

WIMBERLEY VALLEY WATERSHED ASSOCIATION: CLEAN RIVERS PROGRAM OVERVIEW

Sandra S. Arismendez, PhD

Guadalupe-Blanco River Basin Steering Committee Meeting
August 20, 2020



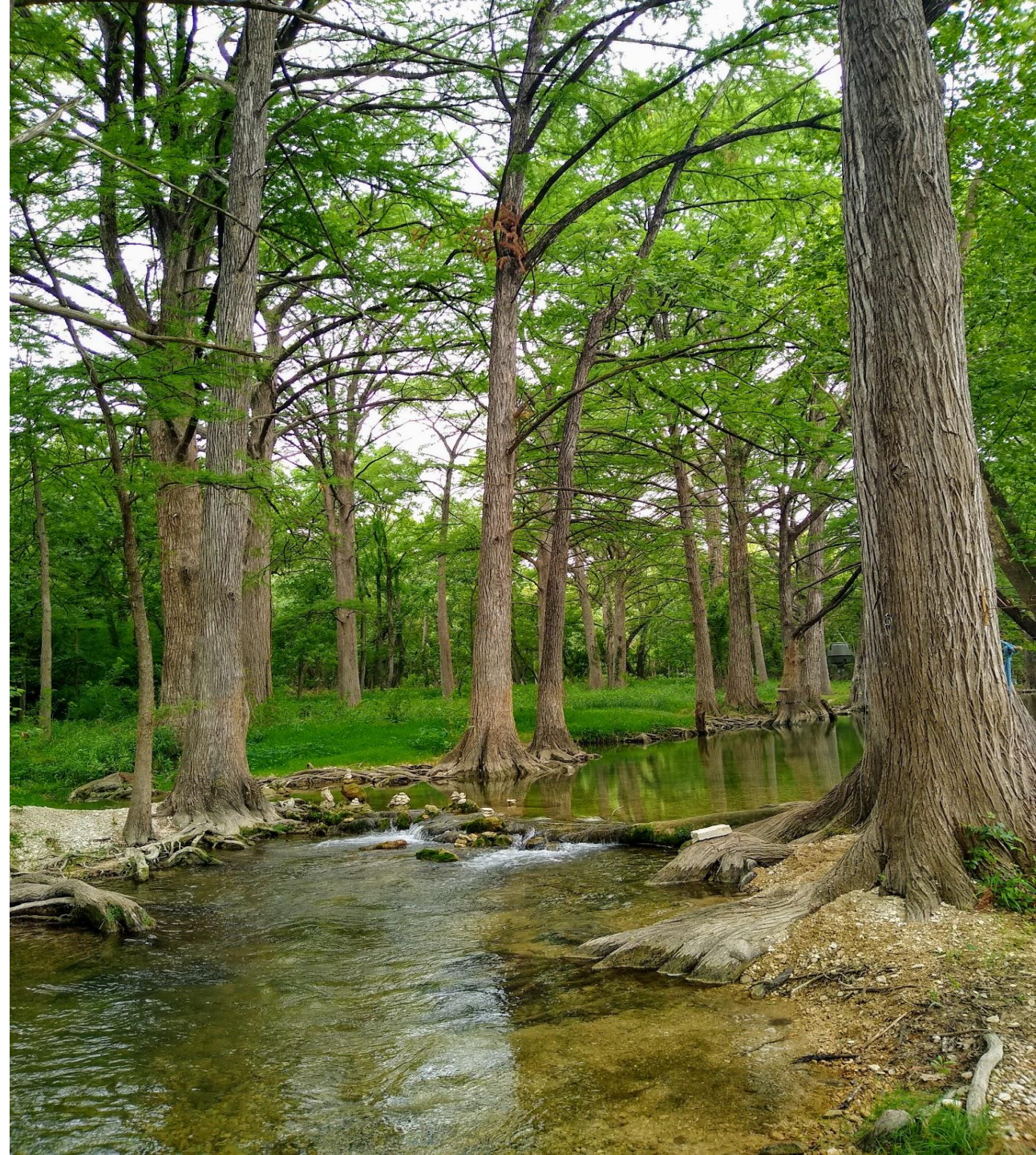
THE MEADOWS CENTER
FOR WATER AND THE ENVIRONMENT

TEXAS STATE UNIVERSITY

OUTLINE

Routine Water Quality Monitoring:

- Upper Blanco River monthly monitoring (Segment 1813)
- Upper Blanco River quarterly monitoring (Segment 1813)
- Cypress Creek quarterly monitoring (Segment 1815)



Upper Blanco River

Monthly Monitoring

Purpose: To monitor water quality concerns resulting from wastewater treatment plant discharge.

