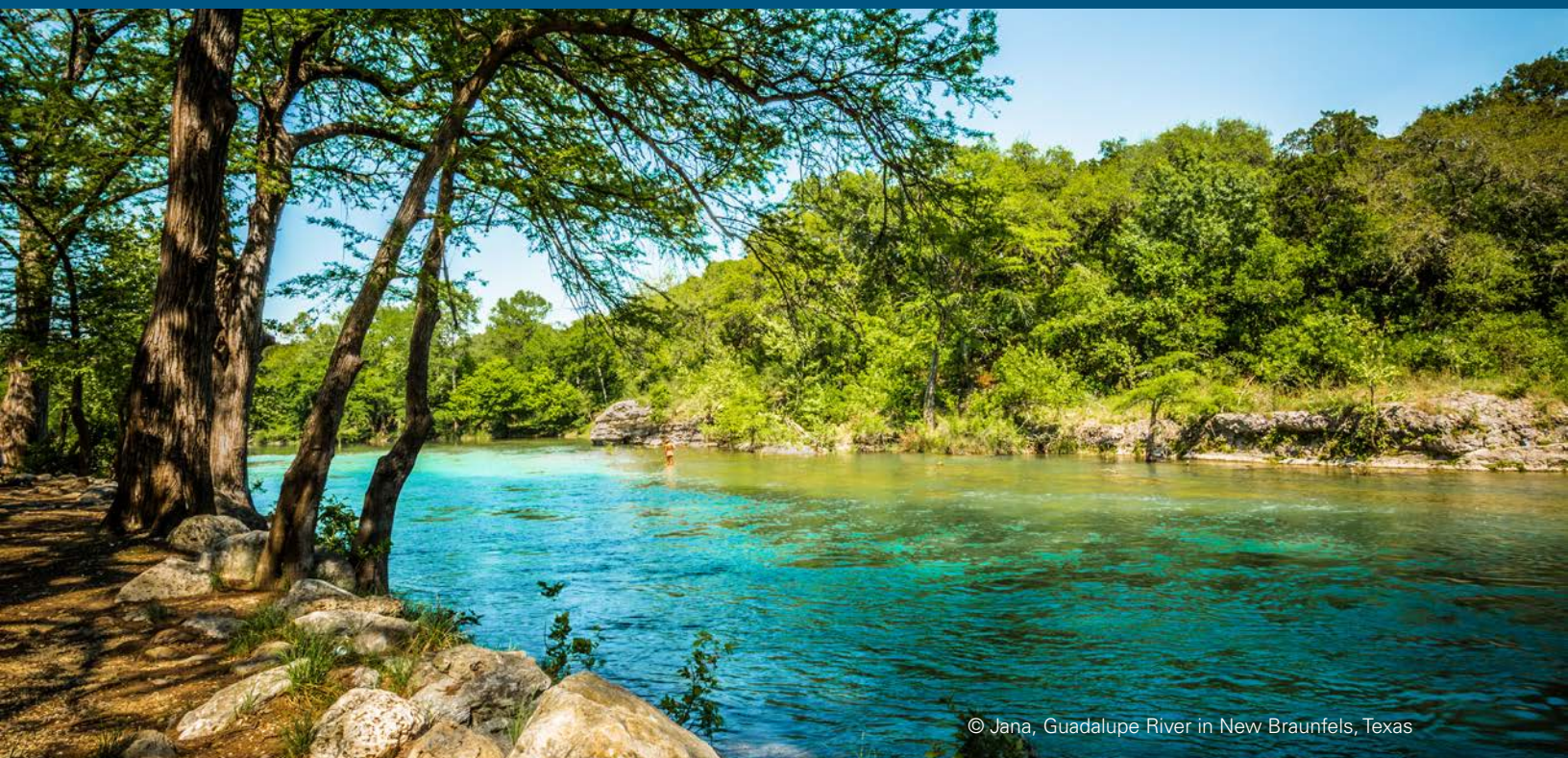


# Texas Stream Team Final Report: Contract #19-95065

JUNE 26, 2019 – JUNE 30, 2020

Report: 2021-01  
January 2021



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FOR WATER AND THE ENVIRONMENT

