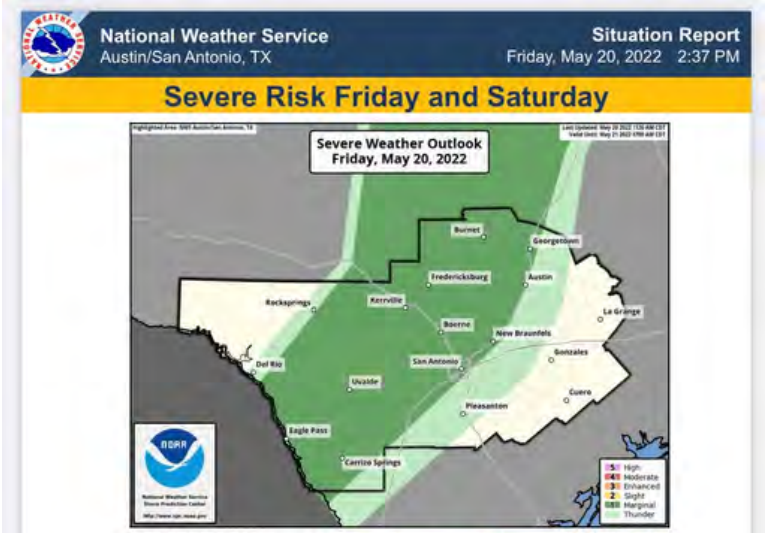
Education & Outreach Programs

Social Media Outlets are Used to Share important information about Drought and Weather Conditions.

The Education and Outreach Team has diligently shared information from the Texas Water Development Board and US Drought Monitor about the Drought stages in Texas. Also, BCRAGD has shared information about severe weather conditions from the National Weather Service. This information is pertinent to the residents in the county to ensure public safety.



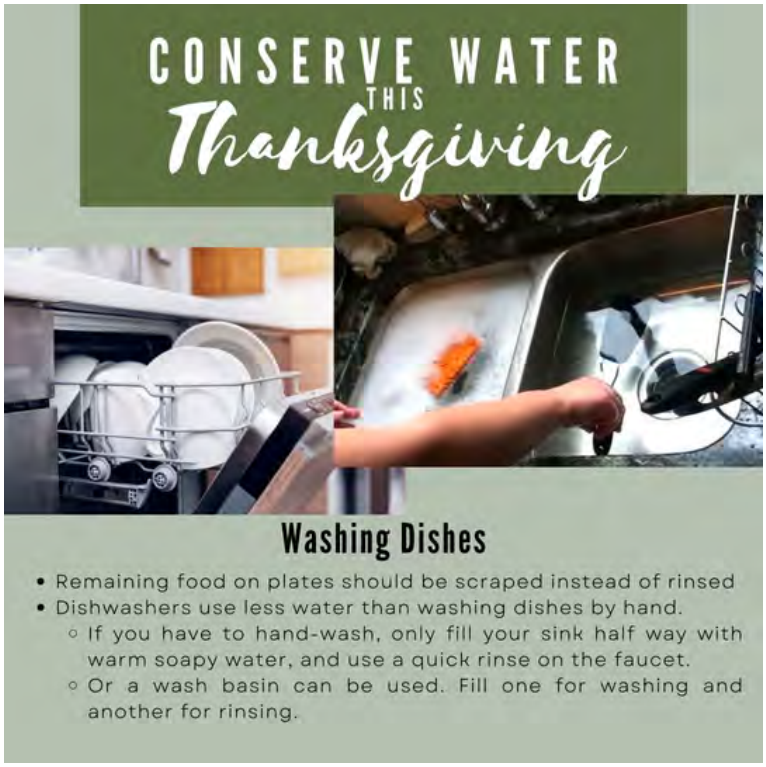




Education & Outreach Programs

The Outreach Team created a campaign around water usage and tips for saving water, focusing on ways to do so during the holidays.

During the first quarter, in addition to holiday conservation tips, the team promoted future events, including the Expanding your Horizons event hosted by Schreiner University, and the San Antonio Regional Flood Planning Group for a public meeting.



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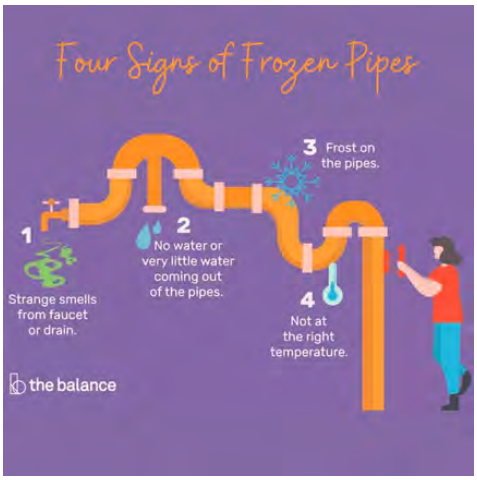
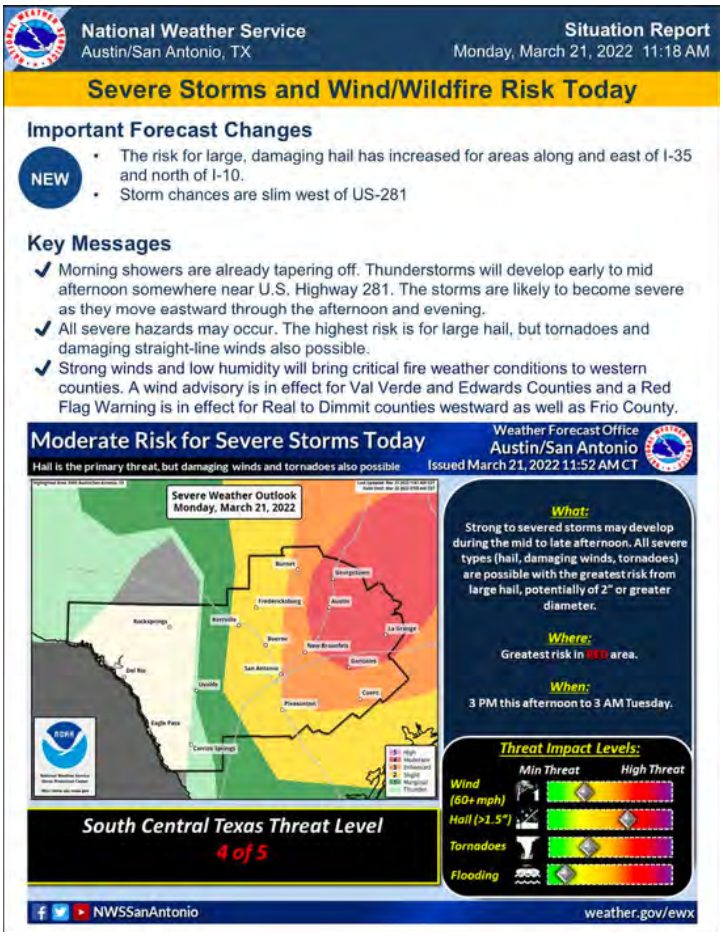
In the second quarter, the Outreach team focused on sending weather notices from the National Weather Service to inform the public about the current climate. In addition, the District launched a winterizing campaign on the best practices to save water during winter and how to winterize your pipes in the winter months.





Education & Outreach Programs

In the third quarter, the Outreach Team focused on Flood Preparedness and Awareness and on promoting the content of the Texas Floodplain Managers Association for Flood Awareness week. In addition, the Team concentrated on water conservation and preservation by giving ideas and ways over how small changes can make a difference. Being in the summer months, the team has also been promoting the In-house sampling results and recreational safety in regards to the importance of practicing water safety while in and around any body of water.

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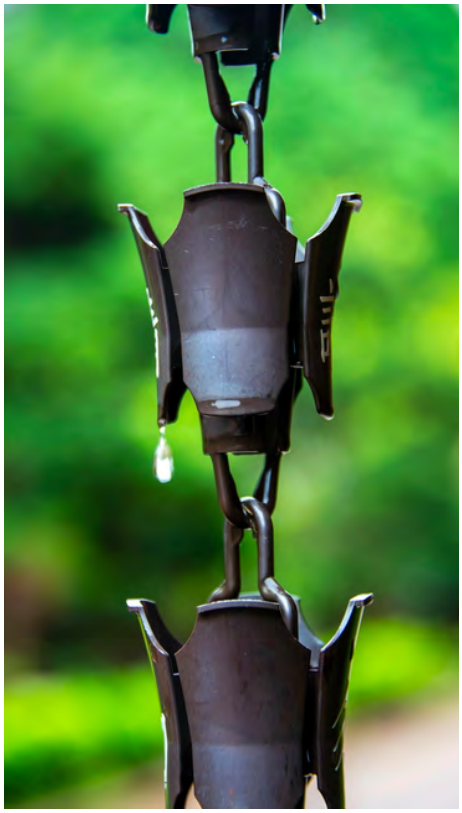
In the fourth quarter, the Outreach team focused on water preservation and conservation ideas on social platforms with infographics, short videos, and visual representations. The District ran a week-long Rainwater Harvesting Campaign to promote alternative water sources.



Resource Planning & Collaboration

Texas Sunset Commission

The Bandera County River Authority and Groundwater District (BCRAGD) underwent a thorough review from the Texas Sunset Commission Staff. Beginning in June 2021 and finishing in September 2021, the BCRAGD Staff compiled a Self Evaluation Report that is available online. *(https://www.sunset.texas.gov/public/uploads/files/reports/BCRAGD%20SER_9-07-21.pdf).*

This was a team effort from the entire staff, spearheaded by Hayli Hernandez, Intergovernmental Affairs Manager, and Dave Mauk, General Manager. The Sunset Commission Staff began their formal review of BCRAGD in June 2022 and completed their review on November 3, 2022, with an exit conference call with District Attorney Greg Ellis, Hayli Hernandez, and Dave Mauk. The Sunset Commission found that Springhills Water Management District (1989) absorbed all of the powers and authorities of Bandera County River Authority (1971) in it's enabling legislation, however, it did not dissolve Bandera County River Authority, thus leaving two separate entities (BCRA being inactive). Additionally, the Sunset Commission Staff found they did not possess the authority to review BCRAGD as the legislation authorizing the Sunset Commission's review of River Authorities cites the enabling legislation for Bandera County River Authority, an inactive entity. Thus, the Sunset Commission's report, published on November 17, 2022, recommended that The Bandera County River Authority and Groundwater District be removed from the Sunset Review. The Texas Sunset Legislative Commission accepted and adopted this recommendation on January 12, 2023. The final report published January 2023 with the Commission decisions is available online. *(https://www.sunset.texas.gov/public/uploads/2023-01/LNRA_UGRA_SJRA_BCRAGD%20Staff%20Report%20with%20Commission%20Decisions_1-19-23.pdf).*

L. Thomas, C. Carter, L. Sparks, and H. Hernandez conducting a field trip on District Activities with Texas Sunset Commission Staff.

Resource Planning & Collaboration

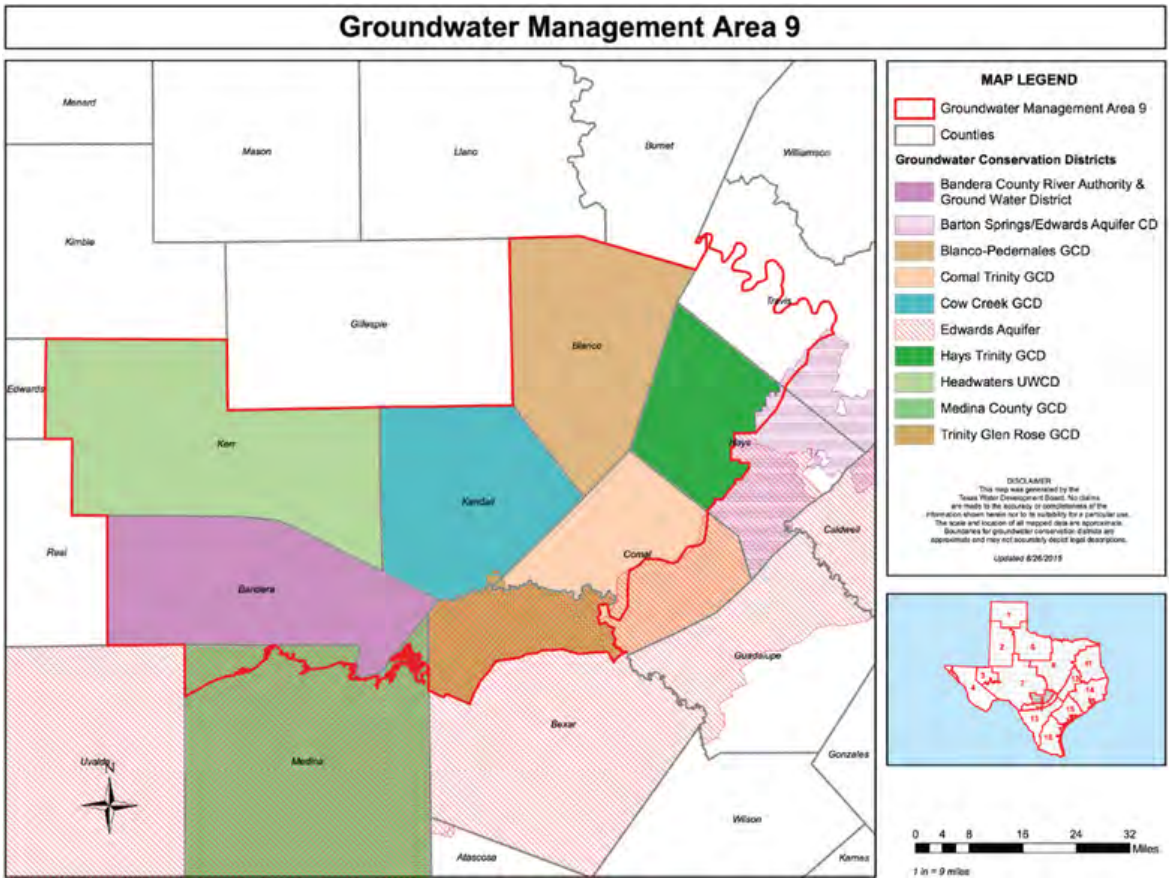
Groundwater Management Area 9 (GMA-9) Representative

Groundwater Management Areas were created "in order to provide for the conservation, preservation, protection, recharging, and prevention of waste of the groundwater, and of groundwater reservoirs or their subdivisions, and to control subsidence caused by the withdrawal of water from those groundwater reservoirs or their subdivisions, consistent with the objectives of Section 59, Article XVI, Texas Constitution, "groundwater management areas may be created." (Texas Water Code § 35.001).

BCRAGD has been a member of GMA-9, a regional water management group, since 2005. More information on the group, including data and reports, can be found at https://www.twdb.texas.gov/groundwater/management_areas/gma9.asp

Our District's involvement is summarized below:

- BCRAGD's General Manager, Intergovernmental Affairs Manager, and Assistant General Manager attended and represented the District at the GMA-9 Joint Planning Meetings and Technical Meetings on 15.NOV.2021, 21.JUN.2022, 11.AUG.2022, and 15.AUG.2022.
- BCRAGD's General Manager, Intergovernmental Affairs Manager, and Assistant General Manager attended a DFC Working Group call on 16.AUG.2022.
- BCRAGD's General Manager, Finance Manager, Intergovernmental Affairs Manager and Bookkeeper met to discuss GMA-9 Billing and Invoicing on 11.JAN.2022, 17.JAN.2022, 23.FEB.2022, 07.MAR.2022, 04.APR.2022.



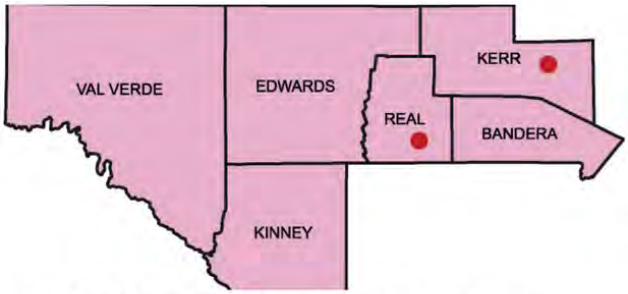
Resource Planning & Collaboration

Texas Water Development Board (TWDB)
Created in 1957, the mission of the Texas Water Development Board (TWDB) is to lead the state's efforts in ensuring a secure water future for Texas and its citizens. Their mission is a vital part of Texas' overall vision and the state's mission and goals that relate to maintaining the viability of the state's natural resources, health, and economic development. https://www.twdb.texas.gov/about/index.asp#twdb-history

Our District's involvement is summarized below:

- BCRAGD's Staff attended TWDB Board Meetings on 07.OCT.2021.
- On 19.OCT.2021 BCRAGD's staff attended the Mining Water Use Study Progress Meeting.
- On 25.AUG.2022, the staff attended an additional Mining Water Use Study hosted by TWDB and BEG.
- BCRAGD's General Manager and Field Operations Staff attended the Stakeholder Advisory Forum on 25.FEB.2022
- BCRAGD supplied groundwater data to TWDB for the determination of aquifer conditions.
- BCRAGD Finance Manager worked on invoices and payment inquiries on 04.NOV.2021, 04.MAY.2022, 09.AUG.2022.
- BCRAGD's Flood Science Manager completed Quarterly Reports for the FEWS project throughout the Fiscal year.
- BCRAGD's Flood Science Manager sent the final draft of the FEWS report on 27.JUN.2022.
- BCRAGD's General manager attended the TWDB / TIFF Subsidence Workshop on 07.SEP.2022.
- TWDB approved the District's Management Plan on 22.JAN.2023.

Region J- Plateau Regional Water Planning Group



Map of Region J - Plateau Regional Water Planning Group.

BCRAGD is a representative Groundwater Conservation District on the Region J Plateau Regional Planning Group and represents Bandera County in the design of viable water management strategies in the region. BCRAGD attends planning group meetings and proactively participates with Region J's consultants in the creation of the Region J Water Plan. The Region J Meetings that were attended by BCRAGD staff were on: 17.MAR.2022, 05.MAY.2022, 15.SEP.2022.

Texas Alliance of Groundwater Districts (TAGD) Member
Founded in 1988, the Texas Alliance of Groundwater Districts (TAGD) "works to promote and support the sound management of groundwater based on local conditions and good science. TAGD provides educational and technical assistance to member districts and the public, serves as a resource on groundwater issues with state officials, assists members in keeping current with state law, and is a central point of contact for information on groundwater issues and practices." (excerpt from TAGD's website: https://texasgroundwater.org/what-we-do/.

Resource Planning & Collaboration

District General Manager, Dave Mauk, serves as the legislative committee's district liaison and voting member.

During FY 2022, BCRAGD remained an active member:

- BCRAGD's Assistant General Manager attended the TAGD Legislative Committee conference calls on 10.AUG.2022
- BCRAGD's General Manager, Assistant General Manager, Intergovernmental Affairs Manager, and Education & Outreach Manager attended the TAGD Conference that was held on August 30th & 31st, 2022

GSA BBASC Environmental Flows

BCRAGD is a member of the Guadalupe, San Antonio, Mission, and Aransas Rivers and Mission, Copano, Aransas, and San Antonio Bays Basin and Bay Stakeholder Committee (GSA BBASC). It was "created by the 80th Texas Legislature in recognition of the importance that the ecological soundness of our riverine, bay, and estuary systems and riparian lands have on the economy, health, and well-being of our state." The above excerpt and more information can be found at the following website:

There are about 99 Groundwater Conservation Districts in the State of Texas, and a good majority belong to the Texas Alliance of Groundwater Districts.

GSA BBASC website informaiton - https://www.tceq.texas.gov/permitting/water_rights/wr_technicalresources/eflows/guadalupesanantonio-bbasc-bbest

District General Manager, Dave Mauk, serves as a BBASC Member, representing the Regional Water Planning Groups Interest Group.

TWCA
TEXAS WATER CONSERVATION ASSOCIATION

Texas Water Conservation Association (TWCA)

Texas Water Conservation Association (TWCA) is a 501(c)(4) association of water professionals and organizations in the State of Texas. TWCA's membership is made up of diverse entities and individuals, all connected to the surface water and groundwater industries in some way. https:// www.twca.org/about

Our District's involvement is summarized below:

- BCRAGD's General Manager attended the TWCA Managers Meeting on 20.JAN.2022, 21.JAN.2022.
- BCRAGD's General Manager attended the TWCA Mid-Year Conference on June 15th - 17th, 2022.
- BCRAGD's General Manager attended the TWCA Regional Districts & Authorities Meeting on 28.APR.2022 & 22.SEP.2022.
- BCRAGD's prior Groundwater Science Manager attended the TWCA's Conference on October 20th - 22nd, 2021.

Resource Planning & Collaboration

Texas Water Foundation (TWF) is working to lead Texas into a sustainable water future by investing in the next generation of water leaders, equipping decision-makers, and inviting every Texan to recognize that Texas Runs on Water. https://www.texaswater.org/.

Texas Water Foundation has a Texas Water Leaders Program within their Carole Baker Water Leadership Institute. This annual leadership program provides water professionals stepping into leadership positions with the tools, training, and opportunities to expand their potential. The Texas Water Leadership Certification offers emerging leaders the opportunity to grow their leadership skills and become a part of an exclusive network of professionals stepping into leadership positions across a diverse water sector.

Bandera County River Authority and Groundwater District provides funds for a scholarship benefiting minority Water Leaders.

Our District's involvement is summarized below:

- 11.NOV.2021 TWF Cohort Call
- 11.OCT.2021 TWF Mentor Call
- 07.DEC.2022 Texas Water Foundation

San Antonio Regional Flood Planning Group: Region 12

San Antonio Regional Flood Planning Group (SARFPG), Region 12 aims to provide comprehensive regional flood planning and is to carry the related responsibilities placed on regional flood planning groups by state law. The plan identifies short and long-term flooding issues and recommends flood management strategies for addressing them. Region 12 consists of the following parts of counties in Aransas, Atascosa, Bandera, Bexar, Caldwell, Calhoun, Comal, DeWitt, Goliad, Guadalupe, Karnes, Kendall, Kerr, Medina, Refugio, Victoria, and Wilson Counties.

The District's General Manager, Dave Mauk, applied on October 20, 2020, to sit as the representative for Bandera County on the Region 12 Flood Regional Planning Group.