Two locations:

12669 – Blanco River @ PR23

12668 – Blanco River @ FM165

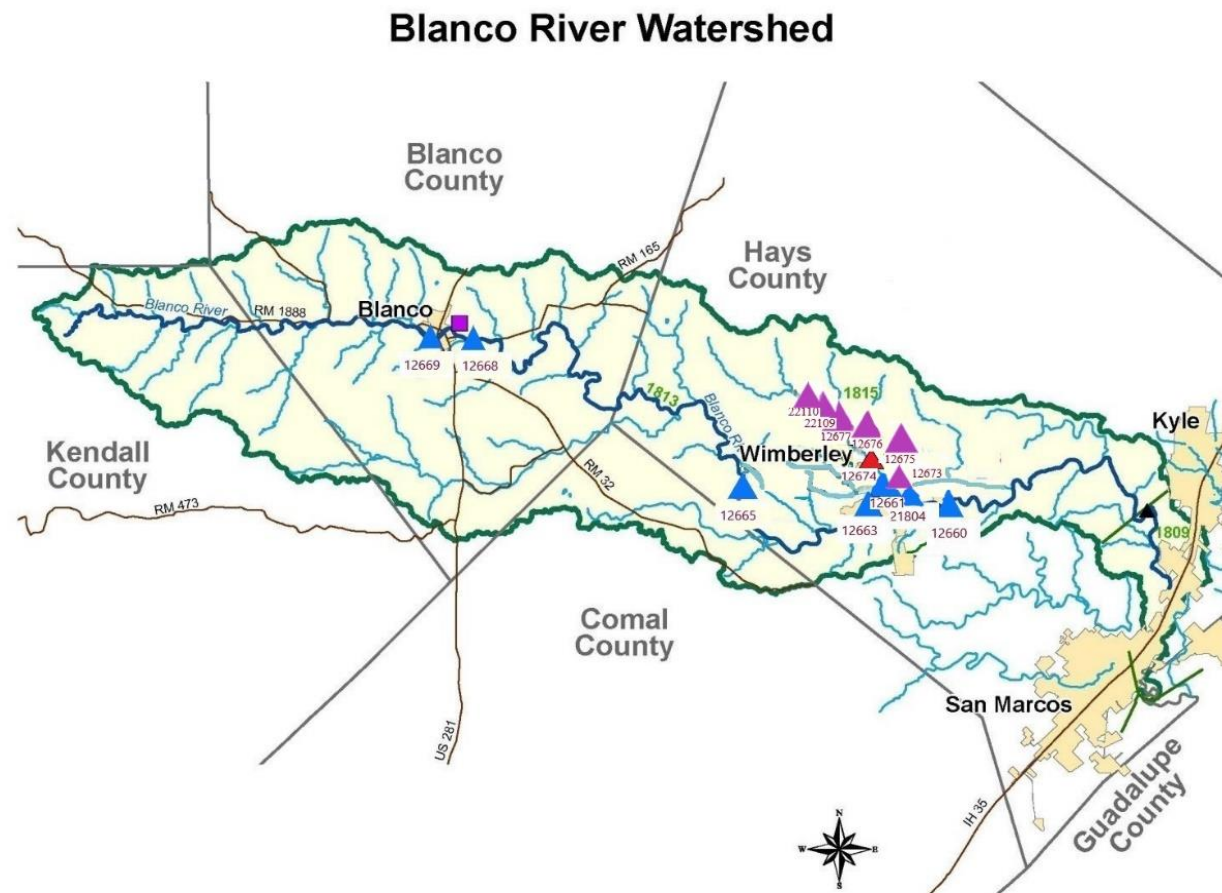
Parameters:

Field

Flow

Conventional

E. coli Bacteria



Legend

CRP Sampling Stations



GBRA



UGRA



WVWA



MCWE



Domestic WW Permit



Industrial WW Permit



Land Application Permit



USGS Gage



Stream Segment



Spring



Guadalupe River Basin



Lakes and Coastal Waters



Rivers and Streams



Cities



Counties



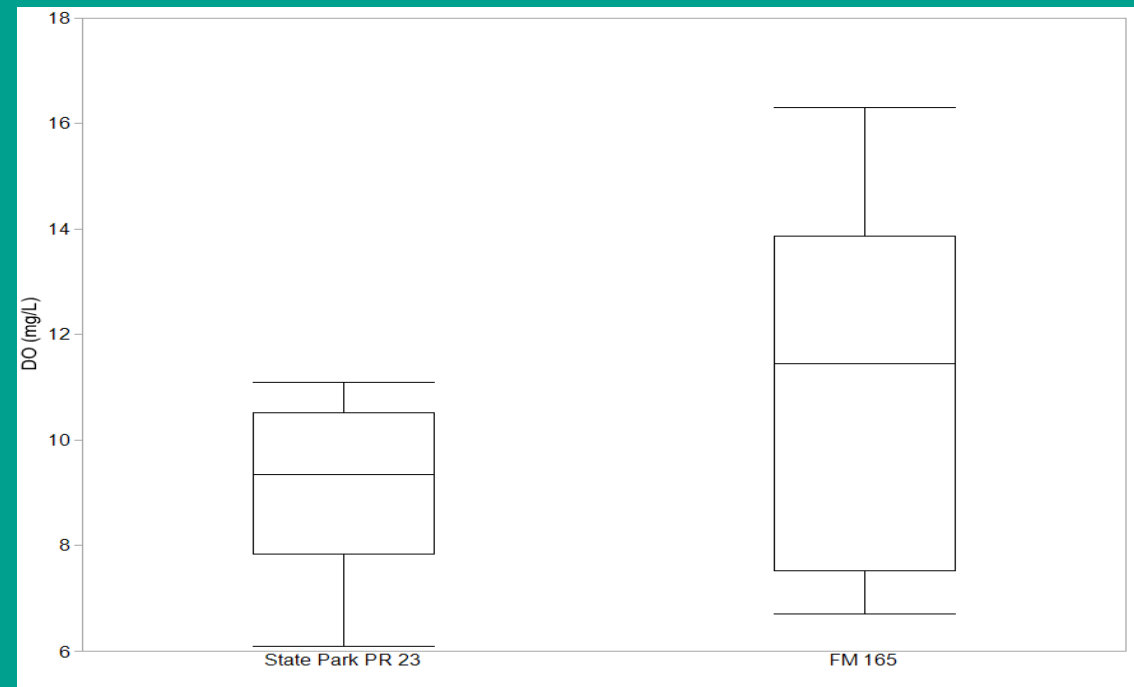
Roadways

Upper Blanco River

Monthly Monitoring Results (Sep 2019 – Jun 2020)