TEXAS STATE UNIVERSITY

TEXAS STREAM TEAM



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*This project has been funded wholly or in part by the United States Environmental Protection Agency under assistance agreement (99614623) to Texas Commission on Environmental Quality. The contents of this document do not necessarily reflect the views and policies of the Environmental Protection Agency, nor does the EPA endorse trade names or recommend the use of commercial products mentioned in this document.*

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# Acknowledgments

*Prepared in cooperation with the Texas Commission on Environmental Quality and U.S. Environmental Protection Agency.*

The Texas Stream Team encourages life-long learning about the environment and people's relationship to the environment through its multidisciplinary citizen science programs. We also provide hands-on opportunities for Texas State University students and inspire future careers and studies in natural resource related fields. Preparation of final reports serve as contract deliverables for granting entities, but they also serve as valuable educational experiences for the students and staff that prepare the reports. Texas Stream Team values the staff contributions and recognizes each individual for their role. The following staff and student workers assisted in the preparation of this report and are acknowledged for their contributions:

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Aspen Navarro, Program Coordinator

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# I. PROJECT BACKGROUND

Texas Stream Team at The Meadows Center for Water and the Environment (the Meadows Center) is dedicated to facilitating environmental stewardship by empowering a statewide network of concerned stakeholders in a collaborative effort to promote water quality education and non-point source (NPS) pollution reduction. Through water quality monitoring, data collection and analysis, and educational programs, Texas Stream Team and our partner organizations work to expand the public's understanding of how human activity impacts water quality in Texas. Participation in the Texas Stream Team citizen science program influences individuals to adopt activities that positively impact water quality and mitigate the effects of NPS pollution, while also involving them directly in watershed protection plans (WPPs) and citizen science initiatives.

Throughout the past year, Texas Stream Team has worked to support and enhance the public outreach objectives and priorities identified under the Texas Commission on Environmental Quality's (TCEQ) Federal 319(h) NPS Pollution Program, with a special emphasis placed on promoting services to organizations and partners identified as interested in developing a WPP. In addition to this, Texas Stream Team has worked to enhance and increase services for communities actively developing a WPP. Increasing Texas Stream Team's services to these stakeholders, as well as working to expand citizen scientist monitoring in these areas, engages communities in the process of watershed stewardship and NPS pollution reduction.

## TEXAS STREAM TEAM CITIZEN SCIENCE TRAININGS

Texas Stream Team offers several trainings for people to get involved with Texas Stream Team and monitor Texas' valuable natural resources. Currently, Texas Stream Team offers:

