

# Texas Stream Team

Houston-Galveston Area Council Chapter

Working to Protect Our Waterways

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## MONITOR SPOTLIGHT - Joanna Friesen and Amy Sullivan

Joanna Friesen and Amy Sullivan have been monitoring Sims Bayou at the Urban Nature Center together for six years.

Joanna has a PhD in Theatre with a specialty in Dance and was the director of the dance program at the University of Houston for 21 years. Amy has experience in ocean and civil engineering, museum administration, and landscape architecture. They bring these diverse backgrounds together to monitor Sims Bayou and connect their community with local watershed issues.



Image: Joanna Friesen and Amy Sullivan conduct Texas Stream Team monitoring at Sims Bayou Urban Nature Center

They share the role of Watershed Representative for Sims Bayou for the Bayou Preservation Association, a natural progression for Joanna who was a member of the Sims Bayou Coalition, a citizen group that monitored the Army Corp of Engineers channelization of Sims Bayou in the 1990s. They also partner with St. Christopher School, which is located close to their monitoring site, to bring out a group of 8th graders to monitor with them each year. Joanna says it is their "small contribution to educating the next generation."

When asked what they would tell prospective volunteers, Joanna said "Do it!" Amy added, "It is both interesting and educational. It gets you out in nature and makes you more aware of what is going on in your watershed."

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## H-GAC Texas Stream Team Update

The Houston-Galveston Area Council maintains the [Texas Stream Team program](#) in the Clean Rivers Program area for this region with support from the Galveston Bay Foundation, City of Sugar Land, The Woodlands Township, Friends of the River San Bernard, Bayou Land Conservancy, and Bayou Preservation Association.

**When is the next training?** H-GAC plans to hold 3 Phase I/II Trainings in 2019. The first training will take place from 9:00 a.m. to 4:00 p.m. Friday, February 15, at the Buffalo Bayou Partnership building in Houston, and is currently full. If you are waiting for a Phase III training, please contact [stream.team@h-gac.com](mailto:stream.team@h-gac.com) to get scheduled.

**Want to become a Phase III Trainer?** If you have been monitoring for a while, feel confident in the procedures, have free time (especially on weekends), and love teaching, let us know and we will help get you certified to help with Phase III trainings.

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## SAFETY BRIEFING - Weather Awareness

Texas Stream Team monitors conduct their work outside along our waterways. Usually, this makes for a great chance to get outside and enjoy nature while doing important work. However, as with any kind of field work, there are days when the weather is not exactly ideal. It is critical to make sure you are aware of potential weather situations you might encounter and have the tools necessary to adapt.

### 1. Rain

A light drizzle might be an inconvenience, but moderate to heavy rain can create hazards at your sampling site such as slippery banks, reduced visibility, and increased risk of hypothermia in the winter.

If heavy rain has recently occurred at your site or upstream, there are also potential risks like flooding and deposition or shifting of sediment and debris.

### 2. Lightning

The University Interscholastic League (UIL) recommends: suspend activities and seek shelter for 30 minutes after seeing a cloud-to-ground lightning strike or hearing thunder within 30 seconds of seeing a visible lightning strike. It is also good to monitor lightning in the surrounding area and check approaching storms for lightning activity.



Texas Stream Team Monitor Peggy Romfh uses an umbrella to monitor in the rain.

### 3. Cold Temperatures

Hypothermia is possible even in mild temperatures in the 60's with wind chills and wet clothing. Be sure to check the forecast for your monitoring days and dress appropriately.

### 4. Warm Temperatures

It will not be long before warmer days are back in Houston, so as above check the forecast and dress appropriately. Also bring enough water for the duration of your sampling trip.

### 5. Fog

Dense fog, especially around our waterways, can reduce visibility and pose a safety hazard. If fog impedes your ability to assess safety conditions at your site, or for others to safely see you, postpone your sampling event.

**Please remember that above all else, your safety is paramount.**

#### Tips for planning for and around the weather:

- Watch the news and weather forecast leading up to your planned sampling date
- Use Apps on your phone to help plan and adapt to changing weather conditions
  - Some popular **weather apps** include Weather Underground, WeatherBug, AccuWeather, and the NOAA Radar app.
  - The WeatherBug app has a feature called "**Spark**" that shows the distance of the closest lightning strike to your location.
- If weather conditions take a turn for the worse while you are at your site, consider finishing testing at another safe location.
  - The Winkler Titration method for measuring Dissolved Oxygen is the longest part of the sampling process. However, once you "fix" the sample (after adding the Sulfuric Acid) you do not have to worry about changes to the DO concentration of the sample and have **4 hours** to complete titrations.

