

Surface Water Quality Monitoring to Support the Implementation of the Cypress Creek Watershed Protection Plan

2017 Cypress Creek Bacterial Source Tracking: Project Update #1

A 3-month Bacterial Source Tracking (BST) study to determine the source(s) of elevated *E. coli* bacteria discovered in Cypress Creek near downtown Wimberley, TX, is being conducted by the Meadows Center for Water and the Environment (Meadows) from August 2017 through October 2017.

Figure 1 shows the sample locations for the 2017 BST study. Site #1 is located on Cypress Creek approximately 0.33 miles upstream of the RR12 bridge. Site #2 is located on Cypress Creek approximately 0.10 miles downstream of the RR12 bridge. Site #2 was selected to provide data on Cypress Creek *E. coli* sources including the downtown Wimberley area.

The BST study will be conducted over 3 monthly sampling events to include 1 wet weather event and 2 events under dry conditions. Tentative sample dates include Aug. 7, Sept. 12 and Oct. 16.

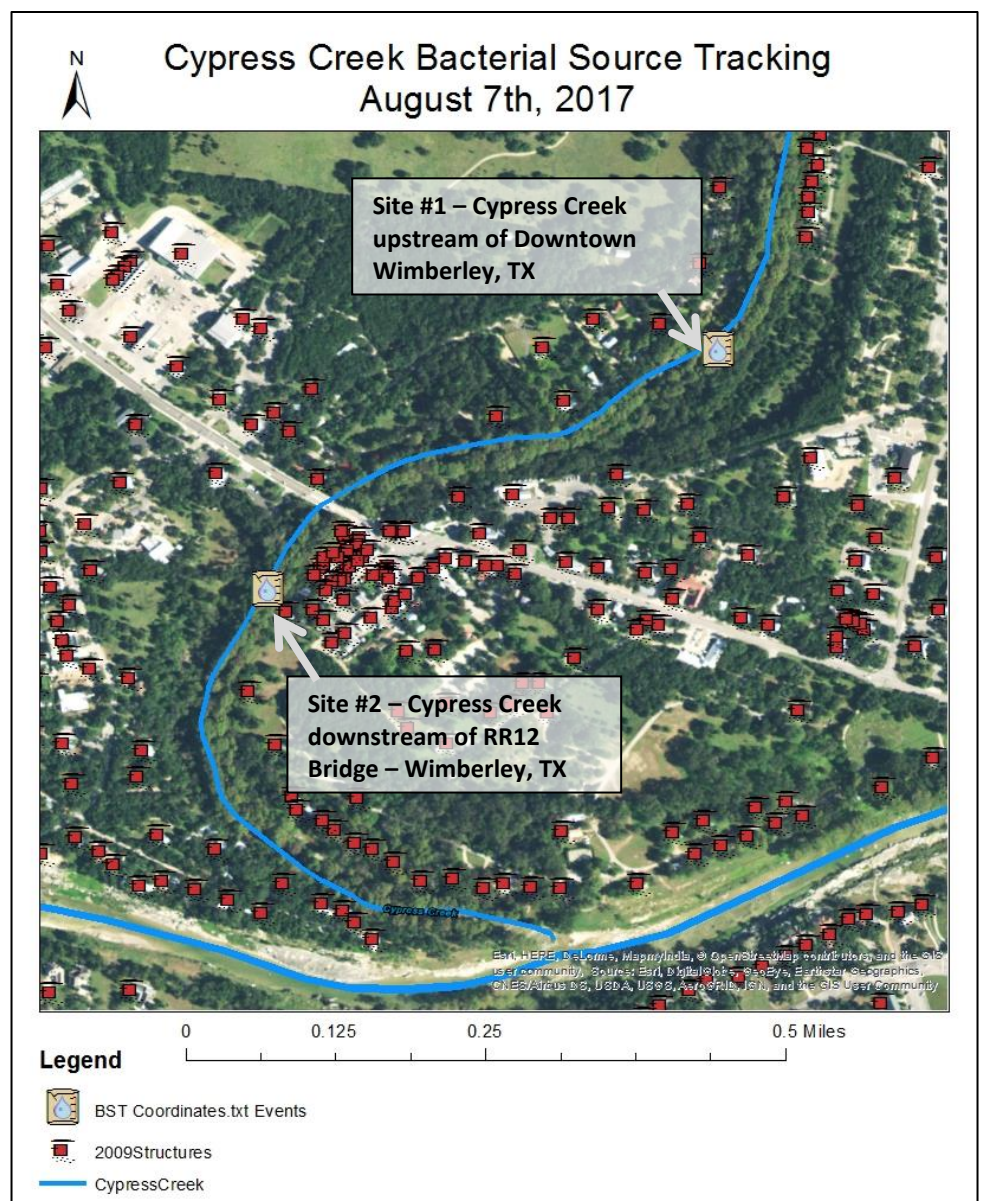


Figure 1. Cypress Creek BST Study - 2017 Project Map.

Meadows will collect duplicate samples from each site in disposable, pre-cleaned, sterile bottles to be immediately transported on ice to the Texas A&M University Soil and Aquatic Microbiology Laboratory (SAML) for processing and BST analysis. A Chain of Custody (COC) Record will accompany the samples.

SAML will perform BST analysis on 3 *E. coli* isolates (separate *E. coli* colonies) from each sampling site for a total of 6 isolates per sampling event (18 total isolates for the 3-month study).

