EAHCP STEWARD

News from the Edwards Aquifer Habitat Conservation Plan - April 2021

Where There's a Waterway-There's a Will

Texas Stream Team Takes on Challenge of Water Quality Testing in All Texas Rivers

Left to right - Desiree Jackson, Aspen Navarro, Daniel Vasquez.

Gaylord Nelson, the former Wisconsin Governor and founder of Earth Day, had a particularly salient quote that interestingly enough didn't reference the environment. He said, "The ultimate test of a person's conscience may be the willingness to sacrifice something today for future generations whose words of thanks will not be heard." That quote singularly epitomizes the heart and soul of the Texas Stream Team, a diverse group of citizen scientists giving of their time and talents to ensure the state's natural waterways are preserved for decades to come.

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Texas Stream Team - Continued

“The State of Texas contains more than 191,000 miles of streams and rivers,” stated Aspen Navarro, program coordinator for the Texas Stream Team. “And while there are numerous governmental agencies and contractors who monitor the water quality in those waterways, there aren’t nearly enough to conduct testing on a monthly basis and that’s where our citizen scientists step in. Throughout the entirety of our program we have trained a little over 11,000 citizen scientists. In total, we have 1,368 monitoring sites in Texas that has water quality data. Of those, 244 are currently being monitored and are active. And while we recognize that we have a significant number of members now, we’d love to see that 11,000 number double, and we are constantly working on growing our team.”

The citizen volunteer groups began during the mid-1970s when the U.S. Environmental Protection Agency (EPA) started creating a set of environmental regulations for the country. They knew they wouldn’t have enough scientists to conduct the level of testing required in the regulations, so they initiated citizen volunteer groups to assist with that. Texas’ statewide citizen scientist programs began operating in 1991. The Texas Commission on Environmental Quality (TCEQ) worked initially with Texas State University’s Geography Department in developing the program. It was ultimately relocated to Texas State University’s Meadows Center for Water and the Environment, . The Meadows Center’s work begins with Spring Lake, one of the largest artesian springs in the world, and then reaches out across Texas and beyond.

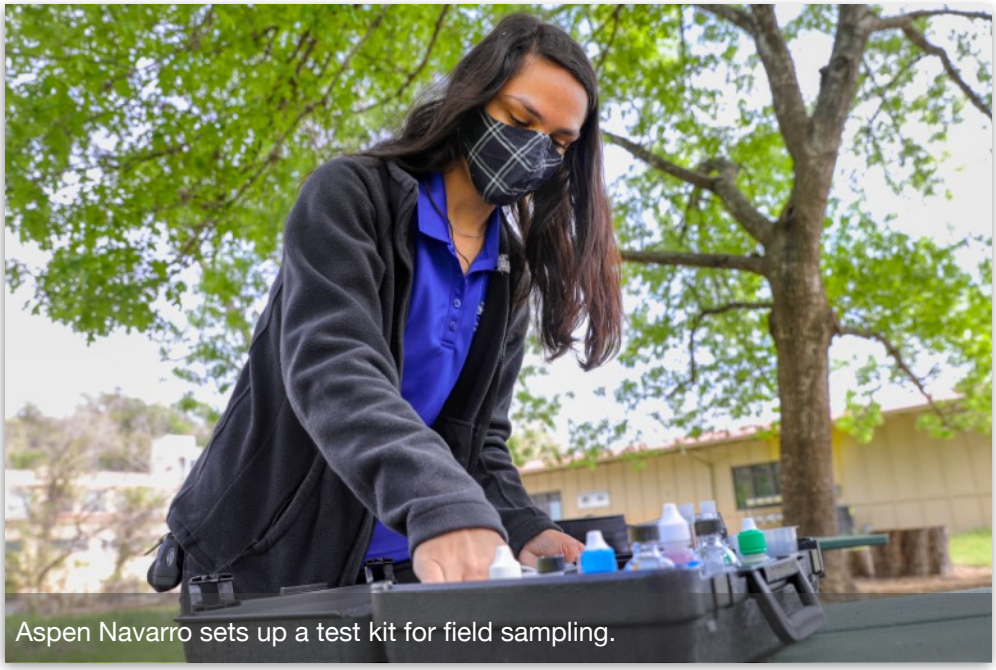
Bobcat Stream Team member Desiree Jackson checks sample for pH.

“A good portion of our group’s funding comes from federal 319 grant funds from the Environmental Protection Agency. But because our group has grown so much over the last several years, we must also utilize other grant awards to sustain our work,” Navarro noted. “We never want to turn anyone away from joining Texas Stream Team. In fact, our citizen scientists range from school age kids to senior citizens. And while we have many environmentally knowledgeable people in our group such as Master Naturalists, you do not have to have any experience to become a Texas Stream Team citizen scientist. We regularly conduct training classes that teach you all you need to know about collecting water samples and then using a test kit to accurately check certain water quality parameters in those samples.”