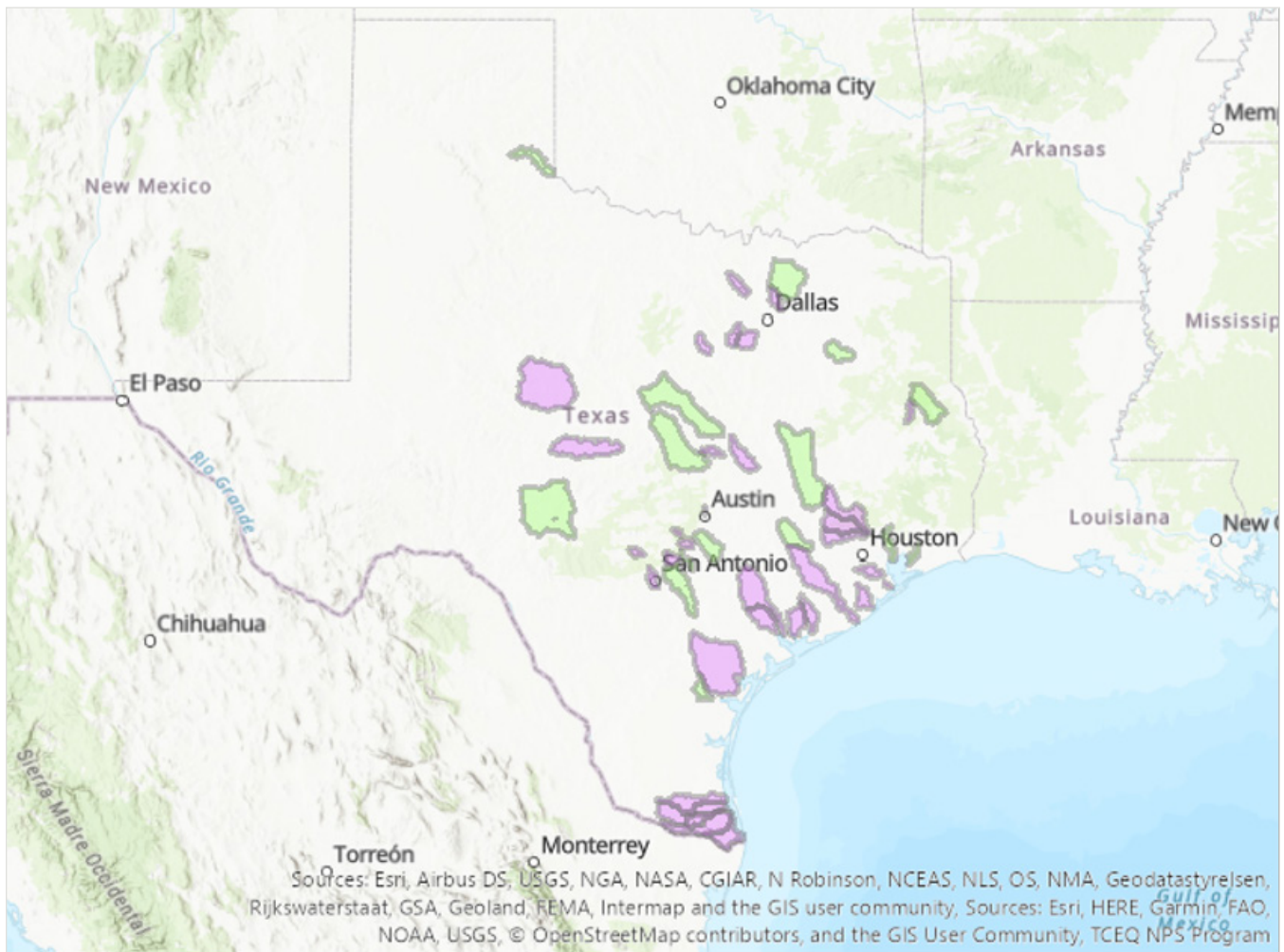
- **Standard Core Water Quality Citizen Scientist Training** – monitors basic parameters such as conductivity, dissolved oxygen, pH, total depth, water and air temperature, field observations, and water transparency using a chemical Standard Core kit.
- **Probe Core Water Quality Citizen Scientist Training** – monitors basic parameters such as conductivity, dissolved oxygen, pH, total depth, water and air temperature, field observations, and water transparency using digital probe meters.
- **E. coli Bacteria Water Quality Citizen Scientist Training** – involves performing tests for E. coli to assess the potential risk of contact recreation in a water body.
- **Advanced Water Quality Citizen Scientist Training** – monitors parameters such as nitrate-nitrogen, orthophosphate, turbidity, and streamflow using an Advanced monitoring kit.
- **Macroinvertebrate Bioassessment Citizen Scientist Training** – Assess the health of your lake, river, stream, or estuary based on the aquatic insects that live there.
- **Riparian Evaluation Citizen Scientist Training** – assess the health of your lake, river, stream, or estuary based on the riparian habitat.



**Figure 1:** Citizen scientist participating in Texas Stream Team's Standard Core Training in San Marcos on 1/27/19. Photo by Andrew Shirey.