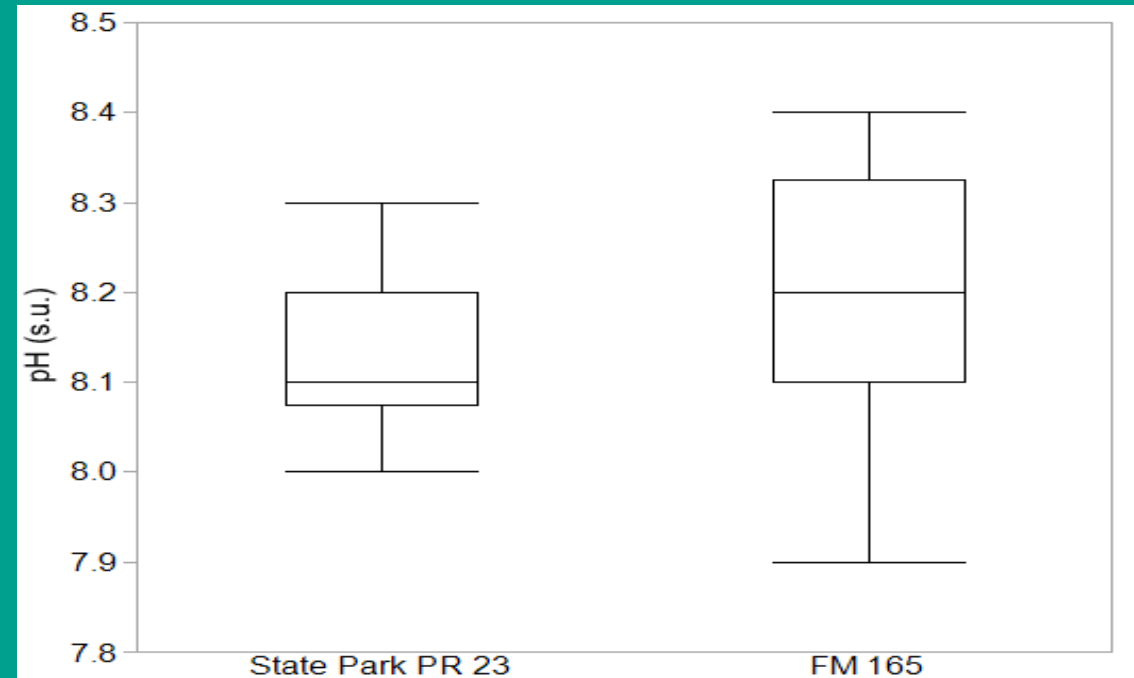
Dissolved Oxygen (mg/L)

- WQS met for all events/sites
- Unusually high DO values at FM 165
- More variability at FM 165



pH (s.u.)

- WQS met for all events/sites
- More variability at FM 165

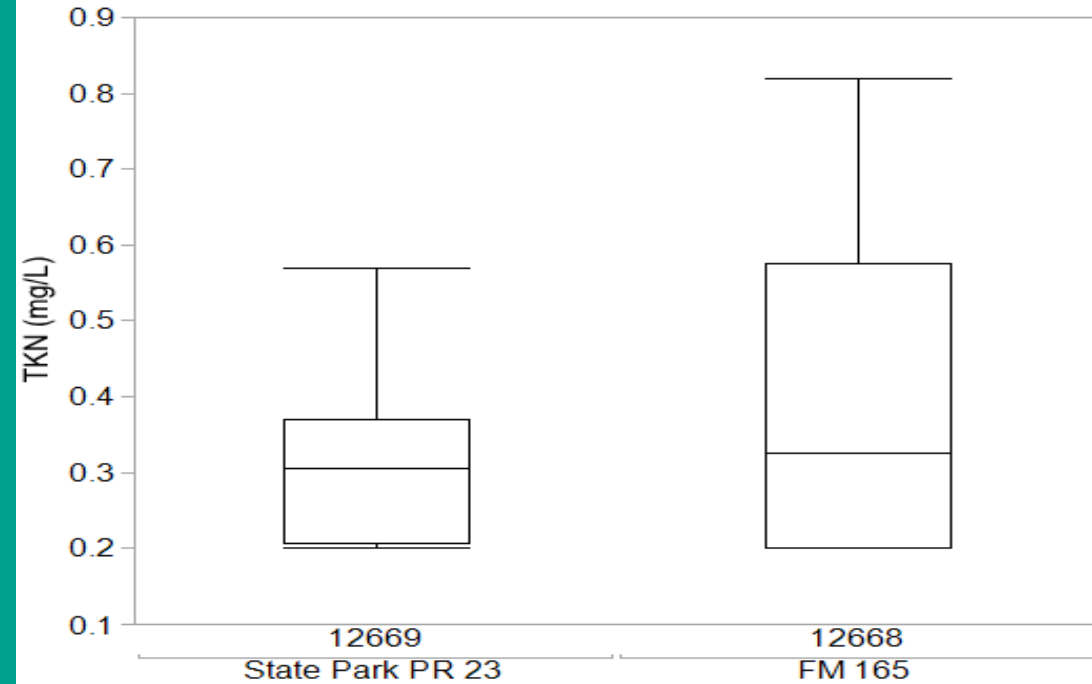


Upper Blanco River

Monthly Monitoring Results (Sep 2019 – Jun 2020)