While monitoring at a relatively consistent time and date each month is important for the Texas Stream Team program, it is not more important than your safety. If weather conditions make sampling unsafe, please postpone your sampling event.

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## TECHNICAL TERRITORY - The Winkler Method of Oxygen Determination

Each month Texas Stream Team monitors use two sample bottles and five different chemicals to measure the amount of dissolved oxygen in a water sample - but do you know what all the different steps are really doing?

The Winkler method, the process Texas Stream Team monitors use, was first devised in 1889 and is considered the "gold standard" for measuring the concentration of dissolved oxygen in a water sample.

1. Manganous sulfate (a source of manganese ions) and alkaline potassium iodide (a strong base and source of iodine) is added to the sample.
2. In the presence of alkaline potassium iodide, each oxygen atom binds with a manganese ion to create a manganous hydroxide complex.
3. Sulfuric acid is added to reduce the pH and dissolve the precipitate formed during step 2.
4. Free iodine is then produced at a one-to-one



Image: A Stream Team Monitor adds Manganous

- Sulfate to a water sample at a training.
- ratio so that it forms one iodine molecule per oxygen atom present in the solution. At this point the sample is "fixed".
  5. Sodium thiosulfate is added through titrations to neutralize the iodine (color disappears).
  6. Starch indicator is added to turn the iodine solution a deep blue to better determine the color change.
  7. Sodium thiosulfate is added through titrations until all iodine is neutralized and the iodine (and oxygen) concentration is determined.

If you want to visually follow along with the steps of the process, CarolinaBiological offers an informative video on [YouTube](#) using the same kit as Texas Stream Team monitors.

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## GET MORE INVOLVED WITH PARTNERS

[Adopt-a-Beach](#)  
[Artist Boat](#)  
[Bayou Land Conservancy](#)  
[Bayou Preservation Association](#)  
[Buffalo Bayou Partnership](#)  
[Cypress Creek Flood Control Coalition](#)  
[Exploration Green Conservancy](#)  
[Friends of the River San Bernard](#)  
[Galveston Bay Estuary Program](#)  
[Galveston Bay Foundation](#)  
[H-GAC Clean Waters Initiative](#)  
[Japhet Creek](#)  
[Keep America Beautiful](#)  
[Keep Texas Beautiful](#)  
[Take Care of Texas](#)



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## SKILLS CHECK - Dissolved Oxygen Fixation



If inclement weather or other situations prohibit the completion of the dissolved oxygen measurements, samples can be "fixed" so that titrations may be completed at another location. Once the sample is fixed you have 4 hours to complete titrations.

- To review the steps to fix your dissolved oxygen sample, see pages 31-37 in your [Texas Stream Team Instruction Manual](#).

*QC Check* - Remember that the two titration measurements must be within 0.5 mg/L of each other, so whenever possible it is recommended to complete the DO testing on site in case you need to complete titrations again to get measurements within the QC boundaries. See page 37 of your manual for more information. Also remember to always report measurements to the nearest tenth, even if that is a zero (i.e. 7.0).

Want to see the process step by step? You can always quickly review the TST testing procedures for dissolved oxygen fixation on [YouTube](#).

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## REVIEW YOUR DATA ON THE H-GAC WRIM

The [Water Resources Information Map](#) (WRIM) displays the Houston-Galveston Area Council's Clean Rivers Program water quality data. Data is available from

Clean Rivers program professional monitors and Texas Stream Team volunteer monitors. A new Advanced Tab allows for improved search functionality by specific site for monitoring, on-site sewage systems, and other water quality issues.

Texas Stream Team monitoring data is updated on the 15th of each month. Please check out your site and email [stream.team@h-gac.com](mailto:stream.team@h-gac.com) if you find any issues.

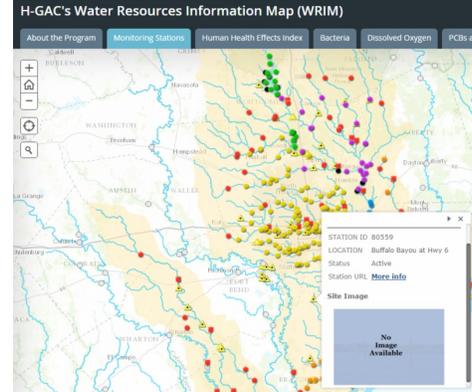


Image: H-GAC's WRIM displays water quality monitoring locations.



## CALENDAR OF EVENTS

What's Going on in the Galveston Bay Watershed?