The final report for the Cypress Creek BST Study will include analysis and trends on Cypress Creek *E. coli* sources both upstream and downstream of the downtown Wimberley area as determined by the unique genetic “fingerprint” identified for each of the *E. coli* isolates. Preliminary BST results will be provided by SAML within 6 weeks of each sampling event.

Sampling notes for August 7, 2017

- Wet weather event #1
- Sampling conducted by Michael Jones, Water Resource Specialist – Texas Stream Team.
- 24-hour precipitation¹ = 2.5 in.
- USGS 08170990 stream discharge at time of sampling = 15 CFS (7 yr. median for 8/7 = 1.6 CFS), **Figure 2**
- USGS 08170990 turbidity at time of sampling = 1.00 FNU, **Figure 3**
- Site #1 – Stream width = 40 ft.; Stream depth 35 in.; Sample depth = 20 in., **Figure 4**
- Site #2 – Stream width = 25 ft.; Stream depth 34.5 in.; Sample depth = 20 in., **Figure 5**
- Additional field notes – Sampling conducted from 9 AM to 10 AM on Aug. 7 under light to moderate rainfall conditions. High flow conditions in Cypress Creek with increase in suspended solids. Active surface runoff at both sampling sites. There was an odor of sulfur or sewage in the air near Site #2. Strong guano odor when walking over RR12 bridge. Meadows immediately transported raw samples on ice to SAML laboratory, **Figure 6.**

Project Update #1 submitted to Meadows Center for Water and the Environment by Nick Dornak on August 21, 2017.

¹ NOAA Record of Climatological Observations, Station: WIMBERLEY 4.4 E, TX US1TXHYS003