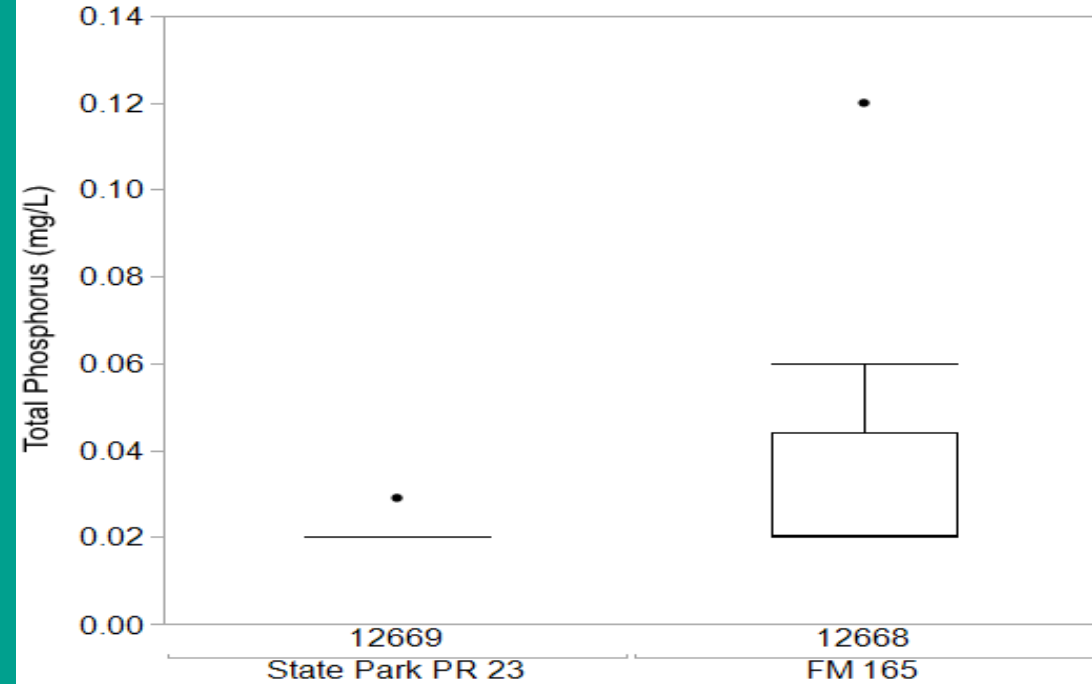
TKN (mg/L)

- WQS met for all events/sites
- More variability at FM 165



Total Phosphorus (mg/L)

- WQS met for all events/sites
- More variability at FM 165



Upper Blanco River

Monthly Monitoring Results (Sep 2019 – Jun 2020)