<b>Feb 15</b>	<p><b>Texas Stream Team Training Phase I and II</b>            From 9 a.m. to 4 p.m. Friday, February 15, H-GAC will host our first Texas Stream Team training of 2019 at the Buffalo Bayou Partnership office in Houston. The training is currently full, but to find out about upcoming trainings <a href="mailto:stream.team@h-gac.com">email stream.team@h-gac.com</a></p>
<b>Feb 21</b>	<p><b>Solid Waste Workshop Series on Environmental Enforcement</b>            H-GAC will host a Solid Waste Workshop focusing on environmental enforcement from 8:30 a.m. to 12:30 p.m. Thursday, February 21, at H-GAC Conference Room B. CEUs will be offered. <a href="#">Get more information and register</a>. For additional assistance email <a href="mailto:Becki.Begley">Becki Begley</a> or call 713-993-2410.</p>
<b>Feb 26</b>	<p><b>Clean Water Initiative: Funding Opportunities for Water/Wastewater Infrastructure</b>            Join us for presentations by several funding agencies followed by a chance to ask questions in this open-house style workshop from 10 a.m. to 1 p.m. Tuesday, February 26. <a href="#">Get more information and register</a>.</p>
<b>Mar 10</b>	<p><b>47th Annual Buffalo Bayou Partnership Regatta</b>            Join <a href="#">Buffalo Bayou Partnership</a> for Texas' largest canoe and kayak race Saturday, March 10. Paddlers age 12 and up are encouraged to participate in the 15-mile race along the scenic Buffalo Bayou. Whether you are entering competitively or paddling for pleasure, you won't want to miss out on this longstanding Houston Tradition! <a href="#">Email Trudi Smith</a> or call 713-752-0314 ext. 103 for more information.</p>
<b>Mar 30</b>	<p><b>River, Lakes, Bays 'N Bayous Trash Bash®.</b>            Save the date for Saturday, March 30, 2019. Visit <a href="http://TrashBash.org">TrashBash.org</a> to see where sites are located and how to become a volunteer. Sponsorships just became easier with the <a href="#">online donation button</a>. Donations of any size are welcome and Trash Bash is a success due to generous individual, organization, and corporate sponsors.</p>

<b>April 18</b>	<b>Buffalo Bayou in Bloom with The Currents</b> Join Buffalo Bayou Partnership's Young Professionals, The Currents, for their biggest fundraiser of the year from 6:30 to 9:30 p.m. Thursday, April 18, at The Water Works at Buffalo Bayou Park. <a href="#">Email Jessica McFall</a> or call 713-752-0314 ext. 104 for more information.
<b>Ongoing</b>	The Buffalo Bayou Partnership offers a range of tours and activities throughout the year including Wellness Walking Tours, Nature Walking Tours, Art Walks, Buffalo Bayou Boat Tours, Waugh Colony Bat Tours, Volunteer Workdays, and more. Visit <a href="http://buffalobayou.org">buffalobayou.org</a> for more information on a specific activity.

## REPORT POLLUTION: GBAN

Activities such as oil and chemical spills, trash, dumping of waste, and illegal discharge of boat sewage have the potential to pollute the environment and threaten the health of people, plants, and animals.

Reporting pollution in the Houston-Galveston region helps protect the bay. Through the Galveston Bay Action Network (GBAN), it's easy to report pollution using a laptop, desktop, or mobile device.

Download the app or visit the [Galveston Bay Foundation website](#) today to start reporting pollution.

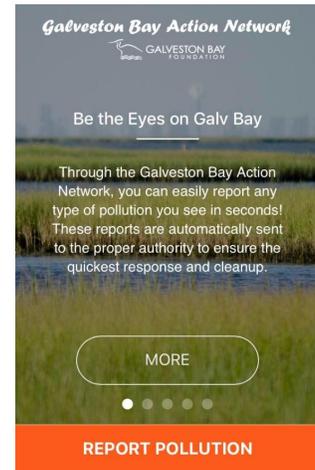


Image: The GBAN app makes reporting pollution easy.

## NEWS FROM THE REGION

### CLEAN RIVERS PROGRAM

Contact [Todd Running](#) at 713-993-4549 for more information about the [Clean Rivers Program](#).

### COASTAL COMMUNITIES OUTREACH

H-GAC will host a **Coastal Communities Water Quality Outreach Workgroup** meeting at 2 p.m. on Wednesday, **February 20, 2019** at Alvin Community College. Representatives from city and county governments, schools, and community groups in Brazoria, Chambers, Galveston, and Matagorda counties are invited to become part of the group to network with outreach and education partners and other governments about starting a conversation with residents to prevent water pollution in their communities.



For more information, contact [Becki Begley](#) at 713-993-2410 or visit the [Coastal Communities website](#).