Resource Planning & Collaboration

Our District's involvement is summarized below:

- BCRAGD General Manager or Intergovernmental Affairs Manager attended General Meetings on 26.OCT.2021, 03.NOV.2021, 16.NOV.2021, 16.DEC.2021, 04.JAN.2022, 03.MAR.2022, 07.APR.2022, 16.MAY.2022, 26.MAY.2022, 27.JUN.2022, 25.JUL.2022, 15.SEP.2022
- BCRAGD General Manager attended Outreach Committee Meetings on 13.OCT.2021, 14.JAN.2022, 25.MAR.2022, 22.APR.2022, 19.MAY.2022, 22.JUN.2022, 14.JUL.2022, 17.AUG.2022, 23.AUG.2022
- BCRAGD General Manager attended Technical Committee Meetings on 04.NOV.2021
- On 09.DEC.2021 BCRAGD hosted the Region 12 Flood Planning Group Public Forum
- 14.DEC.2021 Region 12 - General Flooding Comments

Nueces Regional Flood Planning Group: Region 13

This Flood Planning acts similarly to the Region 12 Flood Planning Group. The groups propose to provide comprehensive regional flood planning and are to carry the related responsibilities placed on regional flood planning groups by state law. Region 13 represents parts or all of the following counties Aransas, Atascosa, Bandera, Bee, Bexar, Brooks, Calhoun, Dimmit, Duval, Edwards, Frio, Goliad, Jim Hogg, Jim Wells Karnes, Kenedy, Kerr, Kinney, Kleberg, La Salle, Live Oak, Maverick, McMullen, Medina, Nueces, Real, Refugio, San Patricio, Uvalde, Webb, Wilson, & Zavala.

The District's Flood Science Manager, Larry Thomas, CFM, was nominated and approved as the representative of Bandera County for the Region 13 Flood Districts on Nueces Regional Flood Planning Group on April 26, 2021.

Our District's involvement is summarized below:

- BCRAGD Flood Science Manager or Assistant General Manager attended meetings on 06.DEC.2021, 31.JAN.2022, 28.MAR.2022, 16.MAY.2022, 30.May.2022, 27.JUN.2022, 18.JUL.2022, 26.SEP.2022
- On 28.APR.2022, Flood Science Manager or Assistant General Manager Reviewed Nueces Region 13 Draft Administrative, Regulatory, and Legislative Recommendations.
- On 03.MAY.2022, Flood Science Manager or Assistant General Manager attended a Subcommittee Meeting.

Resource Planning & Collaboration

Other noteworthy Administrative Events, Training, & BCRAGD Highlights for FY2022 Include:

- 04.OCT.2021 GSA Short Course - Forensic Geochemistry
- 06.OCT.2021 Your Brain on Nature: Why Time Spent Outdoors is Good for our Mental Health
- 13.OCT.2021 South Texas Geological Society Luncheon
- 15.OCT.2021 Oenology Field Trip
- 22.OCT.2021 Wildfire and Water: General Trends, Lessons Learned, & Future Directions
- 25.OCT.2021 RMO: Review TSLAC Article- RMO Appraising Record Guide
- 09.NOV.2021 Staff Meeting: FY2022 Employee Manual; Ethics Pledge; IRA Packets; PIR/OMA
- 11-12.NOV.2021 Social Marketing Online Training
- 16.NOV.2021 Meeting: FMLA
- 17-18.NOV.2021 TSLAC E-Records Conference
- 18.NOV.2021 Esri Fall Water User Group Meeting
- 23.NOV.2021 Ximenes & Associates, Inc. Meeting for Dec. 9th Public Meeting
- 29.NOV.2021 Ximenes & Associates, Inc. Meeting Prep
- 02.DEC.2021 GDNC for Und. and Min. Arsenic Mob. in Aquifer Stge. & Rec, Projects
- 16.DEC.2021 Christmas Water Conservation Event
- JAN.2022 Sunset preparations
- 05.JAN.2022 Journal Club Meeting: "Surface Water & Groundwater - Together Again?"
- 18.JAN.2022 LCRA Grant Opportunity Meeting
- 26.JAN.2022 Society of Exploration Geophysicists Webinar
- 27.JAN.2022 Intera Webinar
- FEB.2022 Sunset preparations
- 02.FEB.2022 Annual Ethics and Data Integrity Training
- 03.FEB.2022 Regional Environmental Task Force
- 09.FEB.2022 Annual Ethics and Data Integrity Training
- 09.FEB.2022 Elections Webinar
- 15.FEB.2022 Elections Webinar
- 15.MAR.2022 Records Management for Local Government Training
- 22.MAR.2022 Training on Quickbooks: How to Write Checks
- 29.MAR.2022 Pryor Online Training- "Making Meetings Work"
- 05.APR.2022 USDA STAC Meeting
- 08.APR.2022 TWL Cohort Mtg
- 20.APR.2022 Learn Later in 30 Minutes Webinar
- 20.APR.2022 CBSL Watershed Conservation Committee
- 25-28.APR.2022 TELA Conference @ The Mayan
- 21.APR.2022 CBSL Core Team Meeting
- 04.MAY.2022 Gentrification and Equity in Texas
- 04.MAY.2022 Meeting: CyberSecurity TAGD Training for Staff 2022
- 05.MAY.2022 Texas Riparian Workshop
- 11.MAY.2022 GoTo - LIMS: The Solution to Death by 1,000 Spreadsheets
- 18.MAY.2022 Public Funds Investment Act Training
- 18.MAY.2022 CBSL Watershed Conservation Committee
- 19.MAY.2022 CBSL Core Team Meeting
- 26.MAY.2022 Pryor Training; QuickBooks
- 01.JUN.2022 Pryor Training; Excel
- 08.JUN.2022 Pryor Training; PowerPoint
- 29.JUN.2022 Pryor Training; Google Docs
- 01.JUN.2022 How to Develop Activities that Students Love and Teachers Use

Resource Planning & Collaboration

- 08.JUN.2022 Hill Country Land Team - Online Meeting
- 23.JUN.2022 CBSL Core Team Meeting
- 28.JUN.2022 CyberSecurity Staff Certs Location
- 29.JUN.2022 Regional Financial Assistance Workshop
- 28.JUL.2022 Internship Field Presentation & Farewell
- 26.JUL.2022 Human Resources Pryor Training
- 02.AUG.2022 QuickBooks Pryor Training
- BCRAGD Human Resources Manager conducted Communications, Meetings, Employee Timesheets, Wellness Logs, and completed other HR administrative & employee-related tasks through out the Fiscal Year.
- BCRAGD Staff prepared documents, had meetings, and designed the Annual Report for FY 2021 from December 2021 through April of 2022.
- Prepared documents for the Annual Finance Audit 13.OCT.2021, 15.NOV.2021, 16.NOV.2021, 13.DEC.2021, 14.DEC.2021, 15.DEC.2021, 20.DEC.2021, 27.DEC.2021 04.JAN.2022 "Unmodified" (highest possible) in Quarterly Meeting.
- BCRAGD worked on the Sunset Commission Audit of the District throughout the entire Fiscal Year of 2022.
- BCRAGD conducted staff meetings to update all staff on upcoming projects, tasks, protocols, and procedures on the following dates: 19.OCT.2021, 09.NOV.2021, 16.NOV.2021, 30.NOV.2021, 16.DEC.2021, 10.JAN.2022, 10.FEB.2022, 01.MAR.2022, 07.APR.2022, 01.MAY.2022, & 20.MAY.2022.
- BCRAGD attended South Texas Geological Society Luncheons on 13.OCT.2021, 10.NOV.2021, 12.JAN.2022, 09.FEB.2022, 09.MAR.2022, 13.APR.2022, and on 14.SEP.2022.

North Prong Medina River at Brewington

North Prong Medina River at Brewington

Bandera County River Authority & Groundwater District
Protecting & Preserving our Natural Resources

Articles, Publications & Press Releases

Newspaper Articles

Date	Article Title- Bandera Bulletin
29.DEC.2021	E. coli Levels Safe Throughout County
027.APR.2022	Drought Spurs River Cleanup Cancellation
01.JUN.2022	Park Closes Due to Safety Concerns
30.JUN.2022	BCRAGD Reaches Joint Settlement with BMA
30.JUN.2022	City Enacts Emergency Water Shortage Conditions
19.JUL.2022	Extensive Public Comments at BCRAGD Meeting
31.AUG.2022	Court Flooded with Public Comment about Water Concerns
31.AUG.2022	Court Denies plat for Tarpley Subdivisions

Date	Article Title- Bandera Prophet
19.JUL.2022	Groundwater District Approves Minimum lot size for Domestic Wells.
02.AUG.2022	County Commissioners discuss increasing average requirements for domestic Wells.
29.AUG.2022	County Commissioners Doule lot size for requirements for exempt wells, deny final plat approved for pending subdivisions.

Date	Article Title- San Antonio News Express
25.JUL.2022	Catch and release: How the Bandera River Authority is saving fish from the drought

Featured Newspaper Articles

October 1, 2021 - September 30, 2022

December 29 2021

E.coli levels safe throughout county

By Daniel Tucker
Editor@banderabulletin.com

Quarterly surface water sampling results released by the Bandera County River Authority and Groundwater District (BCRAGD) earlier this month did not pass the threshold of 399 most probable number (MPN) set by the Texas Commission on Environmental Quality (TCEQ).

BCRAGD collected samples from water sites along the Medina River, Medina Lake, Sabinal river and their tributaries, with the highest count coming from Sabinal River at Cornelius Road at 326 MPN.

Bandera Creek at Hwy 16 S returned a count of 260 MPN, and English Crossing showed levels of 248 MPN.

The remaining test sites all returned levels of under 200 MPN, and most of the counts were under 100 MPN.

Bandera River Ranch and Privilege Creek at Hwy 16 S were too dry to test.

A complete list of results is available at www.bcragd.org.

April 27, 2022

Drought spurs river cleanup cancellation

By Daniel Tucker
editor@banderabulletin.com

The Medina River Cleanup, usually scheduled for the first Saturday in May and targeting 50 miles of the river, has been cancelled this year due to lack of water in many sections of the river, according to Cleanup Coordinator Bob Brischetto.

"This year there is not sufficient water in many sections of the river to allow paddlers to clean the river," said Brischetto.

This will be the third year in a row the event has been cancelled, with 2020 and 2021's cancellations caused by COVID-19.

The Bandera County River Authority and Groundwater District (BCRAGD) currently lists Bandera County's drought status as extreme.

Drought restrictions, available in full at bcragd.org, are currently in place for permit holders, well owners, public water suppliers and anyone unitizing water from a public water supply system in the county.

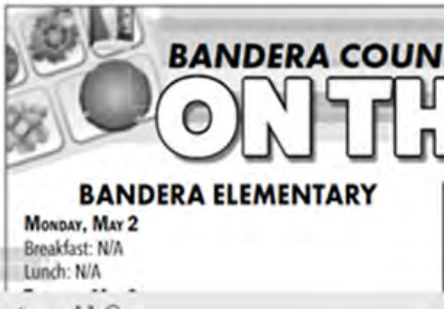
Restrictions as of April 12 include watering one day a week before 8 a.m. or after 8 p.m., refraining from non-essential uses of water and more.

Courtesy Photo

Drought has impacted the Medina River, including this pictured area at Bridlegate Park just below Privilege Creek.

The aforementioned restrictions were inspired by current groundwater levels and rainfall deficit and are available in full on BCRAGD's website.

As of April 19, 96.13 of Texas was categorized by the U.S. Drought Monitor as being in some stage of drought. Bandera County was marked as extreme, the second highest category. The highest category, exceptional, is attached to just under 16 percent of the state.



June 01, 2022

Park closes due to safety concerns

By Daniel Tucker
editor@banderabulletin.com

Last Friday Bandera County Judge Evans closed the Medina Lake Park due to drought conditions and low water levels.

A Facebook post from the Bandera County Sheriff's Department said the decision is temporary.

"As soon as a reopening date is determined, it will be announced via subsequent post," read the post. "We appreciate the public's understanding and look forward to serving all of our guests when we reopen."

The Bandera County Commissioner's Court reinstated a county-wide burn ban on May 12 for 90 days, and although the area saw some rain this month, officials with the Bandera County River Authority and Groundwater District say it was not enough to change the drought status, which currently sits at extreme.

June 30, 2022

BCRAGD reaches joint settlement with BMA

By Daniel Tucker
editor@banderabulletin.com

A joint press released announced the governing boards of the Bandera County River Authority and Groundwater District (BCRAGD) and the Bexar-Medina-Atascosa Counties Water control and Improvement District (BMA) each approved an agreement settling and resolving litigation pending between the two since 2013.

"CRAGD and BMA have reached an understanding and agreement that is in the best interests of both our political subdivisions and our citizens, taxpayers, and customers and that terminates the litigation and disputes between the two entities," said a statement released in the press release and attributed to the presidents and governing bodies of both entities.

The release said the decision was reached during special board meetings on June 9 and 20.

The litigation between the two dates back to 2013, when BCRAGD filed a declaratory action suit against BMA arguing certain actions done by BMA in Bandera County had exceeded their authority and encroached upon BCRADS's.

The lawsuit was set for trial next month, but during a court-mandated mediation, representatives of the two entities reached a settlement later approached by each entity's governing body.

July 19, 2022

Extensive public comments at BCRAGD meeting

By Tracy Thayer
For the Bulletin

The Board of the Bandera County River Authority and Groundwater District (BCRAGD) met last Thursday, July 14, with a full house of community members in attendance.

All directors were present except for Rebeca Gibson.

To start out the meeting, President Don Sloan announced public comments would lead off the meeting.

The first person to speak was Pipe Creek resident Patti Smith, who represented the Diamond J South.

She praised the county and asked the board to "figure out some rules to save our water; they have been needed for a long time."

Smith said she firmly supported the 10-acre minimum lot size and stiff penalties for residents who have lots of five acres or less if they use over their limits. She also said she supports lots sizes of at least 400 feet across with a distance of at least 400 feet between wells.

The next speaker was Margo Denke, who represented the Tarpley area.

She said that she represented the Friends of Hondo Canyon. She remarked that she was supporting the rule change for domestic livestock wells.

Michelle Reich, representing the business owners and community around Medina Lake, spoke about reaching the agreement with the Bexar-Medina-Atascosa Counties Water Control and Improvement District No. 1 on the suit filed in 2013. She asked for the continuing problems be addressed by the TCEQ or by legislation.

"As a result of their operations, BMA has now accomplished draining Medina Lake twice in the last decade, eliminating its recharge benefit to the aquifer," stated Reichle. She noted that Medina Lake was now at only 12.2% capacity and that numerous homeowners' wells were going dry.

Reichle took issue with the representation in the BMA which does not include stakeholders from the Medina Lake area. She also noted that SAWS subsidizes 80% of the BMA's income and was also not granted representation on the BMA Board and has not purchased water from them since 2013.

She also stated that BMA wastes over 75% of the water they release from Medina Lake by sending it down 312 miles of mostly dirt ditch canals where most of the water evaporates or seeps into the ground downstream. Only 10-15% of the property owners along the canal system purchase water from the BMA. She said that it takes four acres of water to deliver one acre of water to the farmers downstream. She exhorted the Board to help with the problem by providing a better way to provide farmers with water in a less wasteful manner.

Community leader and businessman Johnny Boyle spoke about raising the minimum lot size and asked about any studies that would determine if 10 acres or more would create more sustainability. He explained that he was not against growth but said that the County should think in the long term when making these decisions.

A letter from Gordon and Anita McBride was read into the meeting minutes. They stated that they were in favor of only 10 or more acres of lot size in any new subdivisions in Bandera County.

After public comment ended, President Sloan began the regular agenda of quarterly meeting of the BCRAGD. The Board accepted the minutes of the called meetings on May 19, 2022; on June 2, 2022; and on June 20, 2022.

General Manager David Mask spoke about the Chapter 36 rules changes that would address any new subdivided lot as of September 1.

If the county did approve a subdivision and the lots come in at 5 acres, residents would have to apply for a permitted well that would have to be approved by the Board, as well as monitored and restricted, and be brought under "drought restrictions." The Chapter 36 changes also took out a loophole about pumping water in recreational lakes or ponds.

The updated BCRAGD Groundwater Management Plan was adopted with minor changes. The Board approved a contracted agreement with Bandera County to conduct a routine election in November 2022. Two residential water well permits were approved. Both lots were just slightly under the five-acre limit.

The Board accepted the quarterly budget report presented by General Manager Mask. He also gave an informational presentation on the drought stage, water conservation handouts and rainwater harvesting. He noted that the well permits are tracked on average with numbers from 2021. The meeting adjourned at 10:40 p.m.

August 31, 2022

Court flooded with public comment about water concerns

By Cari Goetzman
For the Bulletin

Multiple citizens and organizational representatives voiced their objections to the Bandera County Commissioner's Court last Thursday regarding frustration with the boom of land development in the Hill Country and the drilling of water wells that are part-and-parcel to big developer's plans to expand.

Maryo Denke, Founder of Friends of Hondo Canyon, told the court her organization has partnered with Bandera County River Authority and Groundwater Districts (BCRACD) and the United States Geological Survey to fund a Middle Trinity Aquifer Monitoring Well in Hondo Canyon.

The station has been live since June 6, and besides measuring the aquifer, it will serve as the second flood monitoring station in Bandera County.

The aquifer level in this location dropped six feet between June 6 to August 6. Less than 10 Middle Trinity wells are within a mile of this monitoring station.

"The Grand View Subdivision proposal of 96 lots, translating to 96 more wells, is directly across FM 470 from the Hondo Canyon monitor well. The water availability model for Winnan's Creek Subdivision shows these 176 lots, translating to an additional 176 wells, will create a drawdown that reaches FM 470. How much further down will the Middle Trinity Aquifer level be drawn if these five-acre subdivision plats are approved? Is there water available to serve the residents of Bandera County if these plats are approved?, said Denke.

the final plat. It's time for our county to change these rules. The longer the county delays, the more time developers have to put in new plats to be grandfathered in."

Denke and streams of other residents have made their presence known to the Court on a consistent basis over the past few months in lieu of the looming dilemma of water scarcity where we live and throughout the Hill Country.

According to Denke, years ago, 35 million gallons flowed daily from the Comanche Springs near Fort Stockton into a basin next to a park where people picnicked and played softball. In 1951, the water stopped flowing. A landowner 10 miles from the spring pumped this minor aquifer dry. Our spring-fed streams rely on aquifers and they can be pumped to extinction. What happened to Fort Stockton can happen to us. There is only so much groundwater and the majority of Bandera County relies on the Trinity Aquifer, a fragile and slowly recharging aquifer. Our springs come from this aquifer.

Denke said these springs feed our rivers, our lakes, and our tourist economy. The Trinity Aquifer does not behave like the Edwards Aquifer. When an inch of rain falls in the Edwards Aquifer region, the Edwards monitor wells show within 1-2 days, an inch increase. This is due to the Edwards rock layer with its karst formations, caves and conduits. Most of Bandera County is in the Glen Rose rock layer, where sponge like evaporite rock layers allow for slow and lateral replenishment.

According to Denke, while Edwards rock contains wide conduits that can bring rain water directly into the Edwards Aquifer, water falling on our land percolates

Local resident, George, shared his sentiments:

"I used to play in Privilege Creek, Mason Creek, those creeks are all dry. They have been for years. Why is that? 'Cause there's subdivisions at the edges of those creeks. And the springs are gone. The more wells you tap, the fewer springs we have. Fewer springs we have, fewer creeks we have. Fewer creeks we have, fewer river we have. Look at our river. Look at the Guadalupe River. They're not running. They've run all my life. We're getting overcrowded in terms of how much water we're taking out of the ground. Please give this your consideration. We have to stop sometime. Now is the time."

In reference to the court's consideration to revise the Bandera County Subdivision and Land Development Regulations, Ann Schneider of Bandera Canyonlands Alliance said: "These provisions are necessary and will benefit current and future landowners. We hope that the Commissioner's Court will unanimously approve these changes and make them effective immediately." Pointing to the plat considerations on the Commissioner's agenda, she added "BCRACD strongly recommends that these 5-acre lots be increased to at least 10 acres. According to the subdivision rules we are aware that the county relies on the comments of the BCRACD on water availability prior to granting final approval of those plats."

Schneider shared that she had read the water availability reports by the engineers that did the studies for these subdivisions and was enlightened to discover that the reports relayed pointed concerns about the quality and the quantity of the water in this area and that water conservation is needed to preserve water availability.

Another resident stated, "Water availability studies should be done during the preliminary plat application process, not

and slowly, if ever, reaches the aquifer. Here are the monitor well observations: Bandera county has an average rainfall of 30-32" of rain a year, yes our Trinity aquifer replenishes at 2" per year.

Effective September 1, 2022, the BCRACD will apply new minimum lot size rules for exempt registered domestic/livestock wells. The minimum lot size has been increased from 5 acres to 10 acres. Smaller lots can still have wells, but these wells must be permitted, metered, and required to follow drought management rules. Lots platted prior to September 1, 2022, are exempt; it is recommended but not required that exempt wells follow drought management rules.

According to the Hill Country Alliance, over the last 20 years, surface water and groundwater resources have come under great pressure from population growth and new development, much of which was poorly planned. In many areas, the hidden cache of water stored in our aquifers, which support the flow of springs and creeks, is being pumped down faster than it can be replenished by rainfall.

Some wells are already drying up during hot, dry summers. Residential users are often competing with ranchers' and farmers' deeper wells and bigger pumps for the limited resource. These conflicts show no sign of abating any time soon.

A letter from the board of Friends of Hondo Canyon to the Commissioners, closed the public comment section.

"Development is going to happen and we welcome new neighbors, but we do not welcome added concerns regarding water availability. Yes, emotions are tense now that we are in Stage Five drought, but the aquifers have never been strong in Hondo Canyon, even in times where we are not in drought. Ask any old timer out here, and they will tell you."

August 31, 2022

Court denies plat for Tarpley subdivision

By Cari Golyznak
For the Bulletin

Bandera County Commissioners unanimously voted against the final plat application of 96 five-acre lots for the Grand View Ranch Subdivision in Tarpley following recommendations from the Bandera County River Authority and Groundwater District (BCRAGD).

According to County Engineer Dieter Werner, the developer of the Grand View Ranch Subdivision met all current application requirements of the Bandera County Subdivision & Land Development Regulations but are still subject to the approval of BCRAGD's.

BCRAGD General Manager Dave Mauk recommended a minimum of ten acres.

"We gotta have spacing between those wells," Mauk told the court," adding BCRAGD has a duty to protect the aquifer and property rights of both the applicant and existing residents,

Mauk suggested ten acres might not be sustainable as more land is pounded out for water.

"We just can't have 106 ft drawdowns into the aquifer. That's our position. The science is always evolving in the way the drought is behaving, the way the aquifer is behaving, and the way the river is behaving," he said, adding new BCRAGD rules for 10-acre lots go into effect September 1.

Mauk added he did not believe there was enough water to support five-acre tracts for the subdivision.

"With 106ft drawdowns? No. Per the state, we are only supposed to have 30-foot drawdowns in this county's aquifer. I can't, I just can't." replied Mauk.

A representative for the developer of Grand View, Patten Properties, told the court they were caught in a difficult position.