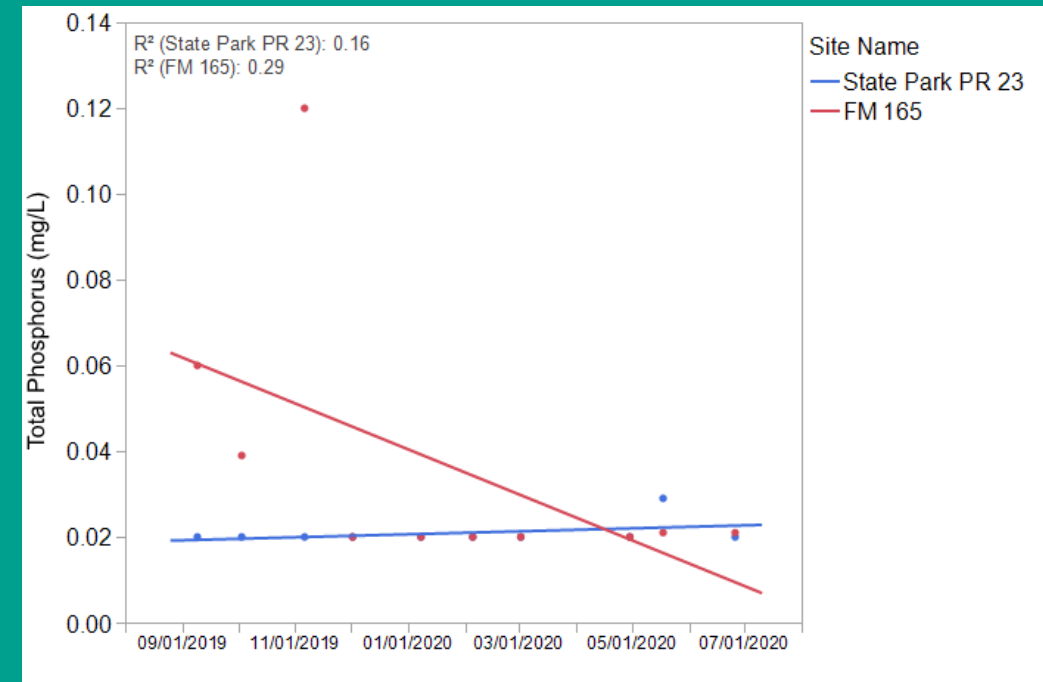
TKN (mg/L) vs. Time (Date)

- Decreasing trend in TKN concentration at both sites
- Steeper slope at FM 165



Total Phosphorus (mg/L) vs. Time (Date)

- Decreasing trend at FM 165
- Slight increasing trend at PR 23