All of the water quality testing data is funneled into the Meadows Center’s Waterways Dataviewer database. Every water quality test result goes through quality control review before being uploaded to the database which is then converted into a public Datamap. Once on the Datamap, anyone can take a look at the water quality samples in their area to obtain an up-to-date snapshot of the quality of the surface water in their location.

Texas Stream Team - Continued

Some of the larger Texas Stream Team groups have data coordinators who gather the groups' test results and submits them directly to the database. However, individual citizen scientist can submit their test results via email for inclusion in the database. Texas Stream Team data is also accessible through EPA's Water Quality Exchange database, where the data gets uploaded biannually.


Aspen Navarro sets up a test kit for field sampling.

While the Texas Stream Team does offer advanced water quality testing training, the standard training covers testing for dissolved oxygen, pH, water temperature and conductivity. Why are these core four parameters important? Low levels of oxygen in the water can be an indicator of excess organic materials, such as large algal blooms, depleting a stream's oxygen supply which aquatic animals need. The pH values can provide signs of too many metals being dissolved by the water. Conductivity measures how much sediment is in the sample. And finally, water temperature values can help indicate the health of a stream over time. Some plants and animals survive best in warm water while others, like the endangered species in the Comal Springs and San Marcos Springs, thrive in cold water. So, regularly documenting water temperatures can give environmental managers critical data they need to evaluate evolving changes to their streams and rivers. Since Texas State University is a stakeholder of the Edwards Aquifer Habitat Conservation Plan, any early indication of water quality issues can quickly be communicated to EAHCP staff who monitor the habitat conservation and restoration efforts in the spring systems for the federally protected species. "While we do teach other types of advanced water quality testing, we really focus on those four core parameters to let us know the health of the stream at the time of a particular sampling," Navarro explained. "Those consistent numbers over time helps us establish baselines for our waterbodies. So, when a high runoff event occurs after a heavy rain, or maybe even some sort of pollutant contamination happens, we can look at the data and know the severity of impact to the stream. And because we are conducting sampling more often than the state does, we could catch a problem in a timelier fashion which then allows TCEQ and others responsible for managing stream quality to take action. Our thought is that you can never have too much data."

One of the newer focuses for developing the Texas Stream Team into the future is through the development of university student chapters. Texas State University established the Bobcat Stream Team (BST) in 2016 to advance student interest in watershed awareness and water resource protection. Likewise, the BST provides students with hands-on professional skills such organization, leadership, teamwork and communication that can help them in their future careers.

This year the Texas Stream Team turns 30 years old making it one of the longest-running citizen scientist programs in the nation.

Texas Stream Team at the Meadows Center.

"We have lots of plans to celebrate this milestone in our group's history," Navarro said. "In October, we'll be putting on a Steam Team Fest conference. Given COVID, the conference will be held mainly online. And for those who didn't know, April is global citizen scientist month and we'll be giving away a standard core water quality testing kit as well as stepping up our presence on social media. And the anniversary celebration also gives us another opportunity to talk about the Environmental Excellence Award we won a couple of years ago. Overall, we really are happy about the way the Texas Stream Team is growing. We know that we're expanding our ability to preserve Texas waterways and helping communities understand the importance of that work and involving them in the process as well."

And while this current group of Texas Stream Team members may not hear those words of thanks from people enjoying Texas waterways 50 years from now as Governor Gaylord alluded to, they can most definitely hear our words of thanks now for a job well done.

Here's how to Connect with the Texas Stream Team

Websites – www.TexasStreamTeam.org and www.BobcatStreamTeam.org

Email addresses – TxStreamTeam@txstate.edu and BobcatStreamTeam@txstate.edu

Training calendar link which shows all trainings taking place in Texas - https://teamup.com/ksos37y3n9acgt5pk5

EAHCP STEWARD SHORT TAKES

EAHCP Science Committee Meeting Slated for April 29

The EAHCP Science Committee will be meeting on April 29, 2021 at 9 a.m. via Microsoft Teams. Details on these agenda items are accessible on the EAA Granicus System.

Ready to Join the Texas Stream Team?

Has the *EAHCP Steward* articles about citizen scientists over the last couple of months given you some incentive to join the Texas Stream Team? Here are the best ways to start that journey and to learn more about the program.

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Welcome Trinity University Work Study Andrew Clough

The Edwards Aquifer Habitat Conservation Plan (EAHCP) has continued the work study program with Trinity University student Andrew Clough. Originally from California, Andrew came to Trinity University on a scholarship and plans to attend law school in the near future. Currently, he is pursuing a double major in economics and political science and is scheduled to graduate in May 2022. His work with the EAHCP includes creating story maps of the covered species using GIS applications.

"Creating StoryMaps has been an entirely new tool I've learned while working with the EAHCP Team," Andrew said. "While researching information about the Comal Springs drypoid beetle, I learned that it is a largely unknown species with the prospect of discovering more and that is what is most exciting about the species – the mystery."

You can find out more about Andrew at: www.linkedin.com/in/andrew-clough-498548188/