## II. STUDY AREA

Texas Stream Team is dedicated to facilitating environmental stewardship by empowering a statewide network of concerned stakeholders in a collaborative effort to promote a healthy and safe environment. For this contract, Texas Stream Team has placed special emphasis on areas with an accepted WPP's or nonpoint source projects where stakeholders are interested in focused monitoring on the parameter of concern in their watershed.



**Figure 2:** Texas Stream Team TCEQ contract #95065 study area. Map created by the Nonpoint Source Program of TCEQ, November 2019. [Access here](#).

### III. SUMMARY OF TASKS

The project's scope of work included four main tasks and subsequent deliverables that fell within each task. The information within this section highlights each specific task, the objective, and the summarized deliverables. The final approved quarterly progress report (QPR) can be found in Appendix I, which provides further detail into each completed deliverable, the date of submission, and the date approval was received by the TCEQ Project Manager.

#### TASK 1: PROJECT ADMINISTRATION

##### Objective

To effectively administer, coordinate, and monitor all work performed under this project, including technical and financial supervision and preparation of status reports.

##### Deliverables:

- QPRs
- Reimbursement forms
- Post-Award Meeting and notes
- Conference call notes and action items
- Coordination meeting with EPA (upon request)
- Annual Report article and pictures (upon request)
- Contract Budget updates
- Annual Budget updates

#### TASK 2: QUALITY ASSURANCE

##### Objective

To refine, document, and implement data quality objectives (DQOs) and quality assurance/quality control (QA/QC) activities that ensure data of known and acceptable quality are generated by this project.

##### Deliverables

- QAPP Planning Meeting
- QAPP Annual Reviews and Revisions
- Draft and Final QAPP Amendments

#### TASK 3: FOCUSED CITIZEN SCIENCE ACTIVITIES IN WATERSHEDS IMPLEMENTING WPPS

##### Objective

To manage, expand, and strengthen the statewide water quality citizen science and partner network in areas implementing WPPs. The Performing Party will provide parameter of concern-focused water quality monitoring training to support existing and new groups performing volunteer monitoring.

##### Deliverables

- Documentation of one new citizen scientist group and one new partner

- Documentation of parameter of concern-focused water quality trainings, including agenda, presentation materials, and sign-in sheets (minimum of 3)

## TASK 4: FINAL REPORT

### Objective

The Performing Party will produce a Final Report that summarizes all activities completed and conclusions reached during the project. The Final Report must describe project activities and discuss the extent to which project goals and purposes have been achieved, including the amount of funds spent on the project. The report should emphasize successes, failures, lessons learned, and should include specific water quality data demonstrating water quality improvements, if applicable. The Final Report must summarize all the Task Reports either in the text or as appendices.

### Deliverables

- Draft Final Report
- Address TCEQ/EPA comments
- Final Report



## IV. PROJECT FUNDING

The total amount of funding awarded at the execution of the contract was \$9,167 with a total of \$5,500 federal dollars for the duration of a one-year period. Project costs for this contract were allocated for supplies and travel for providing trainings and supplies to citizen scientists in priority areas. The goal of this was to streamline and ensure citizen scientists transition effortlessly to monitoring water quality in their communities once certified.

The total cost share (40%) requirement for this contract totaled to \$3,667. Currently, a total of \$3,666.99 in-kind match funds has been reported. Cost share for this contract has been obtained from Texas Stream Team citizen scientist monitoring activities that is calculated using the Independent Sector's estimated national value of each volunteer hour, which is currently \$25.43/hour, and the International Revenue Service (IRS) standard mileage rate. In-kind match is also obtained via Texas State University's waived indirect costs (IDC), which is calculated using Texas State University's IDC rate, to cover this contract's cost share requirement.

All contract dollars will be spent down by the end of the contract. Table 1 below includes a breakdown of the budget by project tasks.