"We have 96 lots that met all of the requirements at the time. If we receive final plan approval today, we'll be fine. If we do not, that's an issue – were we misled by obtaining final plan approval? If we already had preliminary plan approval and the plans have not yet changed, where does that leave us and where does that leave you as a board? Understand that as of today, the regulations still allow for five acres. Water availability was not a requirement of the preliminary plan per your regulations."

Harris responded, "But you haven't proved to this court, in your final plan approval, that you have the water availability."

Applause broke out in the audience to Harris's rebuttal.

Cal Chapman of Chapman Engineering, the firm that conducted the water availability study for Grand View, told the court the available water column in the middle trinity wells is almost 400 feet of thickness, concluding the subdivision will only use a quarter of the available water underneath it in a 10-year span.

"We are conservative in everything we do," said Chapman.

Commissioner Jody Rutherford stated, "Where we are is, these people spent millions of dollars following the rules, and today the rules changed."

Judge Evans said, "Everything here is subject to water availability. So, we're not changing the rules."

"No, you're not," said Mauk. "Our priority is water management, and we are in a drought.".

Werner emphasized BCRAGD changing rules is completely independent of the regulations of the Bandera County Subdivision and Land Development Regulations.

"We are not changing the rules halfway through the game. Final plat approval, as of today, is contingent on water availability, period," he said.

Following a query from Harris, Chapman said it was the engineer's job to be held accountable if water runs out.

"When I drew this professional opinion, yes, I believe this has a sustainable water supply. That's my license on the line," said Chapman. "If you all see that this water supply runs out, you're going to come talk to me about it. Again, 106 feet of local drawdown using only the Calcreek aquifer."

A second representative for Patten Properties told the court, "You won't see even development out there for 10-15 years. This idea that we're going to have 96 wells there in the next 10 years is insanity. I doubt that we'd have 96 wells in 25 years. It's never going to happen."

County Attorney Janna emphasized the item up for consideration was the approval of the final plat, contingent on BCRAGD's recommendation from the BCRAGD.

"I'm sorry that this is a bitter pill for some people and if anyone wants to argue with me, that's fine, but not right now," she said.

After two motions were made to not approve the final plat for Grand View's plat of five-acre lots, four out of four commissioners voted in favor.

July 19, 2022

Groundwater district approves minimum lot size for domestic wells

By Jessica Nohealapa'ahi
The Bandera Prophet

Effective Sept. 1, a minimum of 10 acres will be required to drill new domestic wells, doubling the current acreage standard. The change was unanimously approved by the Bandera County River Authority and Groundwater District board of directors on Thursday.

Standing room only was left during the board's July 14 quarterly meeting, which was lead with public comments from members of the community who are concerned about new subdivisions coming into the county.

According to Chapter 36, section 3.2, any well drilled on a tract under 10 acres will require a permit, and the owner will be mandated to submit an annual report with monthly usage information. The wells will be monitored by and subject to BCRAGD drought restriction protocols.

The new rule states:

"3.2 (c) For a new well located on a tract of land, in Bandera County, platted on or after September 1, 2022;

(1) The tract of land shall be 10 acres or more,

(2) Used solely for domestic use or for providing water for livestock or poultry,

(3) Drilled, completed, or equipped so that it is incapable of producing more than 25,000 gallons of groundwater a day,

(4) The tract of land shall not have an existing working well,

(5) For multiple water wells on the same tract of land over 10 acres there shall be a minimum of 10 acres per well to help ensure the wells will still be considered as exempt /registered wells..."

In his report, BCRAGD General Manager Dave Mauk said the water levels in the Middle and Lower Trinity aquifers, from which water comes in Bandera County, are down between five and 45.8 feet. Both aquifers, filled with ancient water thousands of years old, recharge slowly and inconsistently.

"When it rains, it takes a lot to get into the Middle Trinity," Mauk said, adding long-term, the Lower Trinity numbers "look pretty scary."

Mauk said wells are going dry in the area right now, especially around the Polly Peak area and the Eastern end of the county at Timbercreek.

The Medina Lake level today is 996.98 feet, or 11.8 percent. The lowest level recorded is 3 percent. According to Director Rachel Mulherin, the water was being pumped into the canals as of July 13.

"We're in exceptional drought, and there's nothing past exceptional drought," Mauk said, issuing a warning to anyone thinking about going for a swim in the river.

"Don't get in," he said, adding the water temperature last week was 90 degrees. "When you get 90-degree water in a river that's not moving, that's a problem."

August 02, 2022

The Bandera Prophet

August 2, 2022

County commissioners discuss increasing acreage requirements for domestic wells

By Jessica Nohealapa'ahi
The Bandera Prophet

County commissioners are considering increasing the minimum acreage required for drilling new domestic wells, as well as the lot sizes for public water supplies in new subdivisions. The conversation picked up momentum after the Bandera County River Authority and Groundwater District doubled the acreage standard from five to 10, effective Sept. 1. BCRAGD Executive Director David Mauk spoke with commissioners last Thursday, clarifying the board's July 14 action.

"You all know we changed our minimum lot requirements," Mauk said. "We probably should have been at 10 acres all along."

The new rule will not affect lots already platted in planned subdivisions, or wells already drilled - those will be grandfathered. Any new well drilled on a tract less than 10 acres will require a permit, and the owner will be mandated to submit an annual report with monthly usage information. The wells will be monitored by and subject to BCRAGD drought restriction protocols.

"It's getting drier here, at least temporarily," Mauk said, adding Bandera County is in a perpetual state of drought. "To me, this is not drought. This is a new reality."

Mauk said new subdivisions with proposed public water supplies need to submit water availability studies, and must be approved by BCRAGD and TCEQ (the Texas Commission on Environmental Quality). However once the lots are platted, Mauk said, the groundwater district has no authority.

"We're not through having droughts. In the last 16 years, I have closed the County Park twice. It's been bone dry for seven weeks now," Pct. 2 Commissioner Bobby Harris said. "I'm in favor of the 10-acre tract. I think we've got to adjust our subdivision rules, and take it a step further to address public water supply."

County Judge Richard Evans asked Mauk for an official letter from BCRAGD that recommends changing the lot size, specifying the recommendation needs to be based on science.

"We have to be able to defend our position," Evans said.

Mauk said Kerr County increased its minimum required lot sizes from five to seven acres in Centerpoint. Pct. 3 Commissioner Jack Moseley asked if 10 acres was enough.

"I think 10 acres is probably where we should stay," Mauk said. "I don't know if we can go higher, but that's something we're talking about."

Pct. 4 Commissioner Jordan Rutherford said he was seeing wells going dry on the West End of the county. Mauk said the same thing was happening in the Polly Peak area.

"This is going to be scary for a little while," Mauk said, recommending anybody with a well install a pump protector.

Several people spoke in favor of restricting subdivision development during the public forum.

Rebeca Gibson, who sits on the Board of Directors of the Hill Country Alliance, BCRAGD and is a member of the Bandera County Interagency Coalition, asked commissioners to use the court's statutory authority to restrict subdivisions.

"We all see the effects of the drought," Gibson said. "We see residents in dire situations."

Other people echoed her sentiment, encouraging the court to increase minimum acreage requirements, and also requesting developers to adopt xeriscaping with native plants and grasses, which they said would minimize water usage toward landscape maintenance.

"We ask the county to exercise due diligence to make sure everyone has water," Margo Griffin, of Friends of Hondo Canyon, said. "We welcome new neighbors, but we do not welcome concerns about water availability."

Ben Eldridge, speaking on behalf of the Hill Country Alliance, asked when the 10-1 (acreage to well density) rule would become futile.

"Water, as we all know, is a limited natural resource that we all need to survive. We are in an area prone to severe drought," Eldridge said, adding there were no tools to reverse course. "We really need to reflect on what is the responsible thing to do. We need to make sure whatever we do, we're not acting too late."

August 29, 2022

County commissioners double lot size requirement for exempt wells, deny final plat approval for pending subdivision

By Jessica Nohealapa'ahi
The Bandera Prophet

"As soon as they gave us the science, we were prepared to do it," Bandera County Judge Richard Evans said, regarding revisions made to the county's Subdivision and Land Development Regulations.

Commissioners on Thursday unanimously approved requiring water availability studies prior to considering preliminary plans; increasing the minimum lot size from two to five acres for lots served by a public water supply; and doubling the minimum lot size from five to 10 acres for domestic/livestock wells.

The changes are effective immediately.

The new 10-acre requirement follows the lead of the Bandera County River Authority and Groundwater District, whose rule will take effect Sept. 1.

The change will not affect lots in already-approved platted areas, or wells already drilled - those will be grandfathered. Any new well drilled on a tract less than 10 acres will require a permit, and the owner will be mandated to submit an annual report with monthly usage information. The wells will be monitored by and subject to BCRAGD drought restriction protocols. Well owners who fail to comply will face penalties, including fines.

"After today, any plat process started falls under these rules. Anything that's in the works before today is under the old rules. We can't change the game midway - if you're in the pipeline already, the old rules apply," Evans said.

Numerous members of the community spoke during the Aug. 25 public forum, asking commissioners to raise the minimum acreage requirements and postpone approval of pending developments until water availability was proven.

"We're a week away from Sept. 1, and the River Authority clearly said 10 acres. Three more subdivisions are trying to slip through before the deadline. Please postpone it. Please wait until Sept. 1. Please get our county rules in sync with the River Authority," Patricia Smith said.

"The more wells you tap, the fewer springs we have. Look at the Medina River. Look at the Guadalupe River. They aren't running," George Sharman said.

"The Bandera County River Authority and Groundwater District has identified some very serious concerns about these subdivision plats due to water availability issues," Anne Schneider, of the Bandera Canyonlands Alliance, said.

BCRAGD Executive Director David Mauk said, speaking in terms of water availability, 10 acres is the minimum lot size the district could recommend.

"We've got to have spacing of these wells," Mauk said, referencing the proposed Grand View Ranch subdivision on FM 470 that he said would have a 106-foot drawdown into the aquifer. "We have a Desired Future Condition... that's a 30-foot drawdown over 50 years. Every single subdivision is busting that DFC... We have to look at protecting the water - not only for the applicant, but also for the people already here."

Engineer Kyle Chapman, who performed the water availability study for Grand View, said 96 lots, each with a three-bedroom home, would have a 106-foot drawdown over a decade, however he claimed the model did not account for the aquifer recharge.

"This subdivision at 10 and 30 years will use about a quarter of the available water beneath them in the Middle Trinity (Cow Creek Aquifer)," Chapman said. "This is a very sustainable development."

Mauk replied the aquifer could not sustain that many wells. He said he understood the balance of property rights and development, however considering the drought, the water is not there.

"They did an initial test and it wasn't satisfactory. I just can't get past the drawdown," Mauk said.

Evans said the court relies on BCRAGD to determine whether there is enough water.

"You provide the science," Evans said to Mauk. "You're telling us that we should not approve the five-acre lots platted."

"Ten acres minimum," Mauk said. "That's my opinion."

The motion to deny final plat approval was unanimous.

Commissioners considered a preliminary plan for a second subdivision on Winans Creek. Mauk said although developer Dan Mullins, of Southerland Communities, had done his due diligence and provided all required information, he maintained his stance.

The Winans Creek Ranch preliminary plan calls for 176 five-plus-acre lots. Mullins, who developed the Bridlegate and Clearwater Canyon subdivisions, said each land deed is restricted and every well would be permitted, with a maximum of 800 gallons pumped per day.

"There is a note on the plat that says each lot must be in accordance with [BCRAGD], will be metered and monitored by [BCRAGD], and subject to groundwater conservation measures," Mullins said, adding the deed restrictions also limit irrigated areas per lot to 5,000 square feet.

Mullins said if each tract was increased to 10 acres, the number of lots would decrease to 90 - each with exempt wells. Mauk said while permitted wells would potentially pump less than exempt wells, the spacing between them needed to be expanded.

"We have to get space for the cone of depression," Mauk said. "I appreciate what Dan's doing, but I believe it needs to be at least 10 acres. We can't have this many straws in the aquifer."

Further, Mauk said, the development's drawdown is 85 feet, deeper than the DFC.

"I can't get past 85 feet. I just can't," Mauk said.

County Attorney Janna Lindig, speaking as a citizen, said she lives on 16 acres across from Winans Creek.

"That area is full of springs. The springs are going dry…Right now, my well water is different. It is not good," Lindig said, adding her well is more than 400 feet deep. "One of the things that keeps Winans Creek running is the spring. If you do anything that will interfere with those springs, it's going to affect Winans Creek. And it will with 176 lots."

Commissioners agreed to approve the preliminary plan, with the understanding that the developer will either come back with an acceptable water availability study, or increase each lot size to 10 acres.

July 25, 2022

NEWS // LOCAL

Catch and release: How the Bandera River Authority is saving fish from the drought

Elena Bruess, San Antonio Express-News
July 25, 2022

Shelby Sckittoni, a natural resource specialist with the Bandera County River Authority, untangles a sunfish from a net in the Medina River in Bandera County on July 20. Due to the ongoing drought, the Medina River is drying so quickly and drastically that the Bandera River Authority is hand catching fish and transplanting them in other parts of the river so they don't suffocate.
Josie Norris, San Antonio Express-News / Staff photographer

Standing in a barely wet portion of the Medina River in Bandera, Levi Sparks sticks his finger in the mouth of a Guadalupe bass that he pulled from the water, as he holds the rest of the fish's body with his other hand. The aquatic ecologist is more than enthused about his find.

At a few inches long, the Guadalupe bass is a rare, nearly threatened species specific to rivers and creeks in Texas. It's also the state fish.

But Sparks, part of a team from the Bandera County River Authority and Groundwater District, has little time to admire the fish that he's there to save.

"We're always excited to catch a Guadalupe bass," Sparks said. "We really need them to thrive."

Sparks tosses the bass in a bucket with other fish. He and his co-workers will take this bass from its current spot — a dried-up puddle at Ranger Crossing that was once the flowing Medina River — to a safer location, where it can survive.

Bandera County is dotted with small towns and expansive ranches, and it is home to the Medina River — a sprawling natural waterway with a thriving ecosystem and popular spots for swimming. This year, however, the river and its species are dying. The drought, brought on by high temperatures and lack of rain, is shrinking the river, and the fish in it are fighting to breathe.

11 of 17

Bandera County River Authority Field Operations Manager Clinton Carter, right, looks at Aquatic Ecologist Levi Sparks as they count fish they rescued from a dried out portion of the Medina River in Bandera County on July 20. Due to the ongoing drought, the Medina River is drying so quickly and drastically that the Bandera River Authority is hand catching fish and transplanting them in other parts of the river so they don't suffocate.

Josie Norris, San Antonio Express-News / Staff photographer

Sparks and the Bandera County River Authority team are catching fish from the Medina's disappearing puddles downstream and releasing them into deeper flows upstream, near the river's northern headwaters. As a result of the drought, dissolved oxygen concentrations in the Medina are declining, causing fish, such as the Guadalupe bass, to suffocate. Others that manage to breathe — for the time being — are killed by predators, which are drawn to the shallow water by easy targets.

For the River Authority, catching and releasing the fish has become the best option.

Rescuing fish from drought

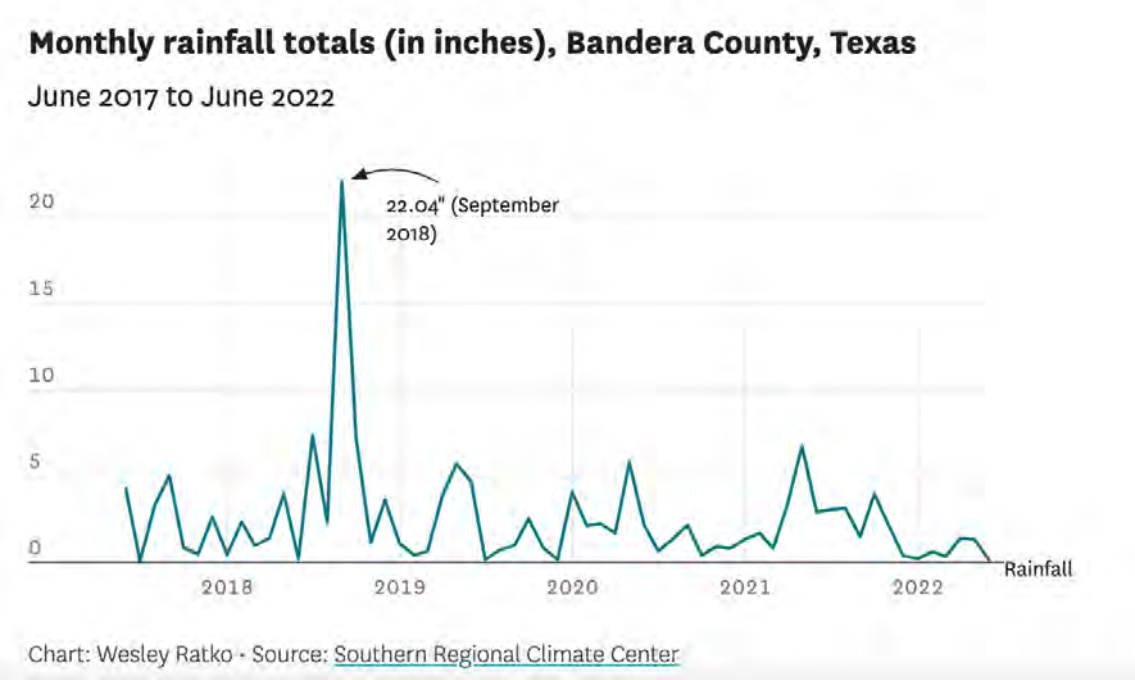
Ecologists are capturing fish from the dwindling flows of the Medina River at Ranger Crossing and taking them upstream near the deeper headwaters at Brewington Creek where the the fish have a better chance at survival.

"We don't just think of it in terms of saving the fish population," Sparks said."We think of it as, if we don't do this, the other option is to have them all die out here. If we're in a position to help, then that's what we're going to do."

In the puddles

Not too far from the River Authority's headquarters, the team pulls over at Ranger Crossing, a popular swimming spot off the Medina in the town of Bandera. These days, the waterway has been reduced to a few puddles separated by dry rock bottom. Fish are restricted to several inches of water, having slowly been driven to a smaller and smaller piece of river.

This is the fifth time the team has gone out to catch fish this summer. They've captured fish at Ranger Crossing and at Rocky Creek, an area of the river north of Bandera. As of now, the team has rescued 113 fish, which Clint Carter, field operations manager for the River Authority, said is a good chunk of the fish that have been swimming in the drying puddles.



At Ranger Crossing, Carter tosses a net into one of the puddles. He tugs on the net to form a type of bag that catches any nearby fish.

Shelby Sckittone, a natural resource specialist, walks through the puddle, searching and kicking up water to move fish along.

A key drought-induced concern is the low amount of dissolved oxygen in the river, said Dave Mauk, general manager for the River Authority. As the volume of water declines, the fish compete with each other for diminishing oxygen, depleting the levels dramatically. Without rain, the river won't be replenished with oxygenated water and the fish will suffocate.

A dry riverbed where the Medina River used to flow is seen near the town of Bandera on July 20.
Josie Norris, San Antonio Express-News / Staff photographer

Also, Mauk said, low water levels make it easier for predators, such as raccoons, to grab the fish.

"When these fish are in a spot the size of a living room, they're done," he said.

For the past 180 days, Bandera County has received nearly no rain. Most of the water from a few scattered showers has been immediately absorbed by the dry soil. And while several heavy rains are needed to refill the river, climatologists predict hardly any rain for the rest of the year.

The River Authority team expects that the fish it relocates will reproduce in their new upstream environment and that an augmented population will swim downstream when the river is full again.

"We usually find a lot of sunfish (at Ranger Crossing), but we're pretty indiscriminate with who we catch to move upstream," Sparks said. "It's whatever fish species we can grab."

Sparks knows Medina River fish so well that he can typically name them the instant they're removed from the water. This time, along with a few Guadalupe bass, the team finds blacktail shiners, redbreast sunfish, western mosquito fish and longear sunfish.

Another species called the golden redhorse is incredibly important to ecosystems because it's often a bioindicator species that can alert people when the water is polluted or toxic. The team rescued a golden redhorse during a previous trip, but it found none this time.

"If we stop seeing golden redhorses, we know something is up," Sparks said. "They are usually the first to die when there's a problem, so we like having them around."

'Fish for the future'

The team caught 62 fish at Ranger Crossing, bringing the number rescued to 175, and carried them in a bucket about 20 minutes north to Brewington Crossing, where the North Prong Medina River meets Brewington Creek, not far from the headwaters.

The water at the relocation site is also lower than usual, but it's deeper than the water the fish came from and heavily shaded by trees. Fish can become stressed and die when the water is too low and too hot. In some areas of the Medina River, the temperature has reached 88 to 90 degrees.

Typically, fish are more comfortable in the low 70s.

"They can adapt, but when the river stays at that temperature constantly, that's when they start dying," Sparks said. "They can survive 80-degree water no problem, but when they have no escape, especially with no tree cover, that's cause for concern."

And it's not only a concern for the fish. Low and hot water can also increase bacteria and algae in the river that are hazardous to people. When the water is stagnant because of drought, it can no longer be safe to swim in. Certain bacteria can make a person very sick or even cause death.