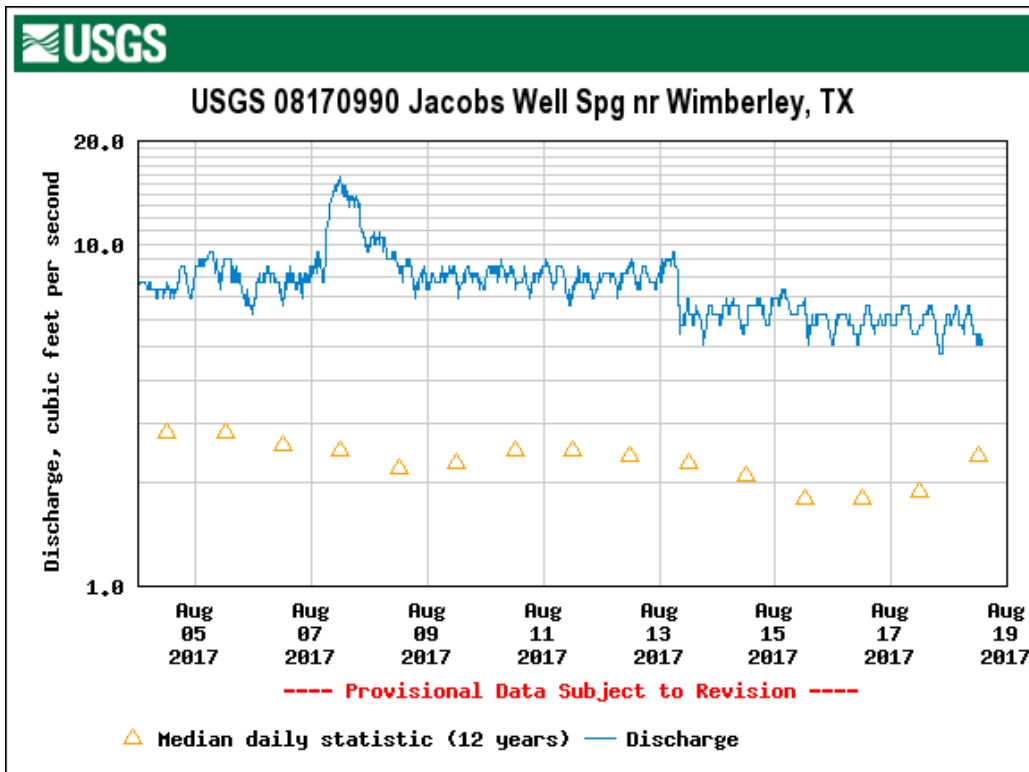


Figure 2. Cypress Creek discharge at Jacobs Well, USGS 08170990.

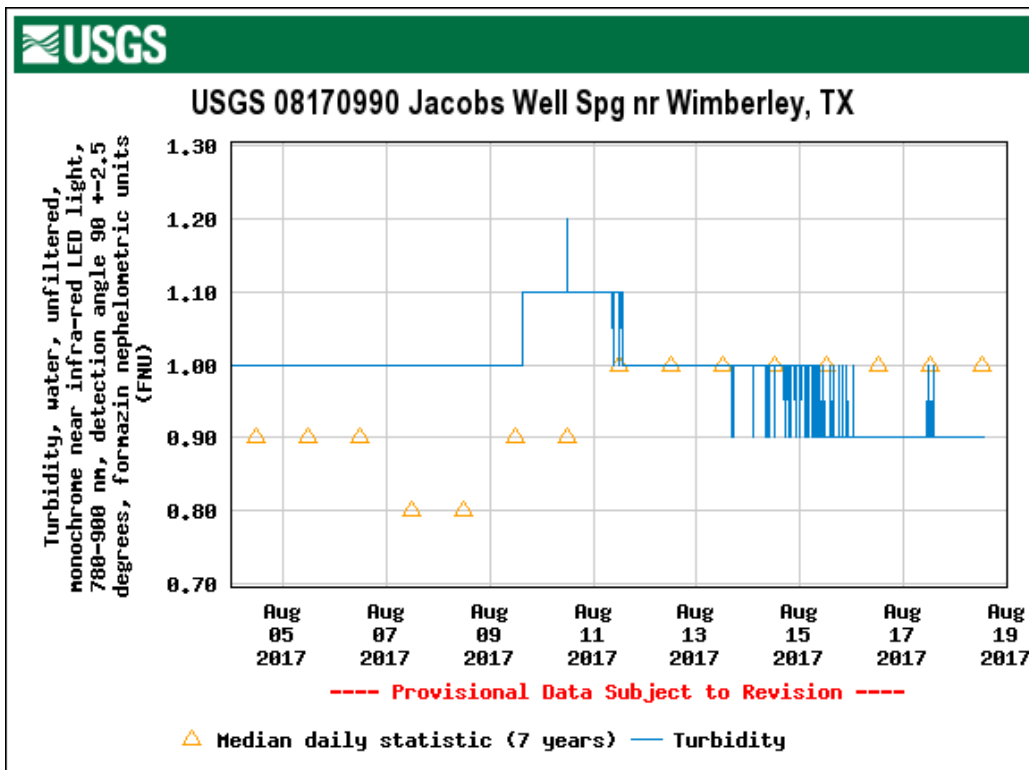


Figure 3. Cypress Creek turbidity at Jacobs Well, USGS 08170990.



Figure 4. Cypress Creek BST Study, Site #1 - Aug. 7, 2017.



Figure 5. Cypress Creek BST Study, Site #2 - Aug. 7, 2017.



Figure 6. Cypress Creek BST Study, Sample preparation for transport to SAML, College Station, TX. - Aug. 7, 2017.