**Table 1:** Breakdown of project budget by task for TCEQ Contract #582-19-95065.

Task/Activity	TCEQ Reimbursable Portion (Federal)	Grantee Match Portion (Non-Federal)	Total
Task 1: Project Administration	\$550	\$367	\$917
Task 2: Quality Assurance	\$0	\$0	\$0
Task 3: WPP parameter focused activities	\$4400	\$2934	\$7334
Task 4: Final Report	\$550	\$367	\$917
Total	\$5,500	\$3,667	\$9,167

## V. DISCUSSION

### PROJECT ACTIVITIES

Throughout the contract period, Texas Stream Team has been collaboratively and ambitiously working to increase citizen science in targeted watersheds. Texas Stream Team has prioritized this goal by implementing strategies such as: increased program organization; expansion of training events and activities; improved data management and database structure; increased collaboration with statewide partners; improved standardization of training procedures; refinement of resources made available to citizen scientists; improved communication with citizen scientists and partners across multiple platforms, and more. The dedicated work of Texas Stream Team staff and citizen scientists has contributed to the success of our project goals and expansion of our program activities. Our successes in engaging the citizens of Texas in water quality and citizen science has opened the opportunity for future program expansion.

#### Partnerships

Texas Stream Team continues to develop new partnerships with organizations across the state. The partnerships are focused on collaborations wherein Texas Stream Team water quality monitoring activities and Texas Stream Team educational materials are in line with the partner's goals. As stated in Task 3, subtask 3.1, Texas Stream Team established a total of one new partner, between June 2019 and June 2020, that engages an audience in a geographic area implementing a WPP.

#### **Mission-Aransas National Estuarine Research Reserve (Port Aransas)**

The Mission-Aransas National Estuarine Research Reserve (the Reserve) is a federal and state partnership that conducts coastal research and hosts education and stewardship programs. Managed by the University of Texas Marine Science Institute, the Reserve partners with organizations across Texas and strives to improve and promote our understanding of coastal ecosystems. Throughout the past year, Texas Stream Team has been working with the Reserve to increase monitoring initiatives in the Texas Coastal Zone and expand citizen science into the Texas coastal region.

In addition to this, Texas Stream Team has partnered with Mission-Aransas to develop and implement environmental stewardship initiatives, including the recently developed Nurdle Patrol program. The Nurdle Patrol program focuses on bringing the coastal community together to tackle plastic pollution, specifically focusing on nurdle awareness and removal efforts. In the future Texas Stream Team plans to incorporate the Nurdle Patrol program into Standard Core monitoring efforts by including a dedicated section for nurdle observations on the updated Texas Stream Team monitoring forms. More information about the Nurdle Patrol can be found on the Texas Stream Team website.

#### Monitoring Groups

Texas Stream Team encourages its citizen scientists to seek involvement with other interested people to form monitoring groups. Monitoring groups range from a handful of interested citizens organizing on a grass-roots level, to existing groups of volunteers, such as Texas Master Naturalists, that may want to integrate water quality monitoring into their chapter program. Texas Stream Team seeks to work with and recruit existing groups whenever possible. As stated in Task 3, subtask 3.1, Texas Stream Team established a total of one new citizen scientist group between June 2019 and June 2020. The following citizen scientist group initiated or revised monitoring plans between June 2019 and June 2020:

#### **Headwaters at the Comal (New Braunfels)**

The Headwaters at the Comal is a nonprofit organization that focuses on restoring, protecting, and promoting public awareness on the significance of the Comal Springs in New Braunfels, TX. Situated on the headwaters of the Comal River, this organization is currently working to restore the riparian habitat surrounding Comal Springs, as well as provide a dedicated educational facility where visitors of all ages can engage directly with environmental stewardship and water resources. Throughout the past year Texas Stream Team has been working alongside Headwaters at the Comal to establish and support regular monitoring group on the Comal River.

## Citizen Scientist Trainings

Per Task 3, subtask 3.2, Texas Stream Team held a minimum of three training events in areas implementing WPPs.

