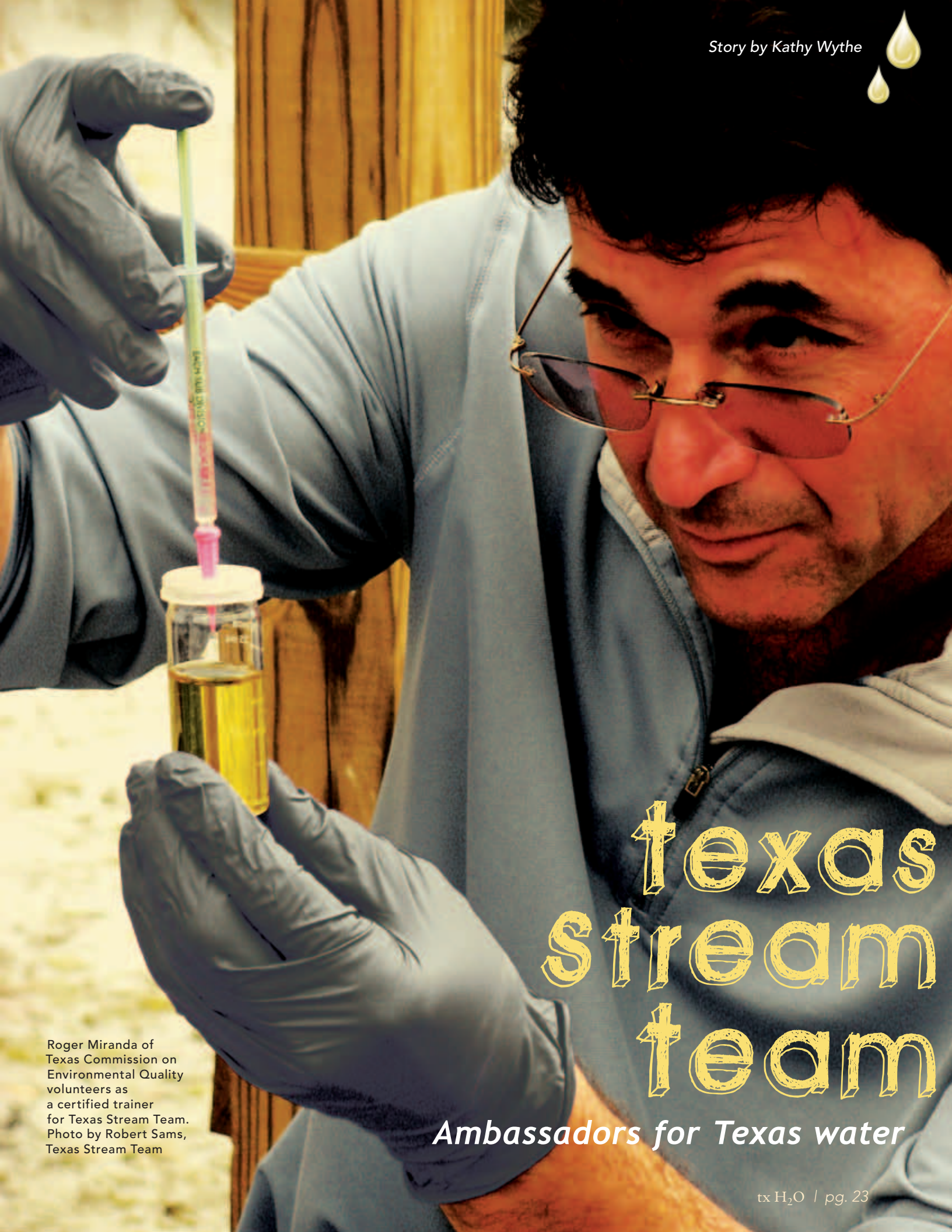
Story by Kathy Wythe

texas stream team

Ambassadors for Texas water



Roger Miranda of Texas Commission on Environmental Quality volunteers as a certified trainer for Texas Stream Team. Photo by Robert Sams, Texas Stream Team

An African proverb says it takes a village to raise a child. However, the Texas Stream Team would say it takes a group of citizens to monitor Texas waters.