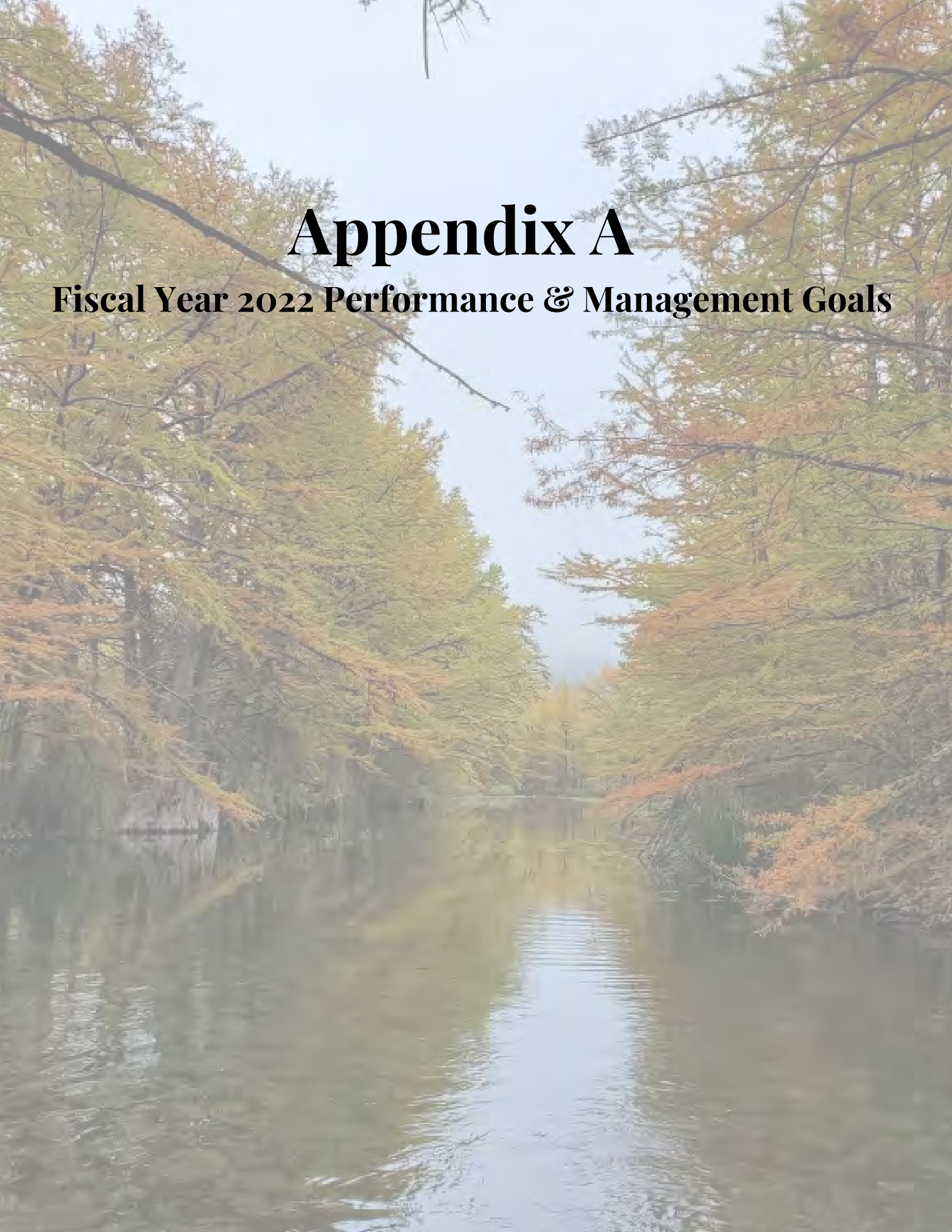
Mauk said he's paused more than a few times this summer to tell people to stop swimming in the Medina River.

After counting the fish and marking the types of species, Carter releases them gently into Brewington Creek. One fish floats upside down for a while, but with a couple nudges, the tiny guy swims away with the others.

For the Bandera County River Authority, it's a good feeling, having saved even a small portion of the population. They might go out again, but for now, they feel like they've perhaps done enough.

"That's 62 that would have died," Mauk said. "If they survive here over the years, that turns into a lot of fish for the future."

Levi Sparks, an aquatic ecologist with the Bandera County River Authority, winds up a net as he checks for fish that need to be moved along the Medina River in Bandera County on July 20. Due to the ongoing drought, the Medina River is drying so quickly and drastically that the Bandera River Authority is hand catching fish and transplanting them in other parts of the river so they don't suffocate.
Josie Norris, San Antonio Express-News / Staff photographer



Appendix A

Fiscal Year 2022 Performance & Management Goals

The Necessity for Setting and Achieving Goals

The 75th Texas Legislature in 1997 enacted Senate Bill 1 ("SB1") to establish a comprehensive statewide water planning process. In particular, SB1 contained provisions that required groundwater conservation districts to prepare management plans to identify the water supply resources and water demands that will shape the decisions of each district. SB1 designed the management plans to include management goals for each district to manage and conserve the groundwater resources within their boundaries.

Each year the Bandera County River Authority and Groundwater District's staff prepares an annual report for the Board of Directors. This report outlines District activities and documents progress with fulfilling these management goals. Copies of this report are available for the public at the District's office.

Management Goal 1

1.0.0 Manage groundwater in order to provide the most efficient use of groundwater resources.

1.1.1 Management Objective

Implement a program to develop data on the aquifers for better modeling of the aquifers.

1.1.2 Performance Standard

a. Collect pump test data from subdivision test wells after water availability studies are conducted.

- *4, The District reviewed water availability studies for three subdivisions and one individual landowner that filed to permit two water wells.*

b. Collect water level data from a minimum of 10 wells on a semi-annual basis.

Middle Trinity Aquifer

Depth to Water Below Land Surface (ft)

Monitoring Well	Q1 - December 2021	Q2 - February 2022	Q3 - May 2022	Q4 - August 2022
Baby Elephant Enterprises, LLC	N/A	N/A	N/A	384.85
Bandera County Park	118.47	123.17	136.67	N/A
Bandera Sports Complex MT	126.05	127.15	139.95	151.75
Barry Lanford	377.58	381.68	385.4	388.3
Basinger	308.72	320.72	350.82	360.92
BCRAGD CC	185.14	187.04	193	215.44
BCRAGD LGR	183.74	187.84	165.45	228.44
Hondo Canyon	198.2	N/A	N/A	208.73
Boultinghouse	365.9	371.5	389.5	387.9
Bowie	216.42	220.22	222.22	244.42
Boyle	173.6	179.6	172.7	200.4
Bridlegate MT	226.6	223.5	233.5	247.3
Cielo Rio Ranch, Ltd MT	198.52	200.92	214.52	224.72
Elk Mountain	N/A	N/A	N/A	230.02
Erfurt	23.2	23.4	29.9	49
Evans Water System	203.1	204.5	206.3	209.5
Jeffery Yellow House	150.54	166.64	189.64	211.14
Jeffery House	156.8	173.6	201.4	220.8
Jeffery Shallow	33.82	34.442	35.22	36.22
Jilson	175.1	176	184.6	N/A
Lakehills Co. Yard	134.05	N/A	154.55	N/A
Lantana Land Co. Well B	N/A	N/A	203.7	184.38
Mason Creek Deep	224.6	231.4	238.6	251.3
Mason Creek Shallow	193.9	197.6	200	207
Medina Springs	157.74	154.54	161.34	169.54
Medina WSC Well #2	147.4	183.75	N/A	190.45
Ol Larry B	408.34	263.44	372.4	380.2
Sidney Shores	137.38	142.88	153.88	167.88
Clearwater Canyon	N/A	N/A	N/A	33.8
Sparks	305.6	298.6	312.9	319.4
Tarpley VFD	61.15	56.95	61.75	71.95
Tecon	103.34	104.54	108.14	119.44
Vanderpool VFD	N/A	N/A	N/A	N/A

Lower Trinity Aquifer

Depth to Water Below Land Surface (ft)

Monitoring Well	Q1 - December 2021	Q2 - February 2022	Q3 - May 2022	Q4 - August 2022
Alkek	458.65	391.45	406.05	433.85
Bandera City	N/A	N/A	438.03	465.44
Bandera Sports Complex LT	365.9	366.4	370.7	390.5
Bridlegate LT	377.22	375.82	401.67	411.32
Cielo Rio Ranch, Ltd LT	295.97	304.72	387.96	354.67
Latigo Ranch	441.44	440.64	414.4	455.24

Edwards-Trinity Aquifer

Depth to Water Below Land Surface (ft)

Monitoring Well	Q1 - December 2021	Q2 - February 2022	Q3 - May 2022	Q4 - August 2022
Edwards Monitor Well #1	250.04	253.14	247.77	250.92

1.2.1 Management Objective

Maintain a program of issuance of well permits for non-exempt wells and registrations for exempt wells.

1.2.2 Performance Standard

Maintain an ongoing program of issuance of well permits each year. Provide the number of permits issued each year and the number of registrations issued each year in an annual report to the Board of Directors.

- *16 Permits Issued*
- *196 Registrations Issued*

Management Goal 2

2.0.0 Control and prevent the waste of groundwater.

2.1.1 Management Objective

Provide literature to the public on the efficient use of water and water saving devices in the home.

2.1.2 Performance Standard

a. Provide handouts with well permits and registrations to educate the public on water saving devices. The District will report the number of handouts with well permits and registrations in an annual report to the Board of Directors.

- *For every well permit and registration, literature was provided. There was a total of 16 well permits and a total of 196 well registrations issued in the 2022 fiscal year.*

b. Coordinate a minimum of one public presentation per year. Provide the number of shows, demonstrations, events, or educational talks at which literature or information is provided to the public, in an annual report to the Board of Directors.

- *Water conservation literature is provided at all District public meetings. (12 meetings): 11/04/2021, 12/09/2021, 12/16/2021, 01/27/2022, 03/03/2022, 04/14/2022, 05/19/2022, 06/02/2022, 06/20,2022, 07/14/2022, 08/11/2022, 09/08/2022.*

- *The BCRAGD Education & Outreach Manager and the Education & Outreach Coordinator held Educational Programs with NRA on the following dates: April 13, 2022, at Utopia ISD and April 29, 2022, at Medina ISD. The District was in Bandera ISD on April 25 & 26, 2022, at Alkek Elementary School, May 6, 2022, at Hill Country Elementary School, and May 18, 2022, at Bandera Middle School. The Nueces River Authority Water Resource Stewardship Program, in collaboration with BCRAGD, heavily emphasizes water conservation, water quality protection, and natural resource systems to the 5th and 7th grade students in*

Bandera County throughout each Spring season. Our District sponsors and co-facilitates the program every year. Students learned about watersheds, water conservation, and riparian ecosystems and are engaged in a hands-on experiment with a river basin model to demonstrate how pollution travels into water streams and ends up in the ocean, and had a thorough discussion on ways to be good stewards of our streams.

- *On October 13, 2021, the BCRAGD Education team attended the Women's Leadership Conference hosted by Schreiner University. This conference was about how women embrace and manage personal, professional, social, and technological change. The district team hosted a table to promote water conservation and preservation career possibilities to young women.*

- *October 16, 2021, the BCRAGD educational team hosted an "Environmental Scientist for a Day" Lab at Schreiner University's EYH experience. This lab allowed the participants to learn what a watershed is and how humans impact the quality and function of those watersheds. The participants built their watershed and facilitated a rain event to model how pollution moves through a watershed. The activity was followed by discussions over how to protect watersheds and also ways to conserve water. Expanding Your Horizons (EYH) is hosted by Schreiner University and is a fun day filled with STEM activities for young 6th through 8th grade girls to engage in STEM as high school approaches. This EYH hosted approximately 200 young girls.*

- *On March 11, 2022, The Education team Charley Curd and Corrina Fox, along with the Field Operations Manager, Clint Carter, attended the annual Tom Daniel's Elementary Expo in Kerrville, Texas. This event served as a way for the district to expand into the hill country region and connect with similarly tasked entities like the Upper Guadalupe River Authority to provide water conservation and preservation education. The presentation included a life-like model representing the components of 2 types of watersheds. Seventy second grade students and four teachers were in attendance. The District presented concepts regarding the hydrological cycle, watersheds, river basins, riparian plants, aquifers, surface water, groundwater, pollution issues, and ways to conserve freshwater.*

- *On March 13, 2022, the education team Charley Curd & Corrina Fox attended the workshop to help current facilitators gain more knowledge and experience facilitating the Project Wild curriculum. This program will enable the Education team to provide needed CEUs for educators*

while meeting BCRAGD's performance and management goals set forth by the State of Texas.

- *On April 2, 2022, The Hydro-Geo Workshop association held a workshop, at the "Cave without a Name" in Boerne, TX. BCRAGD Staff provided two workshops for participants. The first covered the details of the TCEQ Clean Rivers Program. They demonstrated sampling methods for both water quality and biological portions. In addition, the staff collaborated in hosting a "Developing a Career in Geological Science" Q&A module for this event. The information included why and how to become a professional Geologist, how to start building a career in college, networking, hydrogeology-specific careers, working for a groundwater district, and the value of a Professional Geologist license. Literature containing a list of professional societies and frequently asked career-related questions was distributed to participants during this session.*

- *On April 8, 2022, the Education and Outreach Team participated in the Soil & Water Conservation District Environmental Day Workshop in collaboration with the Nueces River Authority Education team. All 6th and 7th grade students in Bandera County benefited from this educational event. Students were given information on various water contaminants and the effects of these contaminants on water quality and human health. Students were given a demonstration of how these contaminants are tested. Corrina Fox and Charley Curd guided students through in-depth discussions on the importance of water-related issues such as water conservation, water preservation, and water availability. Approximately 180 students participated.*

- *On May 12, 2022, the BCRAGD Education and Outreach team assisted the Nueces River Authority with the Youth Water Awareness Day held at the University of Texas Marine Science Institute in Port Aransas, Texas. This event was for all of the 6th, 7th, and 8th grade students of the Port Aransas Middle School. During this event, the students learned about the connectivity of River Basins and watersheds with the Ocean and were able to explore the flow of pollution from River Basins to the Ocean with a topographical model.*

- *On May 23-24, 2022, the BCRAGD Education and Outreach team visited Alkek Elementary School 5th Grade classes to present the District's Water Quality program. This Texas State Curriculum-aligned program engages students in a hands-on experience where they perform scientific testing and analysis of local tap water samples. The mission of the program is to connect water quality issues to their own life experience through scientific experimentation and discussion of water issues and future solutions to those water issues. Approximately 200 students attended the event.*

- *BCRAGD presented at three separate Community Library events. The Education team works to present hands-on activities with a presentation or with a children's storybook that emphasize the themes of conservation and importance at every level. On 21.JUN.2022 Medina Library: All water goes to the ocean. On 05.JUL.2022 Bandera Library: It All Goes to the Ocean Pres. & Activity. On 27.JUL.2022 Medina Library - Saving Tally Pre-K story time/activity.*

- *26-30.SEP.2022 Rainwater Harvesting Social Media Campaign and online Presentation on Rainwater Harvesting Components.*

- *Additional information is posted regularly on the District's website at www.bcragd.org and on BCRAGD's Social Media Pages including Facebook, Twitter, and Instagram as well as the BCRAGD Newsletter. The District has also implemented educational content on YouTube, Pinterest, & Linked In.*

2.2.1 Management Objective

Promote public awareness about preventing the waste of water resources.

2.2.2 Performance Standard

Record the number of speaking appearances and/or shows, demonstrations, or events at which literature or information is provided to the public on preventing the waste of water resources. The District will report the number of aforementioned events in the annual report to the Board of Directors.

-See 2.1.2 B

Management Goal 3

3.0.0 Control and prevent subsidence.

The control and prevention of subsidence is not a concern of this District as the formations are carbonates and do not contain the water saturated clays which can cause subsidence if dewatered; therefore, this management goal is not applicable to the District.

Management Goal 4

4.1.0 Address conjunctive surface water management issues.

4.1.1 Management Objective

Make at least one annual evaluation of the groundwater resources and surface water quality in Bandera County and include the results of the evaluation in the annual report to the Board of Directors.

4.1.2 Performance Standard

a. Record the number of reports and evaluations provided to the Board of Directors on groundwater resources and the surface water quality in the annual report.

- *The General Manager gives a District Report of Groundwater Resources and the Surface Water Quality to the Board at every Quarterly Meeting. (4 meetings total in FY 2022 – 11/04/2021, 01/27/2022, 04/14/2022, 07/14/2022.)*

- *The General Manager gives a complete Groundwater Resources and Surface Water Quality Report every fiscal year to the Board of Directors during the April Quarterly Meeting.*

- *For a Groundwater Annual Evaluation Report, please refer to Management Goal 13.1.2.*

Annual Evaluation of the Surface Water Quality in Bandera County FY 2022

Summary of Surface Water Sampling Events: From October 2021 to September 2022, there were 205 samples taken between the Clean Rivers Program, and District's In-House Surface Water Quality Testing Program. There were 7 instances with E. coli counts over the TCEQ standard of 399 MPN (Most Probable Number) per 100 mL of sample water. Medina Lake began with the water level at 28.3% on October 31, 2021, and ended at 7.5% on September 30, 2022.

Medina Lake Evaluation:

Per Texas Water Development Board's Water Data for Texas website:

FY 2022 Quarter	Date	Capacity (% full)
1st	October 31, 2021 December 31, 2021	28.3% 25.9%
2nd	February 28, 2022 March 31, 2022	24.6% 21.9%
3rd	May 30, 2022 June 30, 2022	16.6% 13.6%
4th	July 31, 2022 September 30, 2022	10.6% 7.5%

Clean Rivers Program:

BCRAGD has a total of 21 Clean Rivers Program (CRP) sites throughout the San Antonio and Nueces River Basins. The table to the right lists all the CRP sites that were sampled each quarter. They are separated into sections as follows: Medina River sites, Medina Lake sites, Diversion Lake sites, and Sabinal River / Nueces Basin sites.

BCRAGD partnered with San Antonio River Authority (SARA) to participate in the Clean Rivers Program in the San Antonio River Basin in 2012. BCRAGD staff are responsible for sampling 8 sites, which are in Bandera County on the Medina River, and summarized to the right. The FY 2022 sample dates for Medina River were: October 21, 2021, November 4, 2021, January 18, 2022, January 19, 2022, May 12, 2022, May 18, 2022, July 7, 2022, August 18, 2022, & August 31, 2022. The District was audited by SARA for the TCEQ Clean Rivers Program on July 27, 2022.

At the end of FY 2016, BCRAGD added 5 CRP sites on Medina Lake along with 3 CRP sites on Diversion Lake, partnering with SARA. The FY 2022 sample dates for Medina Lake were: November 2, 2021, November 16, 2021, January 13, 2022, February 9, 2022, May 26, 2022, & August 10, 2022. Medina Lake was closed on May 27, 2022, due to drought conditions and low water levels. Sample dates for Diversion Lake were: November 17, 2021, February 23, 2022, May 19, 2022, & July 26, 2022.

BCRAGD partnered with the Nueces River Authority (NRA) in 2016 to participate in the Clean Rivers Program in the Nueces River Basin. BCRAGD staff is responsible for the 5 sites shown in the chart to the right. The FY2022 sample dates for the Nueces River Basin were: November 18, 2021, November 29, 2021, November 30, 2021, January 26, 2022, February 1, 2022, May 11, 2022, May 17th, 2022, July 7, 2022, & July 13, 2022. The District staff resampled for Chlorophyll-a at sites 22227, 21948, and 13017 on June 8, 2022.

Station ID	Site Name
	Medina River CRP
12830	Medina R. @ English Crossing
18447	North Prong Medina R. @ Hwy 16- Wallace Creek
13638	Medina R. @ S Hwy 173 (Bandera City Park)
12832	Medina R. @ FM 470-Tarpley Crossing
21125	Medina R. @ Moffett Park
21126	N. Prong Medina R. @ FM 2107- Brewington
21631	Medina R. @ Mayan Ranch
15736	W. Prong Medina R. @ Coalkiln Rd.
	Medina Lake CRP
12829	Medina Lake near Headwater
12828	Medina Lake between Cypress & Spettel Coves
12827	Medina Lake @ Mormon Bluff
12826	Medina Lake near Red Cove
12825	Medina Lake @ ML Dam West of San Antonio
	Diversion Lake CRP
18407	Diversion Lake just upstream of Diversion Lake Dam
14205	Medina R. Downstream Medina Lake Dam in Mico, TX @ low water crossing
14205	Medina R. Downstream Medina Lake Dam in Mico, TX @ low water Crossing
	Nueces River CRP
13017	Seco Creek @ RR 470
14939	Sabinal River @ FM 187
21948	Sabinal R. @ FM 187 S. of Utopia Onion Ck
22227	Commissioner's Creek Downstream of Camp Ozark
22306	Sabinal River near Lost Maples SNA

CRP water quality data can be viewed at:
https://www80.tceq.texas.gov/SwqmisWeb/public/crpweb.faces

In-House Sampling: The surface water sampling program was initiated in order to monitor water quality throughout Bandera County. It has been modified to better serve the community by increasing the number of sites for a more representative data collection, reporting E. coli counts via local newspapers and the District website to the citizens of Bandera County for safety. BCRAGD's In-House Surface Water Sampling Program allows District staff to detect bacteria spikes in the Medina and Sabinal Rivers, as well as Medina Lake, and follow up with an immediate investigation. From October 2021 to September 2022, there were 18 instances with E. coli counts over the TCEQ standard of 399 MPN (Most Probable Number) per 100 mL of sample water. The District recommends no swimming to take place in areas where the count is over the limit. That sample site area is then investigated, beginning with a re-sample effort. If the MPN remains above the 399 MPN, further investigations are made (see dates on 12.2.2).

ML-1.04	Medina Lake @ County Park NE of Boat Ramp	**MP-3.01**	Medina R @ Moffett Park
MR-1.01	Medina R @ English Crossing	**MRN-3.01**	N. Prong Medina R @ Rocky Creek Crossing FM 2107
MR-1.02	Medina R @ Bridlegate Park	**MRN-3.03**	N. Prong Medina R @ Brewington Crossing FM 2107
MR-1.03	Medina R @ Bandera River Ranch Park	**WC-3.01**	N. Prong Medina R @ Wallace Creek
BC-2.01	Bandera Creek @ SH 16	**MRW-3.01**	W. Prong Medina R @ Coal Kiln Rd RR 337
LMC-2.01	Lower Mason Creek @ Chipman Ln.	**MRW-3.03**	W. Prong Medina R @ Carpenter Creek @ RR 337
MR-2.025	Above Sewage Treatment Plant Effluent	**SC-4.01**	Seco Creek @ RR 470 Crossing
MR-2.03	Medina R @ Bandera City Park HWY 173	**CC-4.01**	Sabinal R @ Cornelius Rd Crossing
MR-2.05	Medina R @ Bandera City Park 1st Street Bridge	**SR-4.03**	Sabinal R in Vanderpool @ SH 187
MR-3.01	Medina R @ RR 337	**LM-4.03**	Sabinal R @ Lost Maples 1st Bridge
MR-3.04	Medina R @ Tarpley Crossing	**WVC-2.01**	Hill Country State Natural Area @ FM 1077
MR-3.05	Medina R @ Ranger Crossing HWY 16	**WC-4.01**	Williams Creek Crossing
UTOP	Utopia City Park	**CC-1.01**	Can Creek @ Lost Maples
PC-1.01	Privilege Creek @ SH 16	**MR-3.06**	Medina @ Peaceful Valley
ML-2.07	Medina Lake @ Red Cove Marina	**ML-1.06**	Medina Lake Pop's Place
ML-2.07	Medina Lake @ Haby's Cove		

b. Maintain at the District Office an annual report of District activities available to the public.

- *The annual report, annual financial audit, and the budget are readily available at the District and on the District's website for the public to view or copy.*

4.2.1 Management Objective

Each year the District will participate in the regional planning process by attending Region J Regional Planning Group meetings.

4.2.2 Performance Standard

The attendance of a district representative at any Region J Regional Planning Group will be noted in the annual report to the Board of Directors.