## Parameter of Concern Training 1 of 3

A Standard Core Training was held on October 18th for the Texas Master Naturalists in Rockwall, TX. The training was led by Aspen Navarro and Devan Green of Texas Stream Team and had a total of 33 trainees. Every year, Texas Stream Team is invited to present at the Annual Texas Master Naturalist Conference. This annual event is attended by Master Naturalists from all over the state, many from watersheds with watershed protection plans being developed or implemented.

This was one of the most highly attended trainings that the Texas Stream Team staff have ever coordinated. Due to this, trainers had the challenge of adapting Texas Stream Team training protocols to efficiently accommodate a larger number of trainees in a four-hour period.

The high attendance at this training initially presented a learning curve to attendees, but the Texas Stream Team trainers and trainees were able to quickly adapt, resulting in a smooth training event and the certification of 33 new Texas Stream Team citizen scientists. Recommendations for improving future trainings included increased communication with the hosting venue and a potential maximum cap on attendees.

## Parameter of Concern Training 2 of 3

A Standard Core Training was held on November 11th for the Headwaters at the Comal organization in New Braunfels, TX. This training was led by Texas Stream Team staff member Devan Green, with assistance from Daniel Vasquez, Samantha Bechthold, and Sandra Arismendez. The event was well-attended with 13 enthusiastic trainees.

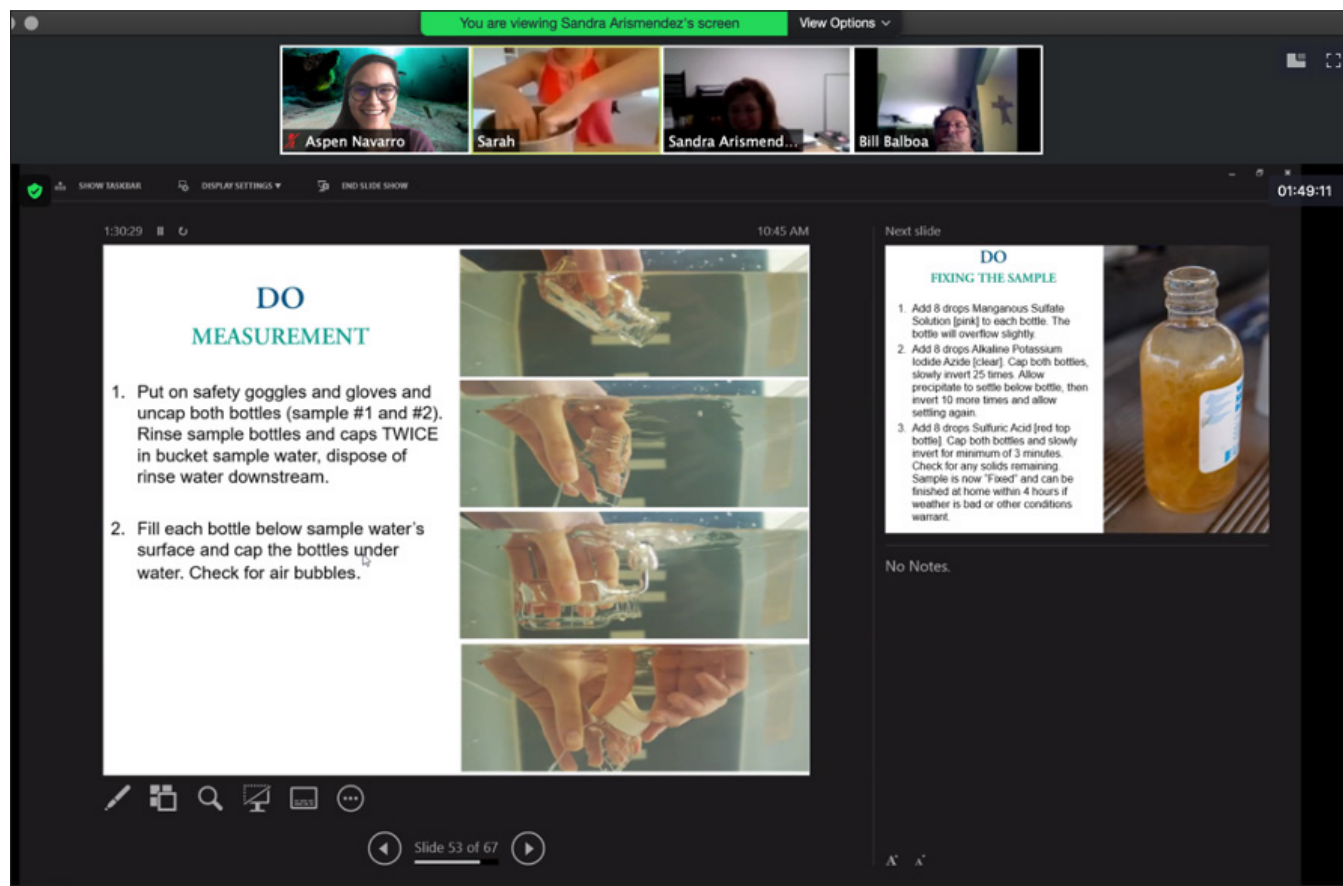
This was a successful training event that resulted in the establishment of the Headwaters at the Comal Citizen Scientist Monitoring Group, as well as 13 newly certified Texas Stream Team citizen scientists as shown in Figure 3.