### ON-SITE SEWAGE SYSTEM PROJECTS and FUNDING

H-GAC's [Wastewater Assistance Program](#) offers funding for the repair or replacement of conventional septic or aerobic wastewater systems in the 13-county H-GAC planning region. Homeowners who meet certain income restrictions are eligible.

"I am glad to know that there are people and organizations that help their citizens and people in these situations" said a recent recipient of a new system in the Cedar Bayou area. "You make a huge difference in people's lives."

For more information and qualifications, contact [Brian Sims](#) at 713-993-2438 or [learn more about maintaining these systems online](#).

## TOTAL MAXIMUM DAILY LOAD PROJECTS

### ***Coastal Basin Bacteria Reduction Meetings***

H-GAC and the Texas Commission on Environmental Quality invite area stakeholders to help create a plan to reduce high concentrations of bacteria found in two coastal basins. Meetings to discuss sources of bacteria, and develop plans to act on those options are scheduled for two of the impacted watersheds.

#### [Caney Creek/Linville Bayou \(Basin 13\)](#)

**February 21**

5 to 7 p.m.

Bay City Civic Center

201 Seventh Street, Bay City

#### [Oyster Creek \(Basin 11\)](#)

**March 12**

2 to 4 p.m.

Brazoria County Library - Lake Jackson

250 Circle Way, Lake Jackson



Image: Map of the San Jacinto-Brazos Coastal Basin.

Contact [Steven Johnston](#) at 832-681-2579 for information about [TMDL projects](#).

## WATERSHED PROTECTION PLANS

### ***EPA Accepts West Fork San Jacinto River and Lake Creek Watershed Protection Plan***

The U.S. Environmental Protection Agency has accepted the [West Fork San Jacinto River and Lake Creek Watershed Protection Plan](#), which is now in implementation.

The focus of the plan is reducing bacteria, improving dissolved oxygen, and raising awareness of water quality in the watersheds. H-GAC, the Texas Commission on Environmental Quality, and local partners developed the plan as a voluntary means of addressing water quality issues that affect local health, economy, and environment.

H-GAC is working with local partners to schedule a series of educational and outreach events to move forward voluntary recommendations in the plan.

### ***Plans Underway to Begin Watershed Protection Plan for Cypress Creek***

H-GAC is beginning a watershed protection plan project for Cypress Creek. The project will take place over two years and will build on work done during the West Fork San Jacinto and Lake Creek Watershed Protection Plan project.

H-GAC is developing the scientific data needed to support stakeholder discussions and will schedule the first meeting in the spring. The project will focus on voluntary ways to improve water quality in the Cypress Creek watershed with a focus on reducing bacteria levels, improving dissolved oxygen, and addressing other stakeholder concerns.

Cypress Creek is a primary tributary of Lake Houston, which serves as a popular recreation destination and drinking water source for many communities in Houston.

Contact [Justin Bower](#) at 713-499-6653 for more information about [watershed protection](#)

[plans](#).

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## NEWS FROM SAN MARCOS

### NEW DATAVIEWER

Texas Stream Team (TST) is working on a new map to display water quality data collected since the start of the program in 1991. Currently, the map displays site locations and whether they are active or inactive. The [map](#) is accessible to the general public. If you have questions about the data or would like a copy, please contact [txstreamteam@txstate.edu](mailto:txstreamteam@txstate.edu).

### PUBLICATIONS

The Meadows Center for Water & the Environment at Texas State University has several publications of interest to Texas Stream Team monitors. You can [subscribe to them online](#).

### ID CARDS

TST identification cards are available for volunteer monitors. If you would like an ID card, please request it [via email](#). Once the request is logged, your monitor ID number will be checked against the state TST database, and address verified. The ID card is mailed to your address.

### TST In The News

Read an [Editorial](#) published in the Longview-New Journal about how the Texas Stream Team shows the worth of citizen involvement.

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### ABOUT THE NEWSLETTER

Email [kendall.guidroz@h-gac.com](mailto:kendall.guidroz@h-gac.com) or call 713-993-2469 with questions, comments, calendar items, or suggestions for future H-GAC Texas Stream Team newsletters or to join the H-GAC Texas Stream Team Newsletter mailing list.

H-GAC is the regional organization through which local governments consider issues and cooperate in solving area-wide problems. We invite you to subscribe to the [Community and Environmental Update](#), a monthly e-newsletter to keep you informed about the many community planning, economic development, and environmental planning programs at H-GAC.

[Texas Stream Team at The Meadows Center for Water and the Environment](#) at Texas State University is dedicated to understanding and protecting the 191,000 miles of Texas waterways. For more information, contact [TxStreamTeam@txstate.edu](mailto:TxStreamTeam@txstate.edu).