- Steep slope at FM 165



Upper Blanco River

(@FM165)

7



8 Jan 2020



26 Jun 2020

Upper Blanco River

Quarterly Monitoring

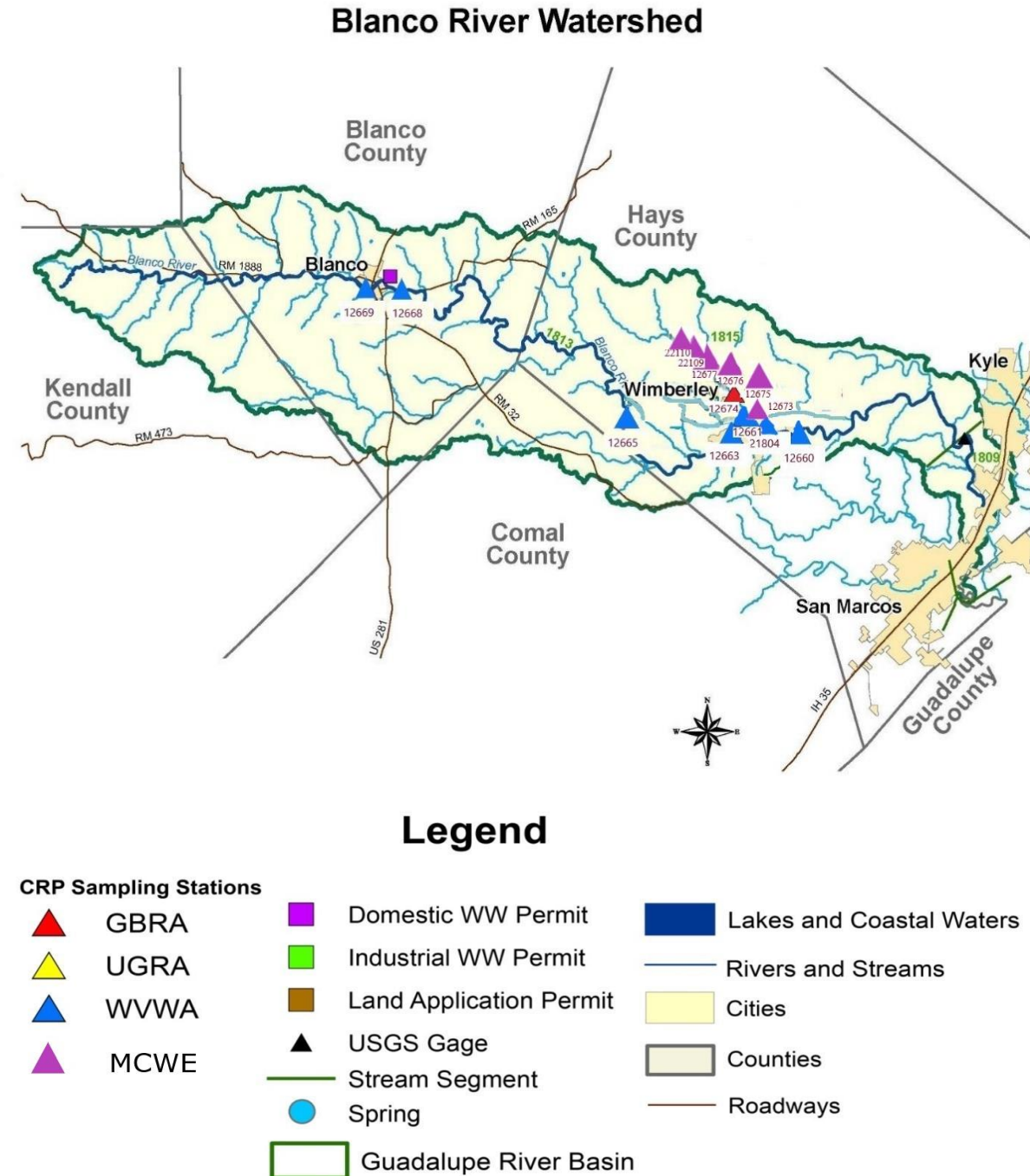
Purpose: To collect water quality data for assessment in the Texas Integrated Report.