**Figure 3.** Texas Stream Team trainer, Devan Green, presenting a Standard Core training to Headwaters at the Comal staff.

### Parameter of Concern Training 3 of 3

A Standard Core Trainer Training was provided to two citizen scientists who are in the process of completing their training to become Standard Core Trainers. The two attendees (shown in Figure 4 below) were Bill Balboa, the Executive Director of the Matagorda Bay Foundation, and Sarah Cunningham, the Coastal Training Program Coordinator for the Mission Aransas National Estuarine Research Reserve. Both individuals and organizations are key partners for Texas Stream Team activities along the Gulf Coast. Texas Stream Team looks forward to these partnerships and know both Sarah and Bill have the resources, outreach, and ability to start Texas Stream Team groups in their area and start growing monitoring efforts.



**Figure 4.** Bill Balboa and Sarah Cunningham participate in Standard Core Trainer Training over ZOOM.

## CHALLENGES

Texas Stream Team's year of ambitious growth has coincided with the anomalous onset of COVID-19. Throughout the past year, there have been a few challenges introduced to Texas Stream Team due to the impact of the pandemic.

To lessen the transmission of COVID-19 and support public health guidance encouraging social distancing, the Meadows Center indefinitely postponed all educational events and trainings, including Texas Stream Team citizen science trainings, starting March 13th. Due to this, Texas Stream Team has been unable to host in-person training events, severely limiting our outreach capabilities and holding trainings in implementing watersheds only. In addition to this, because Texas Stream Team operates through a statewide network of collaboration, local, and regional quarantine orders have reduced the frequency of statewide partner trainings. Quarantine orders have also reduced the amount of citizen scientist monitoring from established monitoring groups, leading to a reduction in submitted data.

Maintaining Texas Stream Team goals while encouraging social distancing has been a challenging process, however, maintaining the health, safety, and comfort of Texas Stream Team volunteers has been a top project priority. Adapting to these challenges is an ongoing process that Texas Stream Team staff and partners are rising to meet.



## LESSONS LEARNED

Throughout the process of adapting, Texas Stream Team has worked to create innovative solutions to continue engaging the public in water quality and environmental stewardship. The challenges presented by COVID-19 have highlighted the need for robust, virtual training protocols.

Texas Stream Team is in the process of adapting current training materials and resources to facilitate accessible, understandable, and high-quality training events and certifications. These training materials include training packets for the Riparian, Core, Probe Core, Advanced, Macroinvertebrate, and E. coli trainings, as well as online modules, presentations, and agendas.