- *BCRAGD is a representative Groundwater Conservation District on the Region J Plateau Regional Planning Group, and represents Bandera County in the design of viable water management strategies in the region. BCRAGD attends planning group meetings, and proactively participates with Region J's consultants in the creation of the Region J Water Plan.*

- *March 17, 2022, BCRAGD General Manager and Intergovernmental Affairs Manager attended the Region J Meeting.*

- *On May 5, 2022, BCRAGD General Manager attended the Region J Meeting.*

- *September 15, 2022, BCRAGD General Manager attended the Region J Meeting.*

Management Goal 5

5.0.0 Address natural resource issues.

5.1.1 Management Objective

The District is an active participant in the TCEQ Clean Rivers Program. This program is the gold standard in Texas for monitoring the water quality in the State. The District also tests groundwater from newly drilled wells and existing wells. The District will investigate, or refer to the proper agency, any citizen's or District initiated complaint related to surface water, groundwater, or any natural resource within the District. These investigations are a valuable tool to help the District protect the natural resources in the County.

5.1.2 Performance Standard

The General Manager will report the number of nuisance complaints, Notice of Violations issued, natural resources investigations, surface water tests, and groundwater tests to the Board of Directors in an annual report.

- *Nuisance Complaints: 45*
- *Notices of Violation: 11*
- *Total Surface Water Test samples taken (including CRP): 205; see 4.1.2B*
- *Total number of Groundwater Tests: 383*
- *Both (Bacteria & Mineral): 158*
- *Bacteria Only: 208*
- *Mineral Only: 17*

Management Goal 6

6.0.0 Address drought conditions.

6.1.1 Management Objective

Record the Drought Severity Index each month and when drought conditions exist, post the drought stage and any appropriate drought restrictions at the District's office.

6.1.2 Performance Standard

In conjunction with the drought index, the General Manager may utilize flow rates from the Sabinal and Medina Rivers to determine appropriate drought stages. The General Manager shall post the drought stage and any appropriate drought restrictions at the District's office each month.

- *The appropriate drought stage is implemented when warranted by the Drought Management Plan. The Drought Stage is posted on the District's website, bulletin board, and on the sign at the road in front of the District's office. The appropriate drought stage is continuously posted at the Bandera County Courthouse. The drought stage is presented to the Board at every Quarterly Meeting.*

6.2.1 Management Objective

Evaluate groundwater availability each year by monitoring water levels of the aquifer from monitor wells within Bandera County.

6.2.2 Performance Standard

Record number of wells monitored each year in the annual report to the Board of Directors.

➢ *The District has a monitor well network that consists of 41 monitor wells that are monitored at least quarterly.*

Management Goal 7

7.0.0 Address conservation

7.1.1 Management Objective

Promote public awareness of the need for water conservation.

7.1.2 Performance Standard

A minimum of one public water quality/conservation show, demonstration, event, or educational talk will be held each year. The number of events, shows, or talks should be reported in the annual report to the Board of Directors.

- *Each time the District provides a public show, demonstration, event or educational talk, water conservation is either discussed or water conservation literature and/or information is provided.*

- *Water conservation literature is provided at all District public meetings. (12 meetings): 11/04/2021, 12/09/2021, 12/16/2021, 01/27/2022, 03/03/2022, 04/14/2022, 05/19/2022, 06/02/2022, 06/20,2022, 07/14/2022, 08/11/2022, 09/08/2022.*

- *Water conservation literature can be found on the District's website by clicking on "Tools for Sustainability" found under the "Education" tab. There, the public can access comprehensive literature on conserving water indoors, conserving water outdoors, water conservation tips, water conservation for industries, businesses, and institutions, a Texas landscape watering guide, a well owner's guide to water supply, ASR, irrigation, leak detection, water reuse, and more.*

- *On December 13, 2021, BCRAGD staff attended the online Hill Country Watershed Stewardship Annual Gathering. This annual meeting is an important opportunity for agency personnel to bring forth issues in a roundtable discussion format allowing for multiple opinions and opportunities for problems to be resolved throughout the Hill Country. These topics include addressing brush control, riparian health, and invasive species management.*

- *On December 16, 2021, BCRAGD held the annual Christmas Water Conservation Event at the District office.*

- *The BCRAGD Education & Outreach Manager and the Education & Outreach Coordinator held Educational Programs with NRA on the following dates: April 13, 2022, at Utopia ISD and April 29, 2022, at Medina ISD. The District was in Bandera ISD on April 25 & 26, 2022, at Alkek Elementary School, May 6, 2022, at Hill Country Elementary School, and May 18, 2022, at Bandera Middle School. The Nueces River Authority Water Resource Stewardship Program, in collaboration with BCRAGD, heavily emphasizes water conservation, water quality protection, and natural resource systems to the 5th and 7th grade students in Bandera County throughout each Spring season. Our District sponsors and co-facilitates the program every year. Students learned about watersheds, water conservation, and riparian*

ecosystems and are engaged in a hands-on experiment with a river basin model to demonstrate how pollution travels into water streams and ends up in the ocean, and had a thorough discussion on ways to be good stewards of our streams.

- *On October 13, 2021, the BCRAGD Education team attended the Women's Leadership Conference hosted by Schreiner University. This conference was about how women embrace and manage personal, professional, social, and technological change. The district team hosted a table to promote water conservation and preservation career possibilities to young women.*

- *October 16, 2021, the BCRAGD educational team hosted an Environmental Scientist for a Day Lab at Schreiner University's EYH experience. This lab allowed the participants to learn what a watershed is and how humans impact the quality and function of those watersheds. The participants built their watershed and facilitated a rain event to model how pollution moves through a watershed. The activity was followed by discussions on how to protect watersheds and also ways to conserve water. Expanding Your Horizons (EYH) is hosted by Schreiner University and is a fun day filled with STEM activities for young 6th through 8th-grade girls to engage in STEM as high school approaches. This EYH hosted approximately 200 young girls.*

- *On February 15, 2022, BCRAGD Staff viewed the Central Texas Water Conservation Symposium Webinar.*

- *On March 11, 2022, The Education team Charley Curd and Corrina Fox, along with the Field Operations Manager, Clint Carter, attended the annual Tom Daniel's Elementary Expo in Kerrville, Texas. This event served as a way for the district to expand into the hill country region and connect with similarly tasked entities like the Upper Guadalupe River Authority to provide water conservation and preservation education. The presentation included a life-like model representing the components of 2 types of watersheds. Seventy second grade students and four teachers were in attendance. The District presented concepts regarding the hydrological cycle, watersheds, river basins, riparian plants, aquifers, surface water, groundwater, pollution issues, and ways to conserve freshwater.*

- *On March 13, 2022, the education team Charley Curd & Corrina Fox attended the workshop to help current facilitators gain more knowledge and experience facilitating the Project Wild curriculum. This program will enable the Education team to provide needed CEUs for educators while meeting BCRAGD's performance and management goals set forth*

by the State of Texas.

- *On April 2, 2022, The Hydro-Geo Workshop association held a workshop, at the "Cave without a Name" in Boerne, TX. BCRAGD Staff provided two workshops for participants. The first covered the details of the TCEQ Clean Rivers Program. They demonstrated sampling methods for both water quality and biological portions. In addition, the staff collaborated in hosting a "Developing a Career in Geological Science" Q&A module for this event. The information included: why and how to become a professional Geologist, how to start building a career in college, networking, hydrogeology-specific careers, working for a groundwater district, and the value of a Professional Geologist license. Literature containing a list of professional societies and frequently asked career-related questions was distributed to participants during this session.*

- *On April 8, 2022, the Education and Outreach Team participated in the Soil & Water Conservation District Environmental Day Workshop in collaboration with the Nueces River Authority Education team. All 6th and 7th grade students in Bandera County benefited from this educational event. Students were given information on various water contaminants and the effects of these contaminants on water quality and human health. Students were given a demonstration of how these contaminants are tested. Corrina Fox and Charley Curd guided students through in-depth discussions on the importance of water-related issues such as water conservation, water preservation, and water availability. Approximately 180 students participated.*

- *On April 20, 2022, & May 18, 2022, BCRAGD Staff attended the CBSL Watershed Conservation Committee.*

- *On May 12, 2022, the BCRAGD Education and Outreach team assisted the Nueces River Authority with the Youth Water Awareness Day held at the University of Texas Marine Science Institute in Port Aransas, Texas. This event was for all of the 6th, 7th, and 8th grade students of the Port Aransas Middle School. During this event, the students learned about the connectivity of River Basins and watersheds with the Ocean and were able to explore the flow of pollution from River Basins to the Ocean with a topographical model.*

- *On May 23-24, 2022, the BCRAGD Education and Outreach team visited Alkek Elementary School 5th Grade classes to present the District's Water Quality program. This Texas State Curriculum-aligned program engages students in a hands-on experience where they perform scientific testing and analysis of local tap water samples. The mission of the program is to connect water quality issues to their own life experience*

through scientific experimentation and discussion of water issues and future solutions to those water issues. Approximately 200 students attended the event.

- *BCRAGD presented at three separate Community Library events. The Education team works to present hands-on activities with a presentation or with a children's storybook that emphasize the themes of conservation and importance at every level. On 21.JUN.2022 Medina Library: All Water Goes to the Ocean. On 05.JUL.2022 Bandera Library: It All Goes to the Ocean Pres. & Activity. On 27.JUL.2022 Medina Library - Saving Tally Pre-K story time/activity.*

- *Additional information is posted regularly on the District's website at www.bcragd.org and on BCRAGD's Social Media Pages including Facebook, Twitter, and Instagram as well as the BCRAGD Newsletter. The District has also implemented educational content on YouTube, Pinterest, Linked In*

-See 2.1.2 B

7.2.1 Management Objective

The District will contract with Nueces River Authority (NRA) or similar organizations to provide information on efficient use of groundwater to students in Bandera County.

7.2.2 Performance Standard

The General Manager will report the instances that educational conservation information was given to students in Bandera County in the annual report to the Board.

- *The Nueces River Authority Water Resource Stewardship Program, in collaboration with BCRAGD, heavily emphasizes water conservation, water quality protection, and natural resource systems to the 5th and 7th grade students in Bandera County throughout each Spring season. Our District sponsors and co-facilitates the program every year. Students learn about watersheds, water conservation, and riparian ecosystems and are engaged in a hands-on experiment with a river basin model to demonstrate how pollution travels into water streams and ends up in the ocean, and have a thorough discussion on ways to be good stewards of our streams and waterways. Since 2012, BCRAGD has sponsored and co-facilitated the Nueces River Authority Water Resource Stewardship Education Program for Bandera, Medina, and Utopia 5th and 7th grade school students. The program features a water use and conservation presentation, and presented the demonstration of a surface water runoff model and an aquifer model, with an emphasis on non-point source pollution.*

- *On April 13, 2022, Utopia ISD and on April 29, 2022, Medina ISD. The*

BCRAGD Education & Outreach Manager and the Education & Outreach Coordinator held Educational Programs with NRA. The Nueces River Authority Water Resource Stewardship Program, in collaboration with BCRAGD, heavily emphasizes water conservation, water quality protection, and natural resource systems to the 5th and 7th grade students in Bandera County throughout each Spring season. Our District sponsors and co-facilitates the program every year. Students learned about watersheds, water conservation, and riparian ecosystems and are engaged in a hands-on experiment with a river basin model to demonstrate how pollution travels into water streams and ends up in the ocean, and had a thorough discussion on ways to be good stewards of our streams.

- *April 13, 2022, at Utopia ISD and April 29, 2022, at Medina ISD. The District was in Bandera ISD on April 25 & 26, 2022, at Alkek Elementary School, May 6, 2022, at Hill Country Elementary School, and May 18, 2022, at Bandera Middle School.*

- *On May 12, 2022, the BCRAGD Education and Outreach team assisted the Nueces River Authority with the Youth Water Awareness Day held at the University of Texas Marine Science Institute in Port Aransas, Texas. This event was for all of the 6th, 7th, and 8th grade students of the Port Aransas Middle School. During this event, the students learned about the connectivity of River Basins and watersheds with the Ocean and were able to explore the flow of pollution from River Basins to the Ocean with a topographical model.*

- *On April 8, 2022, the Education and Outreach Team participated in the Soil & Water Conservation District Environmental Day Workshop in collaboration with the Nueces River Authority Education team. All 6th and 7th grade students in Bandera County benefited from this educational event. Students were given information on various water contaminants and the effects of these contaminants on water quality and human health. Students were given a demonstration of how these contaminants are tested. Corrina Fox and Charley Curd guided students through in-depth discussions on the importance of water-related issues such as water conservation, water preservation, and water availability. Approximately 180 students participated.*

- *BCRAGD presented at three separate Community Library events. The Education team works to present hands-on activities with a presentation or with a children's storybook that emphasize the themes of conservation and importance at every level. On 21.JUN.2022 Medina Library: All Water Goes to the Ocean. On 05.JUL.2022 Bandera Library: It All Goes to the Ocean Pres. & Activity. On 27.JUL.2022 Medina Library - Saving Tally Pre-K story time/activity.*

- *Additional information is posted regularly on the District's website at www.bcragd.org and on BCRAGD's Social Media Pages including Facebook, Twitter, and Instagram as well as the BCRAGD Newsletter. The District has also implemented educational content on YouTube, Pinterest,*

and Linked In.

- *The District gave educational water related talks to local groups when requested.*

Management Goal 8

8.0.0 Address rainwater harvesting

8.1.1 Management Objective

The District will promote rainwater harvesting and provide advice, information, and literature regarding the benefits of rainwater harvesting.

8.1.2 Performance Standard

Provide Rainwater Harvesting material to the public in handouts. Each year provide rainwater harvesting information on at least one occasion by one of the following methods:

- Article to local newspapers
- Distribution of conservation literature handouts
- Public presentation by District Staff
- Information on District website
- District exhibit/display booth at a public booth

- *Rainwater Harvesting Materials and literature is provided at all District public meetings. (12 meetings): 11/04/2021, 12/09/2021, 12/16/2021, 01/27/2022, 03/03/2022, 04/14/2022, 05/19/2022, 06/02/2022, 06/20,2022, 07/14/2022, 08/11/2022, 09/08/2022.*

- *Rainwater Harvesting Materials are always available on the website by clicking on the "Tools for Sustainability" tab under the Education tab, including a Rainwater Harvesting Informational Video for the Public created for FY2022.*

- *From September 26-30, 2022, the Education Team ran a Rainwater Harvesting Educational social media campaign.*

- *During September 2022, BCRAGD Education Team edited, designed, & completed BCRAGD's public virtual PowerPoint Presentation, Rainwater Harvesting.*

- *On September 26, 2022, BCRAGD Education Team Posted BCRAGD's public virtual PowerPoint Presentation, Rainwater Harvesting, to the District social media pages and website.*

Management Goal 9

9.0.0 Address recharge enhancement.

The District does not currently have the financial resources to buy property and construct recharge structures; therefore, this goal is not applicable to the District at this time.

Management Goal 10

10.0.0 Address precipitation enhancement.

Precipitation enhancement over Bandera County is financed by the Edwards Aquifer Authority and operates from Pleasanton, Texas; therefore, this goal is not applicable to the District at this time

Management Goal 11

11.0.0 Address brush control.

11.1.1 Management Objective

Provide to the public available information on brush control including riparian health, along with native and invasive plant species management.

11.1.2 Performance Standard

Each year provide brush control, including riparian health, along with native and invasive plant species management information on at least one occasion by one of the following methods and include it in an annual report to the Board of Directors:

- article to local newspaper
- distribution of conservation literature handouts
- public presentation by District Staff
- information on District's website
- District exhibit/display booth at a public event

- *Materials and literature are provided at all District public meetings. (12 meetings): 11/04/2021, 12/09/2021, 12/16/2021, 01/27/2022, 03/03/2022, 04/14/2022, 05/19/2022, 06/02/2022, 06/20,2022, 07/14/2022, 08/11/2022, 09/08/2022.*

- *Brush Control information, including riparian health, along with native and invasive plant species management information is always available on the website by clicking on the "Tools for Sustainability" tab under the Education tab.*

- *BCRAGD staff has recently provided pond consultation services at the request of private landowners throughout Bandera County. These services have included site visits and professional guidance on pond management aimed at improving water quality and water quantity within the watershed. On March 08, 2022, and April 20, 2022.*

- *On December 13, 2021, BCRAGD's Aquatic Ecologist Attended a Texas Watershed Coordinator Roundtable meeting at which riparian health was discussed.*

- *On 07.APR.2022 a Riparian Site Visit was conducted.*

- *BCRAGD District staff conducted a check on the Zebra Mussel Sampler on 13.JAN.2022, 23.FEB.2022, 29.APR.2022, 06.MAY.2022, 22.MAY.2022, 10.JUN.2022.*

- *BCRAGD District staff conducted Arundo Surveys on 13.OCT.2021, 14.OCT.2021, 15.OCT.2021, 21.JUL.2022, 25.AUG.2022, 06.SEP.2022, 07.SEP.2022, 08.SEP.2022, 21.SEP.2022, 27.SEP.2022.*

- *The BCRAGD Education & Outreach Manager and the Education & Outreach Coordinator held Educational Programs with NRA on the following dates: April 13, 2022, at Utopia ISD and April 29, 2022, at Medina ISD. The District was in Bandera ISD on April 25 & 26, 2022, at Alkek Elementary School, May 6, 2022, at Hill Country Elementary School, and May 18, 2022, at Bandera Middle School. The Nueces River Authority Water Resource Stewardship Program, in collaboration with BCRAGD, heavily emphasizes water conservation, water quality protection, and natural resource systems to the 5th and 7th grade students in Bandera County throughout each Spring season. Our District sponsors and co-facilitates the program every year. Students learned about watersheds, water conservation, and riparian ecosystems and are engaged in a hands-on experiment with a river basin model to demonstrate how pollution travels into water streams and ends up in the ocean, and had a thorough discussion on ways to be good stewards of our streams.*

- *October 16, 2021, the BCRAGD educational team hosted an Environmental Scientist for a Day Lab at Schreiner University's EYH experience. This lab allowed the participants to learn what a watershed is and how humans impact the quality and function of those watersheds. The participants built their watershed and facilitated a rain event to model how pollution moves through a watershed. The activity was followed by discussions on how to protect watersheds and also ways to conserve water. Expanding Your Horizons (EYH) is hosted by Schreiner University and is a fun day filled with STEM activities for young 6th through 8th grade girls to engage in STEM as high school approaches. This EYH hosted approximately 200 young girls.*

- *On March 11, 2022, The Education team Charley Curd and Corrina Fox, along with the Field Operations Manager, Clint Carter, attended the annual Tom Daniel's Elementary Expo in Kerrville, Texas. This event served as a way for the district to expand into the hill country region and connect with similarly tasked entities like the Upper Guadalupe River Authority to provide water conservation and preservation education. The presentation included a life-like model representing the components of 2 types of watersheds. Seventy second grade students and four teachers were in attendance. The District presented concepts regarding the hydrological cycle, watersheds, river basins, riparian plants, aquifers, surface water, groundwater, pollution issues, and ways to conserve freshwater.*

- *On April 13, 2022, District staff attended the Healthy Creeks Initiative.*
- *From April 25-28, 2022, District staff attended the TELA Conference at the Mayan.*
- *On May 4, 2022, District staff attended the Riparian & Watershed Protection Planning Meeting at UGRA.*
- *On May 5, 2022, District staff attended the Texas Riparian Workshop.*
- *The District's Surface Water Team has initiated several fish relocation efforts along the Medina River in response to severe and extreme drought conditions. A total of 187 fish, including several Guadalupe Bass (the State Fish of Texas), were removed from their drying pools and successfully relocated to more suitable habitats along deeper portions of the Medina River. The Surface Water Team is proud to report that 0 fish mortalities were observed during the course of the project.*

Management Goal 12

12.0.0 Addressing water quality.

12.1.1 Management Objective

Continue the existing program to monitor groundwater quality in the District.

12.1.2 Performance Standard

Continue to monitor water quality from wells in the monitoring system on a semi-annual basis, and from newly drilled wells when samples can be obtained. Report the number of samples obtained to the Board of Directors in an annual report.

- *Monitor Well Water Samples taken: 29 total*
- *Water Analysis Performed on New Wells: 86 total*

12.2.1 Management Objective

Continue the existing program to monitor surface water quality in the District.

12.2.2 Performance Standard

Continue to monitor water quality from a minimum of 6 locations in the county from the Sabinal and Medina River basins on a quarterly basis. Report the number of samples obtained to the Board of Directors in an annual report.

- *BCRAGD continued its partnership with San Antonio River Authority (SARA) to participate in the Clean Rivers Program in the Bandera County portion of San Antonio River Basin. BCRAGD is responsible for sampling 8 sites along the Medina River, 5 sites on Medina Lake, and 3 sites total on Diversion Lake. BCRAGD continues its partnership with the Nueces River Authority (NRA) to participate in the CRP in the Nueces River Basin; BCRAGD is responsible for 5 sites total along the Sabinal River in Bandera County, partnering with NRA. The district continued its In-House Surface Water Quality Testing Program along the*

Medina and Sabinal rivers for the protection of the citizens of Bandera County. 205 total samples were taken between these programs during FY 2022 and are summarized below:

1st Quarter Oct. 2021-Dec. 2021

21.OCT.2021 Upper Medina River CRP (4 sites)
02.NOV.2021 Medina Lake CRP (2 sites)
16.NOV.2021 Medina Lake CRP (3 sites)
17.NOV.2021 Diversion Lake CRP (2 sites)
18.NOV.2021 Upper Nueces CRP (3 sites)
29.NOV.2021 Upper Nueces CRP (2 sites)
07.DEC.2021 Quarterly In-House Sampling (14 sites)
08.DEC.2021 Quarterly In-House Sampling (13 sites)

2nd Quarter Jan. 2022-Mar. 2022

13.JAN.2022 Medina Lake CRP (2 sites)
18.JAN.2022 Medina River CRP (4 sites)
19.JAN.2022 Medina River CRP (4 sites)
26.JAN.2022 Upper Nueces CRP (2sites)
01.FEB.2022 Upper Nueces CRP (3 sites)
09.FEB.2022 Medina Lake CRP (3 sites)
23.FEB.2022 Diversion Lake CRP (2 sites)
16.MAR.2022 Quarterly In-House Sampling (11 sites)
17.MAR.2022 Quarterly In-House Sampling (13 sites)
31.MAR.2022 Medina Lake In-House Sampling (3 sites)

3rd Quarter Apr. 2022-June 2022

11.MAY.2022 Sabinal River CRP (2 sites)
12.MAY.2022 Medina River CRP (4 sites)
18.MAY.2022 Medina River CRP (4 sites)
19.MAY.2022 Diversion Lake CRP (1 site)
26.MAY.2022 Medina Lake CRP (5 sites)
01.JUN.2022 Summer In-House Sampling (10 sites)
02.JUN.2022 Summer In-House Sampling (10 sites
14.JUN.2022 Summer In-House Sampling (10 sites)
15.JUN.2022 Summer In-House Sampling (10 sites)
16.JUN.2022 Diversion Lake CRP (1 site)
28.JUN.2022 Summer In-House Sampling (10 sites)
29.JUN.2022 Summer In-House Sampling (10 sites)

4th Quarter Jul. 2022-Sep.2022

12.JUL.2022 Summer In-House Sampling (20 sites)
13.JUL.2022 Sabinal CRP (3 sites)
26.JUL.2022 Diversion CRP (2 sites)
27.JUL.2022 Annual CRP Audit Assessment (3 sites)
28.JUL.2022 Summer In-House Sampling (20 sites)

Management Goal 13

13.0.0 Addressing in a Quantitative Manner the Desired Future Conditions.

13.1.1 Management Objective

To achieve the Desired Future Condition adopted by GMA 9 For the Edwards Group of the Edwards Trinity (Plateau) and the Hill Country Trinity Aquifer.