The Texas Stream Team, formerly Texas Watch, is based at Texas State University and is affiliated with the university's River Systems Institute. The team is a network of agencies and trained volunteers working together to monitor water quality and educate residents about the natural resources in the state, according to Jason Pinchback, the team's program director. Established in 1991, the team is administered through a cooperative partnership with Texas State, the Texas Commission on Environmental Quality (TCEQ) and the Environmental Protection Agency (EPA).

The more than 2,000 volunteers are trained to collect water samples according to a water quality plan approved by TCEQ and EPA. The monitors make field observations and analyze the samples for dissolved oxygen, pH, specific conductance, Secchi depth transparency, temperature, and *E. coli* to assess the quality of aquatic life and contact recreation conditions of the water.

Training for the volunteers begins with classroom instruction followed by field work at a nearby water body to practice what they learned in the classroom, Pinchback said. They are then tested to make sure their water sample values are accurate and they follow correct procedures. After this phase, the volunteers are certified water quality monitors.

Because of the intense interest in bacterial pollution across the state, the team recently added another part to the training: teaching the monitors how to collect, process, and analyze water samples for *E. coli* contamination, Pinchback said.

Although TCEQ does not use the information collected by the volunteer monitors in its official water quality monitoring program, the monitors' information supplements the official data and helps those involved in water quality assessment identify water

Wimberley students learn about the unique significance of Jacob's Well. Photo by Greg Dannheim

quality problems and make decisions, he said.

Professional staff from TCEQ and other partners monitor the water quality of only about 15 percent to 25 percent of the surface water in Texas, and of those, samples might be collected only two to four times a year. With 191,000 miles of streams and 11,240 reservoirs large enough to be named, that "leaves a large niche for citizen monitors," Pinchback said.

"The power of citizen monitors is the number of sites they get to and the amount of data collected at individual sites," he said. "Around 2,000 monitors sample just under 400 sites, collecting 3,500 samples per year."

In addition to training volunteer water monitors, the team conducts watershed outreach and education, focusing on changing attitudes and perceptions about nonpoint source pollution, Pinchback said.

"We really push the nonpoint source message about how each one of us impacts watersheds," he said. "The outreach and education activities help people understand how their daily activities at home or throughout their daily lives could be affecting the watershed functions."

Through these various activities, Pinchback said the team hopes to "change attitudes and perceptions that result in positive behavior changes, which, in turn, helps reduce pollution loading."

Once a year for the past 10 years, the stream team has visited fourth graders in Wimberley, giving them creekside hands-on activities where students conduct water quality tests, sample for macroinvertebrates, learn about the creek's historical significance, and participate with watershed model demonstrations.

"These outreach activities also create ambassadors so people talk to friends and family about what they have learned," he said.

The stream team also engages citizens in water resources management projects, Pinchback said. He cited an ⇨

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Dr. Julie Westerlund, associate professor of biology at Texas State University, assists in training volunteer monitors. Photo by Texas Stream Team

incident near Rockport several years ago when citizens concerned about a potential water quality problem asked for the team's help.

"We served as a communications conduit (between the different stakeholders) as well as helped come up with a study design and sampling plan for local people interested in monitoring the water," he said.

With a full-time staff of four, the team seeks out partner organizations to increase its capability to reach more people with its message. The city of Denton, Houston-Galveston Area Council of Governments, and the Colorado River Watch network are among the stream team's more than 60 partners.

"Partners provide continuity in the local area," Pinchback said, adding they sometimes supply equipment and training and monitoring support. "Each partner has a different role depending on what their capacity is and what their mission is."

David Hunter, watershed protection manager for the city of Denton, said the city has been involved with the stream team since 2007 when his entire staff was trained as monitors and trainers. Working with professors and students at Texas Woman's University, the city staff has since trained more than 100 monitors.

"The benefits are immense," Hunter said. "Our volunteer monitors have completed hours of work performing water quality analysis. On just water quality sampling and analysis, they have done about $1,500 worth of work in the time that they have been monitoring for us, but, more importantly, we have an additional set of eyes and expertise."

Hunter said the city also uses the stream team to extend its public education efforts on water quality. "Most people don't know what a watershed is or don't know what watershed they are in," he said. "This should be the exception not the rule. The Texas Stream Team is changing that."

For more information about the Texas Stream Team, visit its Web site at *http://txstreamteam.rivers.txstate.edu/*.