Texas Stream Team is still in the process of adapting training materials to an online format and conducting online trainings has provided Texas Stream Team with insight on how to better adjust current training protocols to ensure high-quality online learning. Throughout this process, Texas Stream Team hopes to fine-tune trainings procedures so that the quantity and quality of training events can be reestablished, and program goals can continue to be met while maintaining public health and social distancing protocols.

# VI. APPENDIX I: FINAL APPROVED QUARTERLY PROGRESS REPORT

Contract No. 582-19-95065 Deliverable Report

Page 1

If a deliverable is or will be late, a new due date must be proposed. If this is the case, a justification describing the circumstances necessitating the new due date must be provided.						
ID#	Sub Task #	Deliverable	Current Due Date	Date Sent	Discussion of Progress Last Quarter (Delete info from prior QPRs, and leave blank if no progress occurred)	Proposed New Due Date
10834	1.2	QPR (FY19Q4)	09/15/19	10/08/19		
10835	1.2	QPR (FY20Q1)	12/15/19	12/16/19		
10836	1.2	QPR (FY20Q2)	03/15/20	03/13/20		
10837	1.2	QPR (FY20Q3)	06/15/20	06/15/20		
10838	1.2	QPR (FY20Q4)	09/15/20	09/15/20		
10839	1.3	Invoice (FY19Q4)	09/30/19	10/08/19		
10840	1.3	Invoice (FY20Q1)	12/30/19	12/16/19	No funds for FY20 Q1	
10841	1.3	Invoice (FY20Q2)	03/30/20	03/13/20	No funds for FY20 Q2	
10842	1.3	Invoice (FY20Q3)	06/30/20	06/29/20	Submitted revised FSR on 7/8/2020	
10843	1.3	Invoice (FY20Q4)	09/30/20	10/20/20	Submitted on 10/20/2020; Release of Claims submitted 11/9/2020	
10844	1.3	Invoice (FY21Q1)	12/31/20		No more project funds after FY20 - will send emails with no funds to report.	
10845	1.3	Invoice (FY21Q2)	03/31/21		No more project funds after FY20 - will send emails with no funds to report.	
10846	1.3	Invoice (FY21Q3)	06/30/21		No more project funds after FY20 - will send emails with no funds to report.	
10847	1.3	Invoice (FY21Q4)_June	07/15/21		No more project funds after FY20 - will send emails with no funds to report.	
10848	1.3	Invoice (FY21Q4)_July	08/15/21		No more project funds after FY20 - will send emails with no funds to report.	
10849	1.3	Invoice (FY21Q4)_Aug	10/15/21		No more project funds after FY20 - will send emails with no funds to report.	
10850	1.4	Post-Award Meeting and Notes	10/02/19	10/08/19		
10851	1.4	Quarterly Call	10/15/19	10/08/19		
10852	1.4	Quarterly Call	01/16/20	01/16/20		
10853	1.4	Quarterly Call	04/15/20	04/02/20		
10854	1.4	Quarterly Call	07/15/20	07/16/20		
10855	2.1	QAPP Planning Mtg	10/02/19	10/08/19		
10856	3.1	Establishment of one new citizen science group	06/15/20	06/15/20	Headwaters at the Comal Monitoring Group	
10857	3.1	Establishment of one new partner	08/31/20	03/13/20	Mission-Aransas National Estuarine Research Reserve (Nurdle Patrol)	
10858	3.2	Parameter of Concern Training 1 of 3	06/15/20	06/15/20	Core Training 10/18/19 held for Texas Master Naturalists, Rockwall	
10859	3.2	Parameter of Concern Training 2 of 3	06/15/20	06/15/20	Core Training 11/16/19 held for Headwaters at the Comal, New Braunfels	
10860	3.2	Parameter of Concern Training 3 of 3	07/20/20	09/15/20	Core Trainer Training 07/31/2020 online via ZOOM	
10861	4.1	Draft Final Report to TCEQ	07/16/20	07/16/20		
10862	4.2	Final Report	08/15/20	11/24/20		







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