13.1.2 Performance Standard

Groundwater Management Area 9 has adopted a Desired Future Condition (DFC) for the Edwards Trinity Plateau and the Hill Country Trinity aquifer.

District rules do not allow permitted wells in the Edwards Trinity Plateau Aquifer. The District has established a monitor well in the Edwards Aquifer and is monitoring the water level and rainfall on a real-time basis. A comparison of the annual water level measurements and the cumulative water level trend to the adopted Desired Future Condition will be made annually. The water levels will be included in the District database and a discussion of the water level trend-Desired Future Condition comparison will be reported to the Board of Directors on an annual basis and documented in the annual report.

The District will notate the Hill Country Trinity Aquifer water level trends from the District's Monitor Wells in order to track the District's progress in complying with the average drawdown as stated in the GAM Run 16-023 MAG for Bandera County. The General Manager will report annually to the District Board of Directors the progress of achieving the Desired Future Condition. The General Manager will complete an annual groundwater report that details groundwater production from non-exempt wells combined with exempt well pumping estimates supplied by the Texas Water Development Board. This report will be included in the annual report provided to the District's Board of Directors.

Annual Evaluation of the Groundwater Resources in Bandera County FY 2022

INTRODUCTION

The desired future conditions (DFC) were adopted by Groundwater Management Area (GMA) 9 in 2021 Joint Planning Sessions (Table 1). The desired future condition (DFC) of the Trinity Aquifer for Bandera County was adopted by the District's Board based on the Texas Water Development Board's (TWDB) 2008 model run and Groundwater Availability Model (GAM) Run 10-005. A maximum of 30 ft. of drawdown after 50 years (The year 2058) for the Trinity Aquifer was adopted, which was a total for both the Middle and Lower Aquifers. The Upper Trinity Aquifer does not supply sufficient water and is generally not used in Bandera County; therefore, it was not used in the TWDB 2008 model run or the GAM Run 10-005. The District's Board readopted the above DFCs in 2022 and was provided GAM Run 22-010.

Table 1 - Adopted Desired Future Conditions for Relevant Aquifers in Bandera County

Aquifer	Desired Future Condition	Date DFC Adopted
Edwards Group of the Edwards-Trinity (Plateau)	No net increase in average drawdown in Kendall and Bandera counties through 2080 [no average water level decline in 2080, as compared to 1997 water levels]	11/15/2021
Trinity	Increase in average drawdown of approximately 30 feet through 2060 [no more than 30 feet of average water level decline in 2016, as compared to 2008 water levels]	11/15/2021

FY 2022 EVALUATION

For the Hill Country Trinity Aquifer DFC evaluation, the 2008 monitor well levels were used as the comparing factor in order to stay consistent with the first GAM run for the DFC process, GAM Run 10-005. Bandera County Monitor Well locations with historical data dating back to 2008 are highlighted in Figure 1.

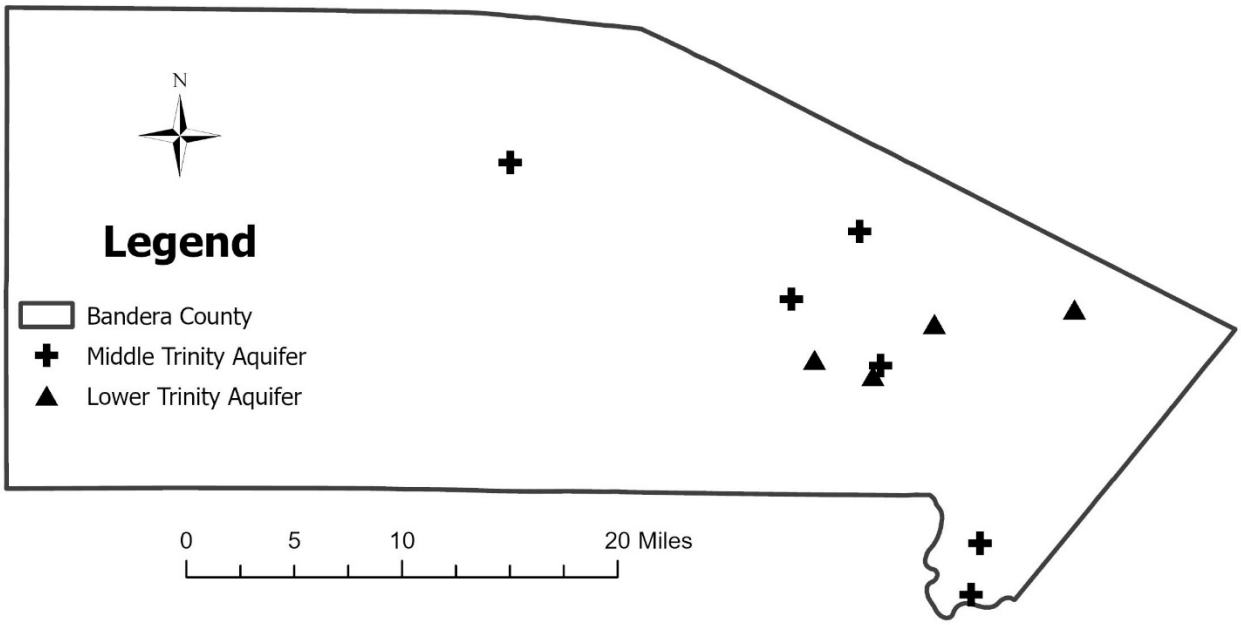


Figure 1 – Historic Trinity Aquifer Monitoring Wells

Trinity aquifer group – An average level was calculated for each monitor well using data points taken throughout FY 2022. These averages were then compared to the 2008 water level measurements, and these differences were reported during an open meeting of the Groundwater Management Area 9 (GMA 9) Joint Planning Committee (held at 10:00 A.M. on Friday the 9th of December 2022 held at the Cow Creek Groundwater Conservation District's Meeting Room located at 9 Toepperwein Road in Boerne, Texas, 78006).

Edwards-Trinity Plateau aquifer – District rules prohibit production permits for the use of the Edwards-Trinity Plateau aquifer. There is only one monitor well for the Edwards-Trinity Plateau in Bandera County – located at Lost Maples State Natural Area. Data for this well was originally collected in 2010 and data from the years 2017 – 2020 are unavailable. Cumulative available data was averaged between 2011 and 2022 and compared to the average water levels in 2010.

RESULTS OF THE DFC EVALUATION

The average loss or gain for Trinity group monitor wells is summarized in Table 1. Compared to 2008 water levels, the Trinity Aquifer Group has a cumulative average loss of 13 feet.
Since 2010 the available annual cumulative average depth to water has increased three feet (Table 2).

Table 1 – 2022 Desired Future Conditions Monitoring Results – Trinity Aquifers

For GMA 9 region-wide and Bandera County, Trinity Aquifers
"Increase in average drawdown of approximately 30 feet through 2060 [no more than 30 feet of average water level decline in 2016, as compared to 2008 water levels]"

Monitor Well	Calendar Year Average Water Level Below Land Surface (all numbers in Feet)															Overall Average Change in Water Levels
Name	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**Compared to 2008**
Alkek Elementary	374.9	377.3	372.9	422.2	394.3	387.8	393.4	392.9	394.6	382.6	419.0	387.2	397.9	417.4	413.9	**-21.8**
Bridlegate LT	340.0	325.7	315.8	344.7	339.7	341.0	376.2	369.8	356.1	347.7	369.9	355.5	367.1	377.4	395.2	**-15.8**
Cielo Rio Ranch, Ltd LT	232.8	266.0	239.7	270.5	268.9	282.9	277.8	271.8	291.3	272.8	272.3	290.5	304.3	308.3	324.2	**-48.7**
Latigo Ranch	401.6	395.4	396.7	402.1	401.0	406.1	408.2	413.2	419.4	421.1	424.6	435.0	437.8	445.5	451.6	**-16.8**
Bandera Co. Park	86.4	111.0	100.4	104.0	121.9	137.0	147.8	119.4	80.7	81.5	89.3	80.1	93.0	117.3	123.2	**-21.2**
Boyle	126.9	156.1	108.3	165.5	165.0	177.2	180.5	149.6	95.7	104.7	120.9	130.5	177.5	180.5	189.3	**-23.2**
Bridlegate MT	232.8	236.9	212.9	241.2	240.4	244.3	252.4	234.5	185.2	218.6	214.5	212.6	226.9	224.9	238.1	**5.4**
Erfurt	20.7	21.4	17.2	25.0	22.5	22.5	40.3	20.8	16.3	19.6	19.1	21.0	28.3	30.0	38.3	**-3.7**
Jeffery Yellow House	175.5	184.8	103.8	231.7	178.2	199.7	194.7	159.7	142.3	145.3	155.8	145.6	164.2	162.6	197.3	**6.5**
Jeffery Shallow	33.6	34.5	23.4	35.2	34.0	41.4	46.2	56.1	28.0	32.2	25.2	30.3	33.8	33.4	35.2	**-1.3**
Lakehills Co. Yard	130.6	158.7	113.0	139.6	138.3	152.8	161.7	119.4	85.9	91.1	81.3	77.5	117.9	129.2	151.9	**7.8**
Mason Creek Deep	187.5	215.7	182.8	220.8	213.0	214.6	220.2	198.3	181.0	194.1	218.5	209.6	232.9	230.8	221.8	**-23.4**
Mason Creek Shallow	166.0	178.2	167.5	187.6	187.4	189.2	192.9	178.6	166.4	171.4	185.4	180.5	194.1	196.1	200.9	**-17.9**
Medina Springs	118.5	132.2	125.1	138.7	139.8	144.0	153.3	142.6	130.2	136.0	125.9	139.1	148.9	158.7	162.1	**-22.6**
Orchard Park	34.0	36.9	29.6	33.0	33.1	34.0	34.3	32.9	32.8	36.0	32.0	32.9	36.6	37.2	36.6	**-0.2**
Tarpley VFD	41.3	50.8	41.9	59.4	47.9	47.6	60.5	58.0	53.6	60.2	44.4	41.7	58.6	62.4	68.2	**-12.6**
Tecon	81.5	102.8	91.9	97.9	104.6	107.9	112.4	65.5	79.4	78.1	85.5	73.6	89.3	102.7	111.0	**-11.5**
																-13.0

Total Average Change in Water Levels in Bandera County Trinity Aquifer Monitor Wells when compared to GMA 9 Baseline Year 2008
NOTE: a positive number (shown in black) indicates an average aquifer level higher than the 2008 Baseline Year, while a negative number (shown in red) indicates an average aquifer level lower than the 2008 Baseline Year

Table 2 - 2022 Desired Future Conditions Monitoring Results – Edwards Group of the Edwards-Trinity (Plateau)

For GMA 9 region-wide and Bandera County, Edwards Group of the Edwards-Trinity (Plateau), "No net increase in average drawdown in Kendall and Bandera counties through 2080 [no average water level decline in 2080, as compared to 1997 water levels]"																
																Overall Average Change in Water Levels Compared to 2008
Monitor Well	**Calendar Year Average Water Level Below Land Surface (all numbers in Feet)**															
Name	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	
Edwards Monitor Well			254.3	254.0	252.0	251.0	251.5	249.9	247.7					249.9	251.5	3.4

Total Average Change in Water Levels in Bandera County Edwards Group Aquifer Monitor Well when compared to Baseline Year 2010

NOTE: a positive number (shown in black) indicates an average aquifer level higher than the 2008 Baseline Year, while a negative number (shown in red) indicates an average aquifer level lower than the 2008 Baseline Year

FUTURE CONSIDERATIONS

- GMA 9 and the District have been exploring statistical methods to better approximate each constituent of the Trinity group of aquifers.
- The Edwards-Trinity and Lower Trinity Aquifers have a limited number of historical data and monitor wells for these formations are not distributed across the county.

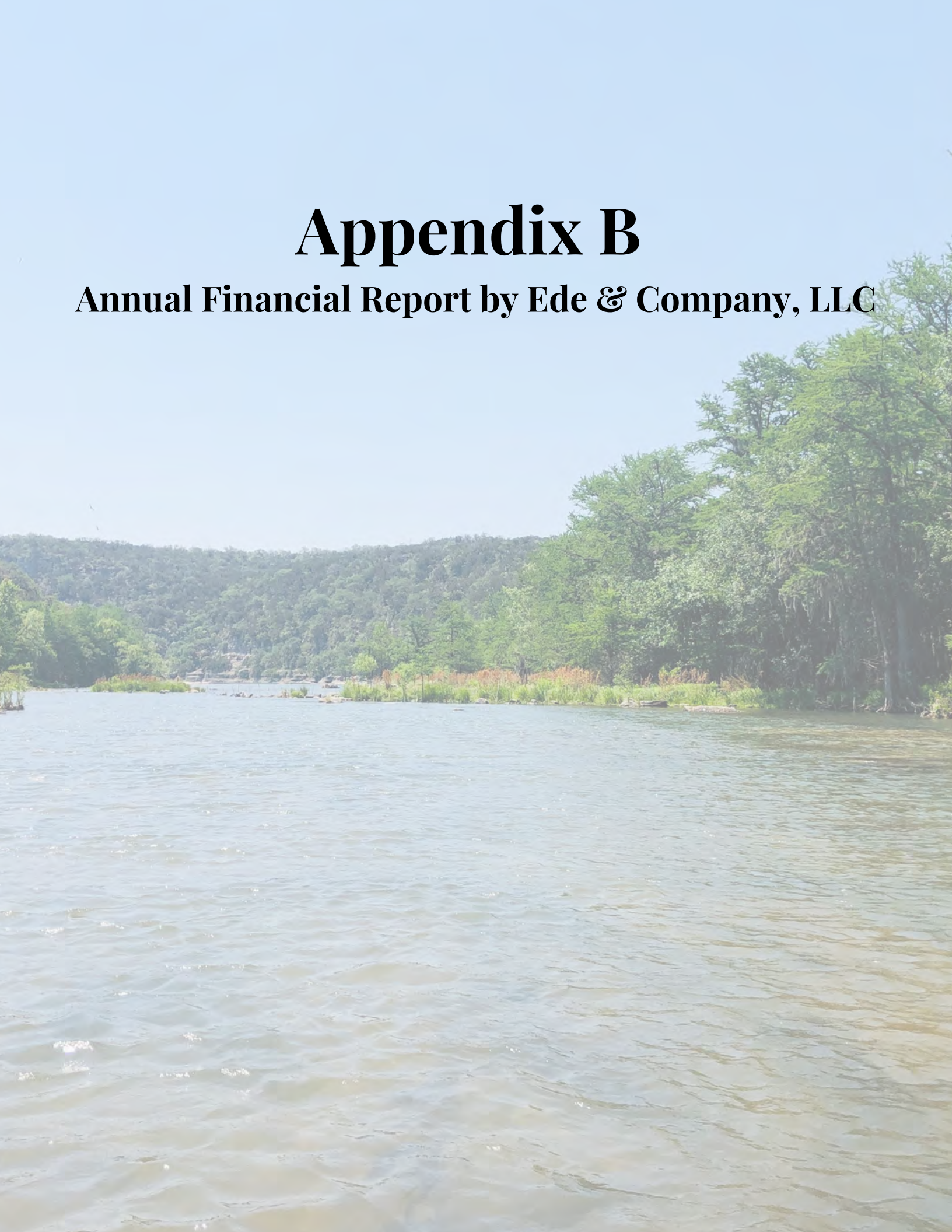
2022 Annual Pumping Amounts

Irrigation Wells									
P-1177	RP	P-1132	RP	P-1067	0	P-1052	42.901	P-1011	0.425
P-1164	47.962	P-1124	0.374	P-1065	UR	P-1048	7.785	P-1008	0.006
P-1160	0	P-1121	RP	P-1064	UR	P-1046	1.596	P-1003	2.928
P-1159	RP	P-1112	5.524	P-1063	UR	P-1041	RP	P-1002	43.807
P-1155	98.355	P-1109	0.707	P-1062	UR	P-1040	RP		
P-1153	11.996	P-1107	RP	P-1061	UR	P-1035	0.012		
P-1149	14.523	P-1093	0.109	P-1056	16.436	P-1034	RP	Total	412.04
P-1147	13.304	P-1092	0.031	P-1055	20.928	P-1025	7.023		
P-1138	27.258	P-1078	7.877	P-1054	RP	P-1017	0		
P-1137	2.749	P-1071	37.389	P-1053	0	P-1012	0.035		
Public Water Supply Wells									
P-1198	RP	P-1175	1.463	P-1150	9.118	P-1118	20.143	P-1049	13.675
P-1193	9.397	P-1174	0.217	P-1146	2.429	P-1116	9.888	P-1047	0
P-1191	0.694	P-1173	2.209	P-1145	24.944	P-1115	3.526	P-1045	0.43
P-1190	1.857	P-1172	2.403	P-1144	5.478	P-1114	54.507	P-1042	26.65
P-1188	RP	P-1170	0	P-1143	0.774	P-1113	6.356	P-1038	2.704
P-1187	RP	P-1169	4.128	P-1141	15.033	P-1110	0.431	P-1032	RP
P-1186	RP	P-1168	0.105	P-1140	0.906	P-1106	12.638	P-1031	21.224
P-1185	RP	P-1167	0.518	P-1135	88.123	P-1096	RP	P-1030	0
P-1184	21.694	P-1166	3.929	P-1134	78.923	P-1089	2.901	P-1029	RP
P-1183	47.387	P-1165	0.068	P-1133	52.932	P-1079	2.969	P-1020	15.423
P-1181	RP	P-1163	4.81	P-1131	15.423	P-1075	23.904	P-1019	RP
P-1180	6.091	P-1162	4.245	P-1129	21.599	P-1074	10.028	P-1018	9.317
P-1179	0	P-1161	2.83	P-1128	9.704	P-1073	6.807	P-1015	25.091
P-1178	13.045	P-1158	3.528	P-1120	RP	P-1058	16.152	P-1001	0
P-1176	7.667	P-1157	RP	P-1119	3.957	P-1050	14.703	Total	767.095
Other Wells									
P-1197	RP	P-1151	RP	P-1102	0	P-1084	RP	P-1037	1.733
P-1196	RP	P-1148	RP	P-1101	0	P-1083	0	P-1036	RP
P-1195	RP	P-1139	0	P-1100	RP	P-1082	0	P-1028	RP
P-1194	0.061	P-1125	0.009	P-1098	0.128	P-1081	0	P-1027	0.018
P-1192	RP	P-1123	0.01	P-1095	1.237	P-1080	RP	P-1026	0.107
P-1189	0.001	P-1108	RP	P-1091	RP	P-1070	RP	P-1023	0.053
P-1171	0.034	P-1105	0	P-1090	RP	P-1069	RP	P-1022	RP
P-1154	0.298	P-1104	9.081	P-1088	20.998	P-1068	RP	P-1016	0.005
P-1152	0.014	P-1103	8.43	P-1085	RP	P-1044	RP	P-1014	0.015
								Total	42.232

RP = Report Pending
UR = Under Review
Other Wells = Permitted wells that fall into this category would be Domestic, Commercial, Livestock, etc.

Appendix B

Annual Financial Report by Ede & Company, LLC



Bandera County River Authority and Groundwater District

Annual Financial Report
For the Year Ended September 30, 2022

Ede & Company, LLC
Certified Public Accountants

BANDERA COUNTY RIVER AUTHORITY AND GROUND WATER DISTRICT
Annual Financial Report
For the Year Ended September 30, 2022

BANDERA COUNTY RIVER AUTHORITY AND GROUND WATER DISTRICT

Annual Financial Report

For the Year Ended September 30, 2022

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ANNUAL FILING AFFIDAVIT

THE STATE OF TEXAS X
X
COUNTY OF BANDERA X

I, Donald Sloan of the BANDERA COUNTY RIVER AUTHORITY AND GROUND WATER DISTRICT hereby swear, or affirm, that the district named above has reviewed and approved at a meeting of the Board of Directors of the District on the 19th day of January, 2023, its annual audit report for the year ended September 30, 2022 and that copies of the annual report have been filed in the district office located, at BANDERA, TX .

This annual filing affidavit and the attached copy of the annual audit report are being submitted to the Texas Commission on Environmental Quality in satisfaction of all annual filing requirements within Section 49.194 of the Texas Water Code.

Dated January 19 ,2023 By: Donald Sloan
(Signature of District Representative)

DONALD SLOAN - PRESIDENT
(Type Name & Title of above District Representative)

Sworn to and Subscribed to before me this 19th day of January , 2023

Hayli Hernandez
Notary Public, State of Texas
Comm. Expires 11-01-2024
Notary ID 13088325-8

Hayli Hernandez
(Signature of Notary)

Commission Expires on 11/1/2024

Hayli Hernandez
(Print Name of Notary)

Notary Public in and for the State of Texas.

EDE & COMPANY, LLC
Certified Public Accountants

Eric Ede, CPA
Donna Ede Jones, CPA

133 N. Camp St.
Uvalde, Texas 78801
Telephone (830) 278-2513
Fax (830) 278-6288
Email ede@edecpa.com

INDEPENDENT AUDITOR'S REPORT

Board of Directors
Bandera County River Authority
and Groundwater District
P. O. Box 177
Bandera, Texas 78003

Opinions

We have audited the accompanying financial statements of the governmental activities, each major fund, and the aggregate remaining fund information of the Bandera County River Authority and Groundwater District, as of and for the year ended September 30, 2022, and the related notes to the financial statements, which collectively comprise the District's basic financial statements as listed in the table of contents.

In our opinion, the financial statements referred to above present fairly, in all material respects, the respective financial position of the governmental activities, each major fund, and the aggregate remaining fund information of the Bandera County River Authority and Groundwater District, as of September 30, 2022, and the respective changes in financial position for the year then ended in accordance with accounting principles generally accepted in the United States of America.

Basis for Opinions

We conducted our audit in accordance with auditing standards generally accepted in the United States of America Our responsibilities under those standards are further described in the Auditor's Responsibilities for the Audit of the Financial Statements section of our report. We are required to be independent of the Bandera County River Authority and Groundwater District, and to meet our other ethical responsibilities, in accordance with the relevant ethical requirements relating to our audit. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinions.

Responsibilities of Management for the Financial Statements

Management is responsible for the preparation and fair presentation of the financial statements in accordance with accounting principles generally accepted in the United States of America, and for the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, management is required to evaluate whether there are conditions or events, considered in the aggregate, that raise substantial doubt about the Bandera County River Authority and Groundwater District's ability to continue as a going concern for twelve months beyond the financial statement date, including any currently known information that may raise substantial doubt shortly thereafter.

Auditor's Responsibilities for the Audit of the Financial Statements

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinions. Reasonable assurance is a high level of assurance but is not absolute assurance and therefore is not a guarantee that an audit conducted in accordance with generally accepted auditing standards will always detect a material misstatement when it exists. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control. Misstatements are considered material if there is a substantial likelihood that, individually or in the aggregate, they would influence the judgment made by a reasonable user based on the financial statements.

In performing an audit in accordance with generally accepted auditing standards, we:

- Exercise professional judgment and maintain professional skepticism throughout the audit.
- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, and design and perform audit procedures responsive to those risks. Such procedures include examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Bandera County River Authority and Groundwater District's internal control. Accordingly, no such opinion is expressed.
- Evaluate the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluate the overall presentation of the financial statements.
- Conclude whether, in our judgment, there are conditions or events, considered in the aggregate, that raise substantial doubt about the Bandera County River Authority and Groundwater District's ability to continue as a going concern for a reasonable period of time.

We are required to communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit, significant audit findings, and certain internal control-related matters that we identified during the audit.

Required Supplementary Information

Accounting principles generally accepted in the United States of America require that the management's discussion and analysis and budgetary comparison information be presented to supplement the basic financial statements. Such information is the responsibility of management and, although not a part of the basic financial statements, is required by the Governmental Accounting Standards Board, who considers it to be an essential part of financial reporting for placing the basic financial statements in an appropriate operational, economic, or historical context. We have applied certain limited procedures to the required supplementary information in accordance with auditing standards generally accepted in the United States of America, which consisted of inquiries of management about the methods of preparing the information and comparing the information for consistency with management's responses to our inquiries, the basic financial statements, and other knowledge we obtained during our audit of the basic financial statements. We do not express an opinion or provide any assurance on the information because the limited procedures do not provide us with sufficient evidence to express an opinion or provide any assurance.

Other Information

Management is responsible for the other information included in the annual report. The other information comprises the Schedule of Delinquent Taxes but does not include the basic financial statements and our auditor's report thereon. Our opinions on the basic financial statements do not cover the other information, and we do not express an opinion or any form of assurance thereon.

In connection with our audit of the basic financial statements, our responsibility is to read the other information and consider whether a material inconsistency exists between the other information and the basic financial statements, or the other information otherwise appears to be materially misstated. If, based on the work performed, we conclude that an uncorrected material misstatement of the other information exists, we are required to describe it in our report.

Ede & Company, LLC

Ede & Company. LLC
Certified Public Accountants
Uvalde, Texas

January 18, 2023

MANAGEMENT'S DISCUSSION AND ANALYSIS

In accordance with Governmental Accounting Standards Board ("GASB") Statement No. 34, the management of the Bandera County River Authority and Ground Water District (the "District") offers the following narrative on the financial performance of the District for the year ended September 30, 2022. Please read it in connection with the District's financial statements that follow.

For purposes of GASB Statement No. 34, the District is considered a special purpose government. This allows the District to present the required fund and government-wide statements in a single schedule. The requirement for fund financial statements that are prepared on the modified accrual basis of accounting is met with the "Total Governmental Funds" column. An adjustment column includes those entries needed to convert to the full accrual basis government-wide statements. Government-wide statements are comprised of the Statement of Net Position and the Statement of Activities.

FINANCIAL HIGHLIGHTS

- The District's total combined net position was $620,959.76 at September 30, 2022.
- During the year, the District's expenses were $58,029.97 less than the $1,408,394.54 generated in taxes, service fees and other revenues for governmental activities.
- The total cost of the District's programs increased during the current year.
- The general fund reported a fund balance this year of $236,217.47.
- The District's net position increased $58,029.97 which represents a 29.4 percent increase from 2021.

OVERVIEW OF THE FINANCIAL STATEMENTS

This annual report consists of three parts—management's discussion and analysis (this section), the basic financial statements, and required supplementary information. The basic financial statements include two kinds of statements that present different views of the District: The *Statement of Net Position and Governmental Funds Balance Sheet* includes a column (titled "Total Governmental Funds") that represents a balance sheet prepared using the modified accrual basis of accounting. The adjustments column converts those balances to a balance sheet that more closely reflects a private-sector business. Over time, increases or decreases in the District's net position will indicate financial health. The *Statement of Activities and Governmental Funds Revenues, Expenditures, and Changes in Fund Balances* includes a column (titled "Total Governmental Funds") that derives the change in fund balances resulting from current year revenues, expenditures, and other financing sources or uses. These amounts are prepared using the modified accrual basis of accounting. The adjustments column converts those activities to full accrual, a basis that more closely represents the income statement of a private-sector business.

The financial statements also include notes that explain some of the information in the financial statements and provide more detailed data. The statements are followed by a section of *required supplementary information* that further explains and supports the information in the financial statements.

FINANCIAL ANALYSIS OF THE DISTRICT AS A WHOLE

The District's combined net position was $614.7 thousand at September 30, 2022. (See Table A-1).

Table A-1
BANDERA COUNTY RIVER AUTHORITY AND
GROUND WATER DISTRICT

	Governmental Activities		Total Percentage Change
	2022	2021	2022 - 2021
Current assets:			
Cash and cash equivalents	$ 250.3	$ 219.7	13.93%
Accounts receivable	-	-	0.00%
Property taxes receivable (net)	78.7	66.1	19.06%
Due from other governments	0.4	2.2	-81.82%
Prepayments	7.8	7.6	2.63%
Total current assets	337.2	295.6	14.07%
Noncurrent assets:			
Capital Assets	610.9	594.5	2.76%
Less accumulated depreciation	(299.4)	(289.2)	3.53%
Total noncurrent assets	311.5	305.3	2.03%
Total Assets	648.7	600.9	7.95%
Current liabilities:			
Accounts payable and accrued liabilities	22.4	28.7	-21.95%
Current portion - Lease payable	3.1	-	100.0%
Total current liabilities	25.5	28.7	-11.1%
Noncurrent liabilities:			
Leases payable - Long -term	2.4	-	100.0%
Total Liabilities	27.9	28.7	-2.8%
Net Position:			
Invested in capital assets	311.5	305.3	2.03%
Unrestricted	309.4	266.9	15.92%
Total Net Position	$ 620.9	$ 572.2	8.51%

Changes in net position. The District's total revenues were 1,408.4 thousand. A significant portion, 85 percent, of the District's revenue comes from property taxes. (See Figure A-3.) and 8% from permits on new wells.

The total cost of all programs and services was $1,350.4 thousand; 100 percent of these costs are for General Government.

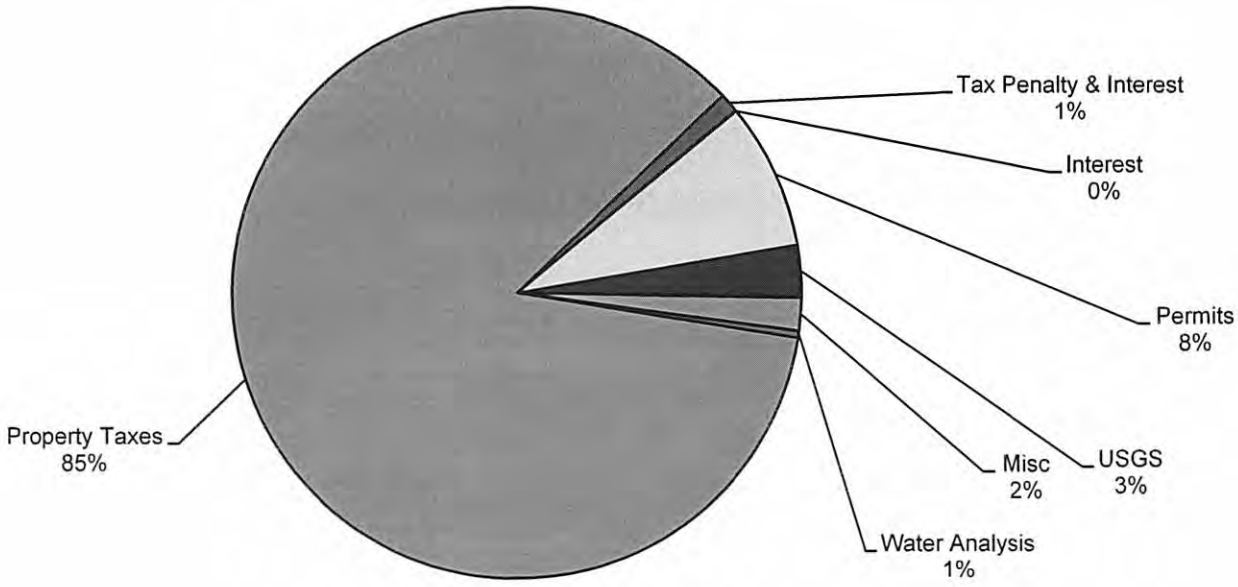
Table A-2

Changes in Bandera County River Authority and Groundwater District's Net Position

(In thousands dollars)

	Governmental Activities		Total Percentage Change
	2022	2021	2022-2021
General Revenue			
Property Taxes	1,202.0	1,048.4	14.65%
Penalty & Interest	16.0	16.4	-2.44%
USGS	41.6	69.1	-39.80%
New Well Applications & Permits	116.9	53.7	117.69%
Other	31.9	25.4	25.59%
Total Revenue	1,408.4	1,213.0	16.11%
Program Expenses			
General Government	1,350.4	1,110.5	21.60%
Total Expense	1,350.4	1,110.5	21.60%
Increase (Decrease) in Net Position	$ 58.0	$ 102.5	-43.41%

2022 Revenue Sources



2022 Expenses

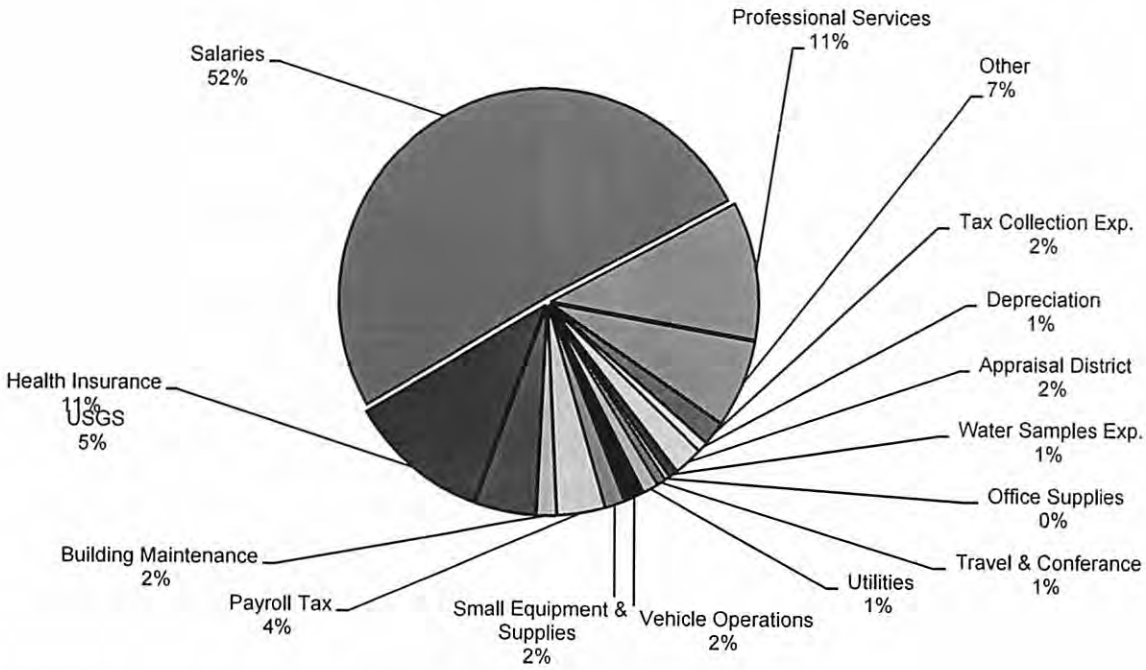


Table A-3 presents the cost of each of the District's largest functions as well as the major administrative categories.

- The cost of all *governmental* activities this year was 1,350.4 thousand.

Table A-3
Net Cost of Selected District Functions & Major Administrative Categories
(in thousands of dollars)

	Total Costs of Services		
	2022	2021	Percent Change
Salaries	683.9	543.9	25.74%
Professional Services	143.5	67.4	112.91%
Health Insurance	148.6	88.4	68.10%
Small Equipment & Supplies	20.3	10.2	99.02%
Vehicle Operations	22.0	21.8	0.92%
Utilities	15.5	14.8	4.73%
Travel & Conference	9.5	1.5	533.33%
Office Supplies	5.2	5.9	-11.86%
Water Samples Exp.	9.3	5.0	86.00%
Appraisal District	31.2	30.7	1.63%
Depreciation	10.5	15.5	-32.26%
Tax Collection Exp.	24.0	21.3	12.68%

FINANCIAL ANALYSIS OF THE DISTRICT'S FUNDS

General Fund Budgetary Highlights

Over the course of the year, the District revised its budget many times. Even with these adjustments, actual expenditures were $18,524.99 above final budget amounts. Resources available were $53,907.14 above the final budgeted amount.

CAPITAL ASSETS AND DEBT ADMINISTRATION

Capital Assets

At the end of 2022, the District had invested $610.9 thousand in a broad range of capital assets, including land, equipment, buildings, and vehicles. (See Table A-4.) This amount represents a net increase (including additions and deductions) of 2.8 percent over last year.

Table A-4
District's Capital Assets
(in thousands of dollars)

	Governmental Activities 2022	2021	Percentage Change 2022-2021
Land	$ 150.0	$ 150.0	0.0%
Building and Improvements	172.1	172.1	0.0%
Vehicles	117.8	117.8	0.0%
Monitoring Wells & Equipment	171.0	154.6	10.6%
Totals at historical cost	610.9	594.5	2.8%
Total Accumulated Depreciation	(299.4)	(289.2)	3.5%
Net Capital Assets	$ 311.5	$ 305.3	2.0%

Long-Term Debt

The District had one Right to Use Leases Payable at the end of 2022.

Copier Lease Payable $ 5,481

ECONOMIC FACTORS AND NEXT YEAR'S BUDGETS AND RATES

- Appraised value used for the 2024 budget preparation increase from 2022.
- Tax rates for 2023 will decrease to $0.04299.

These indicators were taken into account when adopting the general fund budget for 2023. Amounts available for appropriation are approximately $1.46 million.

Expenditures are budgeted at approximately $1.46 million. The District continues to coordinate local funds with federal funds to optimize instructional programs.

If these estimates are realized, the District's budgetary general fund balance is expected to remain the same by the close of 2023

CONTACTING THE DISTRICT'S FINANCIAL MANAGEMENT

This financial report is designed to provide our citizens, taxpayers, customers, and investors and creditors with a general overview of the District's finances and to demonstrate the District's accountability for the money it receives. If you have questions about this report or need additional financial information, contact the District's Business Office.

Basic Financial Statements

BANDERA COUNTY RIVER AUTHORITY
AND GROUND WATER DISTRICT
Statement of Net Position and Governmental Funds Balance Sheet
September 30, 2022

	General Fund	Special Revenue Fund	Total Governmental Funds	Adjustments	Statement of Net Position
ASSETS					
Cash and investments	$ 250,295.77	$ 18.90	$ 250,314.67	$ -	$ 250,314.67
Accounts receivable	49.99	-	49.99	-	49.99
Taxes receivable (net)	78,734.54	-	78,734.54	-	78,734.54
Due from other governments	380.88	-	380.88	-	380.88
Prepayments	7,840.80	-	7,840.80	-	7,840.80
Capital assets (net of accumulated depreciation)					
Land	-	-	-	150,000.00	150,000.00
Building	-	-	-	116,156.15	116,156.15
Monitoring wells & equipment	-	-	-	26,845.90	26,845.90
Vehicles	-	-	-	18,517.32	18,517.32
Total assets	$ 337,301.98	$ 18.90	$ 337,320.88	311,519.37	648,840.25
LIABILITIES					
Accounts payable	$ 22,105.52	$ 49.99	$ 22,155.51	-	22,155.51
Payroll liabilities	244.45	-	244.45	-	244.45
Current Portion - Leases Payable	-	-	-	3,102.37	3,102.37
Total Current Liabilities	22,349.97	49.99	22,399.96	3,102.37	25,502.33
Lease Payable - Long-Term	-	-	-	2,378.16	2,378.16
Total liabilities	22,349.97	49.99	22,399.96	5,480.53	27,880.49
DEFERRED INFLOW OF RESOURCES					
Unavailable Revenue- Property Taxes	78,734.54	-	78,734.54	(78,734.54)	-
Total Deferred Inflows of Resources	78,734.54	-	78,734.54	(78,734.54)	-
FUND BALANCES/NET POSITION					
Fund balances:					
Committed	71,282.00	-	71,282.00	(71,282.00)	-
Unassigned	164,935.47	(31.09)	164,904.38	(164,904.38)	-
Total Fund Balance	236,217.47	(31.09)	236,186.38	(236,186.38)	-
Total liabilities deferred inflows and fund balances	$ 337,301.98	$ 18.90	$ 337,320.88		
Net Position:					
Invested in capital assets, net of related debt				311,519.37	311,519.37
Unrestricted				309,440.39	309,440.39
Total net position				$ 620,959.76	$ 620,959.76

The accompanying notes are an integral part of this statement.

BANDERA COUNTY RIVER AUTHORITY AND GROUND WATER DISTRICT

Statement of Activities and Governmental Funds Revenues, Expenditures and Changes in Fund Balances

For the Year Ended September 30, 2022

	General Fund	Special Revenue Fund	Total Governmental Funds	Adjustments	Statement of Activities
Revenues:					
Property taxes	$ 1,188,609.62	$ -	$ 1,188,609.62	$ 13,390.61	$ 1,202,000.23
Property taxes penalty & interest	16,046.38	-	16,046.38	-	16,046.38
Interest income	420.79	-	420.79	-	420.79
Permits and deposits	116,900.00	-	116,900.00	-	116,900.00
USGS Flood Project Funding	-	34,776.79	34,776.79	-	34,776.79
USGS Gauge Station	6,800.00	-	6,800.00	-	6,800.00
Miscellaneous	11,065.35	-	11,065.35	-	11,065.35
Monitor Well Funding Partners	15,000.00	-	15,000.00	-	15,000.00
Water analysis	5,385.00	-	5,385.00	-	5,385.00
Total revenues	1,360,227.14	34,776.79	1,395,003.93	13,390.61	1,408,394.54
Expenditures/expenses:					
Service operations:					
Appraisal District	31,154.45	-	31,154.45	-	31,154.45
Bonds & Insurance	11,917.46	-	11,917.46	-	11,917.46
Building Maintenance	21,344.85	-	21,344.85	-	21,344.85
Dues & Subscriptions	5,423.56	-	5,423.56	-	5,423.56
Office Security	7,740.00	-	7,740.00	-	7,740.00
Education	7,463.63	-	7,463.63	-	7,463.63
Computer Software and Support	10,733.89	-	10,733.89	-	10,733.89
Small Equipment & Supplies	20,320.91	-	20,320.91	-	20,320.91
Health Insurance	148,583.47	-	148,583.47	-	148,583.47
Retirement	20,446.99	-	20,446.99	-	20,446.99
Monitoring Units	22,135.46	-	22,135.46	(16,400.00)	5,735.46
Office Supplies	8,181.55	31.08	8,212.63	(3,043.58)	5,169.05
Office Rent	7,200.00	-	7,200.00	-	7,200.00
Payroll Tax	50,023.05	-	50,023.05	-	50,023.05
Postage	814.94	-	814.94	-	814.94
Professional Services	143,534.26	-	143,534.26	-	143,534.26
Salaries	683,889.07	-	683,889.07	-	683,889.07

Tax Collection Exp.	24,092.44	-	24,092.44	-	24,092.44
GMA Expense	3,403.85	-	3,403.85	-	3,403.85
Travel & Conferences	9,465.63	-	9,465.63	-	9,465.63
Employee Training	3,008.30	-	3,008.30	-	3,008.30
Utilities	15,495.19	-	15,495.19	-	15,495.19
USGS - Gauges	29,100.00	-	29,100.00	-	29,100.00
USGS - Flood Control Project	-	34,776.79	34,776.79	-	34,776.79
Vehicle Operations	22,012.90	-	22,012.90	-	22,012.90
Water Quality Project	-	-	-	-	-
Water Samples Exp.	9,282.03	-	9,282.03	-	9,282.03
Well Plugging & Logging	65.24	-	65.24	-	65.24
Clean Rivers Program	4,163.10	-	4,163.10	-	4,163.10
ASR & Water Catchment Projects	31.98	-	31.98	-	31.98
Invasives - Zebra Mussels	-				
Riparian Project	-	-	-	-	-
Brush Control	3,500.00	-	3,500.00	-	3,500.00
Miscellaneous	316.79	-	316.79	-	316.79
Depreciation	-	-	-	10,155.29	10,155.29
Total expenditures/expenses	1,324,844.99	34,807.87	1,359,652.86	(9,288.29)	1,350,364.57
Excess (deficiency) of revenues over expenditures	35,382.15	(31.08)	35,351.07	22,678.90	58,029.97
Other financing sources (uses)					
Transfers in	-	-	-	-	-
Transfers out	-	-	-	-	-
Total other financing sources (uses)	-	-	-	-	-
Change in fund balance/net position	35,382.15	(31.08)	35,351.07	22,678.90	58,029.97
Fund balance/net position:					
Beginning of the year	200,835.32	(0.01)	200,835.31	362,094.48	562,929.79
End of the year	$ 236,217.47	$ (31.09)	$ 236,186.38	$ 384,773.38	$ 620,959.76

The accompanying notes are an integral part of this statement.

Bandera County River Authority and Ground Water District
Notes to the Financial Statements
For the Year Ended September 30, 2022

NOTE 1 – SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

The accounting policies of Bandera County River Authority (the "District") conform with accounting principles generally accepted in the United States of America as promulgated by the Governmental Accounting Standards Board. The following is a summary of the most significant policies:

A. Reporting Entity

The Bandera County River Authority was created by Acts of the 71st Legislature of the State of Texas. The District was established as a conservation and reclamation district. The authority of the Bandera County River Authority was incorporated into the Springhills Water Management District through enabling legislation appearing as Act of June 17, 1989, Ch. 654, 1989, Tex. Gen. Laws 2155 (Vernon) The Springhills Water Management District, continued all of the programs and activities initiated by the River Authority, and implemented the programs required of a ground water conservation district. On April 10, 2003 the TCEQ authorized changing the District's name to the Bandera County River Authority and Ground Water District.

The District's Board of Directors, a nine member group, has governance responsibilities over all activities related to the District's operations within the jurisdiction of Bandera County River Authority and Ground Water District. Because members of the Board of Directors are elected by the public, they have the primary accountability for fiscal matters. The Governmental Accounting Standards Board has established the criteria for determining whether or not an entity is a primary government, a component unit of a primary government or a related organization. A primary government has a separately elected governing body; is legally separate; and is fiscally independent of other state and local governments. Fiscal independence implies that the government has the authority to adopt a budget, levy taxes, set rates, and/or issue bonds without approval from other governments. Under these criteria, the District is considered a primary government and is not a component unit of any other government. Additionally, no other entities meet the criteria for inclusion in the District's financial statements as component units.

B. Government –wide and Fund Financial Statements

For purposes of GASB Statement No. 34, the District is considered a special purpose government. This allows the District to present the required fund and government-wide statements in a single schedule. The requirement for fund financial statements that are prepared on the modified accrual basis of accounting is met with the "Total Governmental Funds" column. An adjustment column includes those entries needed to convert to the full accrual basis government-wide statements. Government-wide statements are comprised of the statement of net position and the statement of activities.

The government-wide financial statements report information on all of the activities of the District. The effect of interfund activity has been removed from these statements.

The statement of activities demonstrates what the District did with the revenue it raised.. The government-wide financial statements (i.e., the statement of net position and the statement of changes in net position) report information on all of the nonfiduciary activities of the primary government.

C. Measurement Focus, Basis of Accounting, and Financial Statement Presentation

The government-wide financial statements are reported using the economic resources measurement focus and the accrual basis of accounting. Revenues are recorded when earned, and expenses are recorded when a liability is incurred, regardless of the timing of related cash flows. Property taxes are recognized as revenues in the year for which they are levied.

The total governmental fund column of the government-wide financial statements is reported using the current financial resources measurement focus and the modified accrual basis of accounting. Revenues are recognized as soon as they are both measurable and available. Revenues are considered to be available when they are collectible within the current period or soon enough thereafter to pay liabilities of the current period. For this purpose, the

government considers revenues to be available if they are collected within thirty-one days of the end of the current fiscal period. Expenditures generally are recorded when a liability is incurred, as under accrual accounting.

No accrual for property taxes collected within sixty days of year end has been made as such amounts are deemed immaterial; delinquent property taxes at year end are reported as deferred inflows of resources.

Fund Accounting

The District uses funds to maintain its financial records during the year. A fund is defined as a fiscal and accounting entity with a self-balancing set of accounts. The District only uses governmental funds.

Governmental Funds

Governmental funds are those through which most governmental functions typically are financed. Governmental funds reporting focuses on the sources, uses and balances of current financial resources.

Expendable assets are assigned to the various governmental funds according to the purpose for which they will be paid. The difference between governmental fund assets and liabilities is reported as fund balance.

The District reports the following major governmental funds:

General Fund – The General Fund is used to account for all financial resources of the District except those required to the accounted for in another fund.

Special Revenue Fund – The Special Revenue Fund is used to account for grant funds.

D. Budgets

The budget is adopted on a basis consistent with accounting principles generally accepted in the United States of America. The annual budget appropriations lapse at the fiscal year end. The adopted budget is not a spending limitation under law but rather an operating plan. The District does not use the encumbrance system; therefore purchase orders, contracts and other commitments for the expenditure of resources are not recorded as a reserve of fund balance.

E. Capital Assets

General capital assets generally result from expenditures in the governmental funds. These assets are reported in the statement of net position column of the government-wide statement of net position but are not reported in the general fund column.

All capital assets are capitalized at cost (or estimated historical cost) and updated for additions and retirements during the year. The District maintains a capitalization threshold of $5,000 for equipment, and all additions to infrastructure are capitalized. Improvements are capitalized; the cost of normal maintenance and repairs that do not add to the value of the asset or materially extend the asset's life are not.

The District depreciates capital assets using the straight-line method over the following estimated useful lives:

Assets	Years
Buildings	40
Monitoring Wells	20
Vehicles and Road Equipment	7
Office Equipment	7
Computer Equipment	7

F. Deferred Inflows and Outflows of Financial Resources

A deferred inflow of financial resources is the acquisition of resources in one period that is applicable to a future period, while a deferred outflow of financial resources is the consumption of financial resources in one period that is applicable to a future period. A deferred inflow results from the acquisition of an asset without a corresponding revenue or assumption of a liability. A deferred outflow results from the use of an asset without a corresponding expenditure or reduction of a liability. At the fund level, property taxes receivable do not meet the availability criteria required for revenue recognition and are recorded as deferred inflows of financial resources.

G. Net Position

Governmental Activities Governmental accounting standards establish the following three components of net position:

Net investment in capital assets – represents the District's investments in capital assets, less any outstanding debt or other borrowings used to acquire those assets.

Restricted – consists of financial resources that are restricted for a specific purpose by enabling legislation or external parties.

Unrestricted – resources not included in the other components.

H. Fund Balances

Governmental Funds Governmental accounting standards establish the following fund balance classifications:

Nonspendable - amounts that cannot be spent either because they are in nonspendable form or because they are legally or contractually required to be maintained intact.

Restricted - amounts that can be spent only for specific purposes because of constitutional provisions or enabling legislation or because of constraints that are externally imposed by creditors, grantors, contributors, or the laws or regulations of other governments.

Committed - amounts that can be used only for specific purposes determined by a formal action of the Board of Directors. The Board is the highest level of decision-making authority for the District. Commitments may be established, modified, or rescinded only through ordinances or resolutions approved by the Board. Committed fund balance also incorporates contractual obligations to the extent that existing resources in the fund have been specifically committed for use in satisfying those contractual requirements.

Assigned - amounts that do not meet the criteria to be classified as restricted or committed but that are intended to be used for specific purposes.

Unassigned - all other spendable amounts in the General Fund. When an expenditure is incurred for which committed, assigned, or unassigned fund balances are available, the District considers amounts to have been spent first out of committed funds, then assigned funds, and finally unassigned funds.

I. Estimates

The preparation of financial statements in conformity with generally accepted accounting principles requires management to make estimates and assumptions that affect the amounts reported in the financial statements and accompanying notes. Actual results may differ from those estimates.

Bandera County River Authority and Ground Water District
Notes to the Financial Statements
For the Year Ended September 30, 2022

J. Reconciliation of Government-wide and General Fund Financial Statements

Reconciliation of General Fund Balance to Net Position of Governmental Activities September 30, 2022

Total General Fund Balance	$	236,186.38
Amounts reported in governmental activities in the statement of net position are different because:		
Capital assets used in the governmental activities are not financial resources and therefore are not reported in the governmental funds. At the beginning of the year, the cost of these assets was $594,474 and accumulated depreciation was $289,200. In addition, long-term liabilities including right to use - lease liabilities are not due and payable in the current period , and therefore are not reported as liability in the governmental fund. The long-term debt at the beginning of the year was $8,524.		296,750.55
Current year capital outlays and long-term debt principal payments are expended in the fund financial statements, but the should be shown as increases in capital assets and reduction in long-term debt in the government-wide financial statements. The net effect of including the capital outlays, and debt principal payments was to increase net position.		19,443.58
Accumulated depreciation has not been included in the general fund financial statements.		(10,155.29)
Revenue reported as deferred revenue in the general fund was recorded as revenue in the government-wide financial statements.		78,734.54
Net Position of Governmental Activities	$	620,959.76

Reconciliation of the Statement of Revenues, Expenditures and Changes in Fund Balances of Governmental Funds to the Statement of Activities

Net Change in Governmental Fund Balances	$	35,351.07
Amounts reported for the governmental activities in the statement of activities are different because:		
Various other reclassifications and eliminations are necessary to convert from the modified accrual basis of accounting to accrual basis		13,390.61
Current year capital outlays and long-term debt principal payments are expended in the fund financial statements, but the should be shown as increases in capital assets and reduction in long-term debt in the government-wide financial statements. The net effect of including the capital outlays, and debt principal payments was to increase net position.		19,443.58
Depreciation is not recognized as an expense in governmental funds since it does not require the use of current financial resources. The effect of the current year's depreciation is to decrease net position.		(10,155.29)
Change in Net Position of Governmental Activities	$	58,029.97

NOTE 2 – DEPOSITS, SECURITIES AND INVESTMENTS

District Policies and Legal and Contractual Provisions Governing Deposits

Custodial Credit Risk for Deposits State law requires governmental entities to contract with financial institutions in which funds will be deposited to secure those deposits with insurance or pledged securities with a fair value equaling or exceeding the amount on deposit at the end of each business day. The pledged securities must be in the name of the governmental entity and held by the entity or its agent. Since the District complies with this law, it has no custodial credit risk for deposits.

Foreign Currency Risk The District limits the risk that changes in exchange rates will adversely affect the fair value of an investment or a deposit by not participating in foreign currency transactions.

District Policies and Legal and Contractual Provisions Governing Investments

Compliance with the Public Funds Investment Act

The **Public Funds Investment Act** (Government Code Chapter 2256) contains specific provisions in the areas of investment practices, management reports, and establishment of appropriate policies. Among other things, it requires a governmental entity to adopt, implement, and publicize an investment policy. That policy must address the following areas: (1) safety of principal and liquidity, (2) portfolio diversification, (3) allowable investments, (4) acceptable risk levels, (5) expected rates of return, (6) maximum allowable stated maturity of portfolio investments. (7) maximum average dollar-weighted maturity allowed based on the stated maturity date for the portfolio. (8)

investment staff quality and capabilities. (9) and bid solicitation preferences for certificates of deposit.

Statutes authorize the entity to invest in (1) obligations of U.S. Treasury, certain U.S. agencies, and the State of Texas. (2) certificates of deposit, (3) certain municipal securities. (4) money market savings accounts, (5) repurchase agreements, (6) bankers acceptances. (7) mutual funds, (8) investment pools, (9) guaranteed investment contracts, (10) and common trust funds. The Act also requires the entity to have independent auditors perform test procedures related to investment practices as provided by the Act. The District is in substantial compliance with the requirements of the Act and with local policies.

Additional polices and contractual provisions governing deposits and investments are specified below:

Credit Risk To limit the risk that an issuer or other counterparty to an investment will not fulfill its obligations the District limits investments to depository bank certificates of deposits and state sponsored investment pools.

Custodial Credit Risk for Investments To limit the risk that, in the event of the failure of the counterparty to a transaction, a government will not be able to recover the value of investment or collateral securities that are in possession of an outside party the District requires counterparties to register the securities in the name of the District and hand them over to the District or its designated agent. All of the securities are in the District's name and held by the District or its agent.

Concentration of Credit Risk To limit the risk of loss attributed to the magnitude of a government's investment in a single issuer, the District investments in both depository bank certificates of deposits and state sponsored investment pools.

Interest Rate Risk To limit the risk that changes in interest rates will adversely affect the fair value of investments, the District requires the investment portfolio to have maturities of less than one year on a weighted average maturity basis.

Foreign Currency Risk for investments The District limits the risk that changes in exchange rates will adversely affect the fair value of an investment by not investing in foreign currencies.

NOTE 3 – DUE FROM OTHER GOVERNMENTS

This balance represents taxes and penalty and interest that were collected by the Tax Assessor-Collector, before September 30, 2022, but not remitted to the District.

NOTE 4 – PROPERTY TAXES

Ad valorem taxes and penalties and interest are reported as revenue in the fiscal year in which they become available to finance expenditures of that year. Property taxes attach as an enforceable lien on property as of January 31. Taxes are levied on October 1 and are due and payable at that time. All unpaid taxes levied on October 1 become delinquent on February 1 at which time the applicable property is assessed penalty and interest until paid. On July 1, the property is subject to lien plus penalties and interest until paid. The annual tax levy is recorded as a charge to taxes receivable and a credit to deferred revenues, after subtracting that portion estimated to be uncollectible. As taxes are collected monthly, the deferred revenue account is reduced and revenue from tax collections is recognized. Uncollectible taxes are recorded in such a manner so as to reflect the amount of taxes reasonably estimated to be uncollectible based on prior experience.

NOTE 5 – PENSION PLAN OBLIGATIONS

The District's employees do not participate in a public retirement system, but are covered by Social Security.

Bandera County River Authority and Ground Water District
Notes to the Financial Statements
For the Year Ended September 30, 2022

NOTE 6 - CAPITAL ASSET ACTIVITY

Capital asset activity for the twelve months ended September 30, 2022, was as follows:

	Beginning Balances	Increases	Decreases	Ending Balances
Governmental activities:				
Capital assets not being depreciated:				
Land	150,000	-	-	150,000
Total capital assets not being depreciated	150,000	-	-	150,000
Capital assets being depreciated:				
Buildings and Improvements	172,083	-	-	172,083
Vehicles	162,661	-	-	162,661
Monitoring Wells & Equipment	154,602	16,400	-	171,002
Total capital assets being depreciated	489,346	16,400	-	505,746
Less accumulated depreciation for:				
Buildings and Improvements	51,625	4,302	-	55,927
Vehicles	134,809	2,733	-	137,542
Monitoring Wells & Equipment	147,637	3,120	-	150,757
Total accumulated depreciation	334,071	10,155	-	344,227
Total capital assets being depreciated, net	155,274	6,245	-	161,519
Governmental activities capital assets, net	$ 305,274	$ 6,245	$ -	$ 311,519

NOTE 7 - RIGHT TO USE LEASE LIABILITY

The District leases a photocopy machine with 60-month terms. Payments of $267 are made monthly which consist of principal and imputed annual interest of 2.50%.

No assets were pledged as collateral for these leases.

A summary of Right-to-Use Lease arrangements for the year ended September 30, 2022, is as follows.

Description	Date of Origination	Discount Rate	Current Year Interest	Principal Balance at 10/1/2021	New Lease Agreements	Principal Paid This Year	Principal Balance at 9/30/2022	Due Within One Year
Copy Machines	6/3/2019	2.5	160	8,524	-	3,044	5,481	3,102
			$ 160	$ 8,524	$ -	$ 3,044	$ 5,481	$ 3,102

Future principal and interest payments due to maturity as of the end of the fiscal year are as follows:

Year Ending September 30	Principal	Interest	Total Requirements
2023	$ 3,102	$ 102	$ 3,204
2024	2,378	24	2,403
Totals	$ 5,481	$ 126	$ 5,607

NOTE 8 - RISK MANAGEMENT

The District is exposed to various risks of loss related to intentional and unintentional torts; theft of, damage to and destruction of assets; errors and omissions; natural disasters; health and dental benefits to employees; and employee accidents and injuries for which the District carries commercial insurance. There have been no significant reductions in insurance coverage from the previous year; no settlements have exceeded insurance coverage in any of the past three years. The District participates in the Texas Municipal League Intergovernmental Risk Pool. The District is not aware of any pending claims for which expected liability would exceed the limits of the commercial insurance coverage.

NOTE 9 - CONTINGENCIES

The District is periodically involved in legal actions and claims that arise as a result of events that occur in the normal course of operations. The ultimate resolution of these actions is not expected to have a material adverse effect on the District's financial position.

NOTE 10 – IMPLEMENTATION OF NEW GOVERNMENTAL ACCOUNTING STANDARD

During the year the District implemented Governmental Accounting Standards Board Statement No. 87 - Leases ("GASB 87"). The objective of GASB 87 is to better meet the information needs of financial statement users by improving accounting and financial reporting for leases by governments. This statement increases the usefulness of governments' financial statements by requiring recognition of certain lease assets and liabilities for leases that previously were classified as operating leases and recognized as inflows of resources or outflows of resources based on the payment provisions in the contract. It establishes a single model for lease accounting based on the foundational principle that leases are financings of the right to use an underlying asset. Under this Statement, a lessee is required to recognize a lease liability and an intangible right-to-use lease asset, and a lessor is required to recognize a lease receivable and a deferred inflow of resources, thereby enhancing the relevance and consistency of information about governments' leasing activities

The District has recorded right to use lease assets as a result of implementing GASB 87. The right to use assets are initially measured at an amount equal to the initial measurement of the related lease liability plus any lease payments made prior to the lease term, less lease incentives, and plus ancillary charges necessary to place the lease into service. The right to use assets are amortized on a straight-line basis over the life of the related lease.

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Required Supplementary Information

BANDERA COUNTY RIVER AUTHORITY AND GROUND WATER DISTRICT
Budgetary Comparison Statement - General Fund
For Year Ended September 30, 2022

	Actual	Original Budget	Final Amended Budget	Variance Positive (Negative)
Revenues:				
Property taxes	$ 1,188,609.62	$ 1,213,000.00	$ 1,213,000.00	$ (24,390.38)
Property taxes penalty & interest	16,046.38	-	-	16,046.38
Interest income	420.79	520.00	520.00	(99.21)
Permits and deposits	116,900.00	60,000.00	60,000.00	56,900.00
USGS Gauge Station	6,800.00	6,800.00	6,800.00	-
Miscellaneous	11,065.35	2,500.00	2,500.00	8,565.35
Monitor Well Funding Partners	15,000.00	15,000.00	15,000.00	-
Water analysis	5,385.00	8,500.00	8,500.00	(3,115.00)
Total revenues	1,360,227.14	1,306,320.00	1,306,320.00	53,907.14
Expenditures:				
Service operations:				
Appraisal District	31,154.45	28,000.00	28,000.00	(3,154.45)
Bonds & Insurance	11,917.46	11,000.00	11,000.00	(917.46)
Building Maintenance	21,344.85	20,000.00	20,000.00	(1,344.85)
Dues & Subscriptions	5,423.56	3,000.00	3,000.00	(2,423.56)
Office Security	7,740.00	8,000.00	8,000.00	260.00
Education	7,463.63	22,000.00	22,000.00	14,536.37
Computer Software and Support	10,733.89	8,000.00	8,000.00	(2,733.89)
Small Equipment & Supplies	20,320.91	20,090.00	20,090.00	(230.91)
Health Insurance	148,583.47	110,000.00	110,000.00	(38,583.47)
Retirement	20,446.99	24,000.00	24,000.00	3,553.01
Monitoring Units	22,135.46	19,000.00	19,000.00	(3,135.46)
Office Supplies	8,181.55	12,000.00	12,000.00	3,818.45
Office Rent	7,200.00	9,600.00	9,600.00	2,400.00
Payroll Tax	50,023.05	56,500.00	56,500.00	6,476.95
Postage	814.94	850.00	850.00	35.06
Professional Services	143,534.26	132,800.00	132,800.00	(10,734.26)
Salaries	683,889.07	678,000.00	678,000.00	(5,889.07)
Tax Collection Exp.	24,092.44	-	-	(24,092.44)
GMA Expense	3,403.85	5,000.00	5,000.00	1,596.15
Travel & Conferences	9,465.63	10,000.00	10,000.00	534.37
Employee Training	3,008.30	8,000.00	8,000.00	4,991.70
Utilities	15,495.19	20,000.00	20,000.00	4,504.81
USGS - Gauges	29,100.00	36,980.00	36,980.00	7,880.00
Election	-	-	-	-

BANDERA COUNTY RIVER AUTHORITY AND GROUND WATER DISTRICT
Budgetary Comparison Statement - General Fund
For Year Ended September 30, 2022

	Actual	Original Budget	Final Amended Budget	Variance Positive (Negative)
Expenditures: (Continued)				
Vehicle Operations	22,012.90	22,000.00	22,000.00	(12.90)
Water Quality Project	-	8,000.00	8,000.00	8,000.00
Water Samples Exp.	9,282.03	9,000.00	9,000.00	(282.03)
Well Plugging & Logging	65.24	2,500.00	2,500.00	2,434.76
Clean Rivers Program	4,163.10	8,000.00	8,000.00	3,836.90
ASR & Water Catchment Projects	31.98	2,500.00	2,500.00	2,468.02
Brush Control	3,500.00	5,000.00	5,000.00	1,500.00
Illegal Dumping -Litter Abatement	-	1,000.00	1,000.00	1,000.00
Invasive - Zebra Mussels	-	1,000.00	1,000.00	1,000.00
Riparian Project	-	1,000.00	1,000.00	1,000.00
Medina LK Surface GW Interaction	-	2,500.00	2,500.00	2,500.00
Contingences	-	1,000.00	1,000.00	1,000.00
Miscellanous	316.79	-	-	(316.79)
	1,324,844.99	1,306,320.00	1,306,320.00	(18,524.99)
Excess (deficiency) of revenues over expenditures	35,382.15	-	-	35,382.15
Other financing sources (uses)				
Transfers out	-	-	-	-
Total other financing sources (uses)	-	-	-	-
Change in fund balance/net position	35,382.15	-	-	35,382.15
Fund balance:				
Beginning of the year	200,835.32	200,835.32	200,835.32	-
End of the year	$ 236,217.47	$ 200,835.32	$ 200,835.32	$ 35,382.15

Other Schedules

BANDERA COUNTY RIVER AUTHORITY AND GROUND WATER DISTRICT

Schedule of Delinquent Taxes Receivable

For the Year Ended September 30, 2022

LAST TEN YEARS ENDED SEPTEMBER 30,	TAX RATE	ASSESSED VALUE FOR TAX PURPOSES (In thousands)	BEGINNING BALANCE 10/1/21	CURRENT YEAR TOTAL LEVY	ENTIRE YEAR'S ADJUSTMENTS	TOTAL COLLECTIONS	BALANCE 9/30/22
2012 & Prior	Var	Var	$ 6,791.36		$ (905.99)	$ 515.82	$ 5,369.55
2013	.026001	1,878,945	1,865.53		(19.16)	149.18	1,697.19
2014	.028058	1,903,192	2,062.95		(12.61)	192.89	1,857.45
2015	.034739	2,015,732	3,101.91		(15.32)	291.42	2,795.17
2016	.037300	2,088,705	4,190.64		(19.03)	379.39	3,792.22
2017	.039280	2,151,203	5,440.69		(44.61)	616.45	4,779.63
2018	.040339	2,245,731	7,741.99		(76.20)	1,774.94	5,890.85
2019	.042165	2,245,731	12,102.10		(586.63)	3,198.02	8,317.45
2020	.044890	2,335,405	22,780.56		(1,035.77)	8,872.12	12,872.67
Current	.045016	2,670,162		1,202,000.23	1,749.92	1,172,619.39	31,130.76
			$ 66,077.73	$ 1,202,000.23	$ (965.40)	$ 1,188,609.62	$ 78,502.94