Five locations:

- 12665 – Blanco River @ Fischer Store Rd.
- 12663 – Blanco River @ Pioneer Town
- 12661 – Blanco River @ RR12
- 21804 – Blanco River @ Deer Creek
- 12660 – Blanco River @ CR174

Parameters:

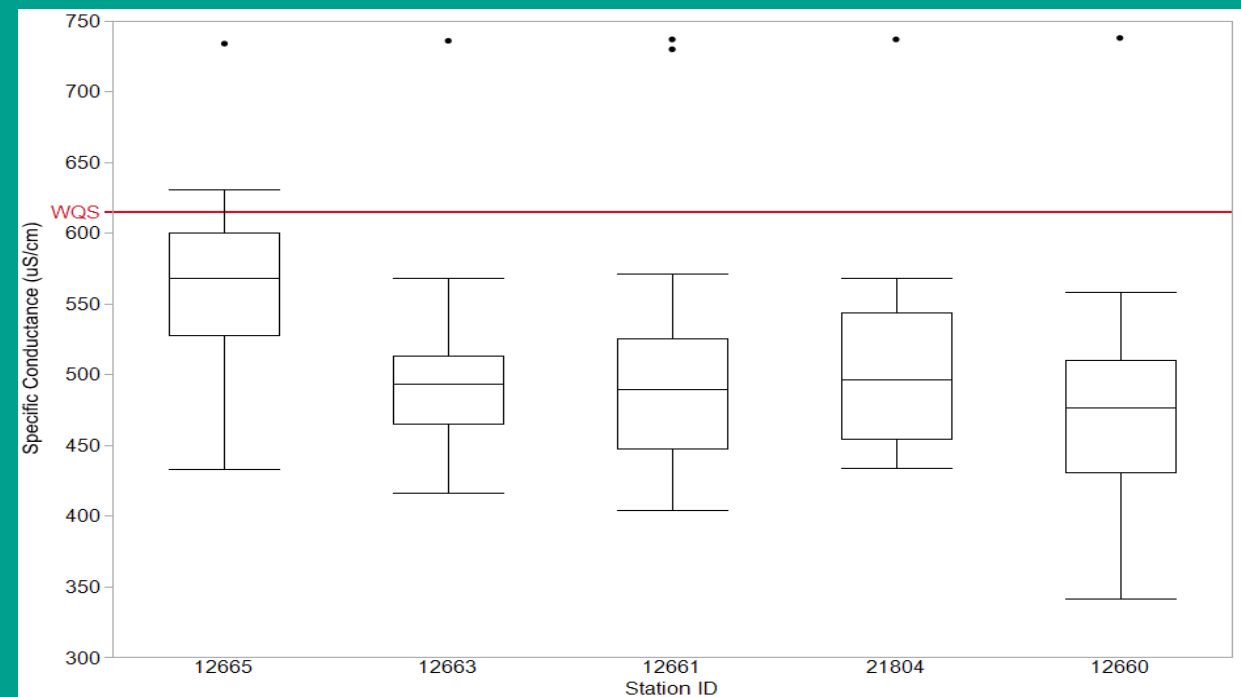
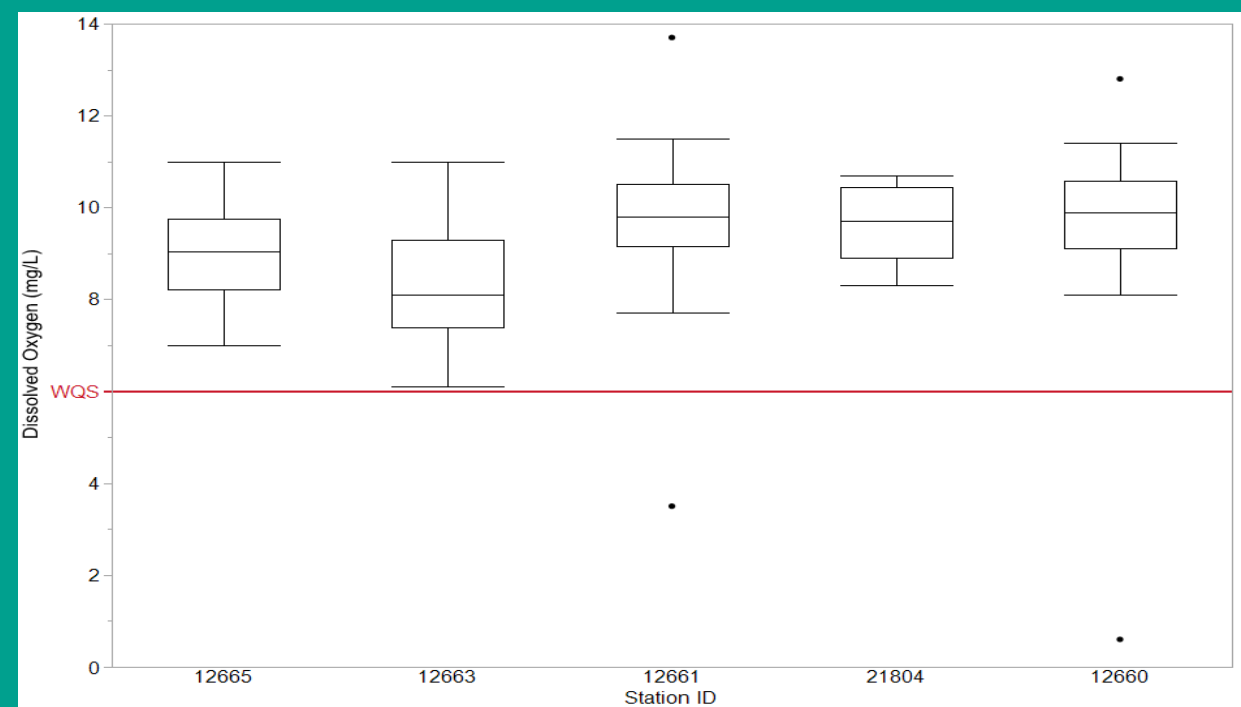
Field
Flow
Conventional
Bacteria



Upper Blanco River

Quarterly Monitoring Results (Mar 2010 – Jun 2020)

- Dissolved Oxygen (mg/L)
 - All means met the water quality standard
- Specific Conductance ($\mu\text{S}/\text{cm}$)
 - All means met the water quality standard
 - Decreasing mean values from upstream to downstream



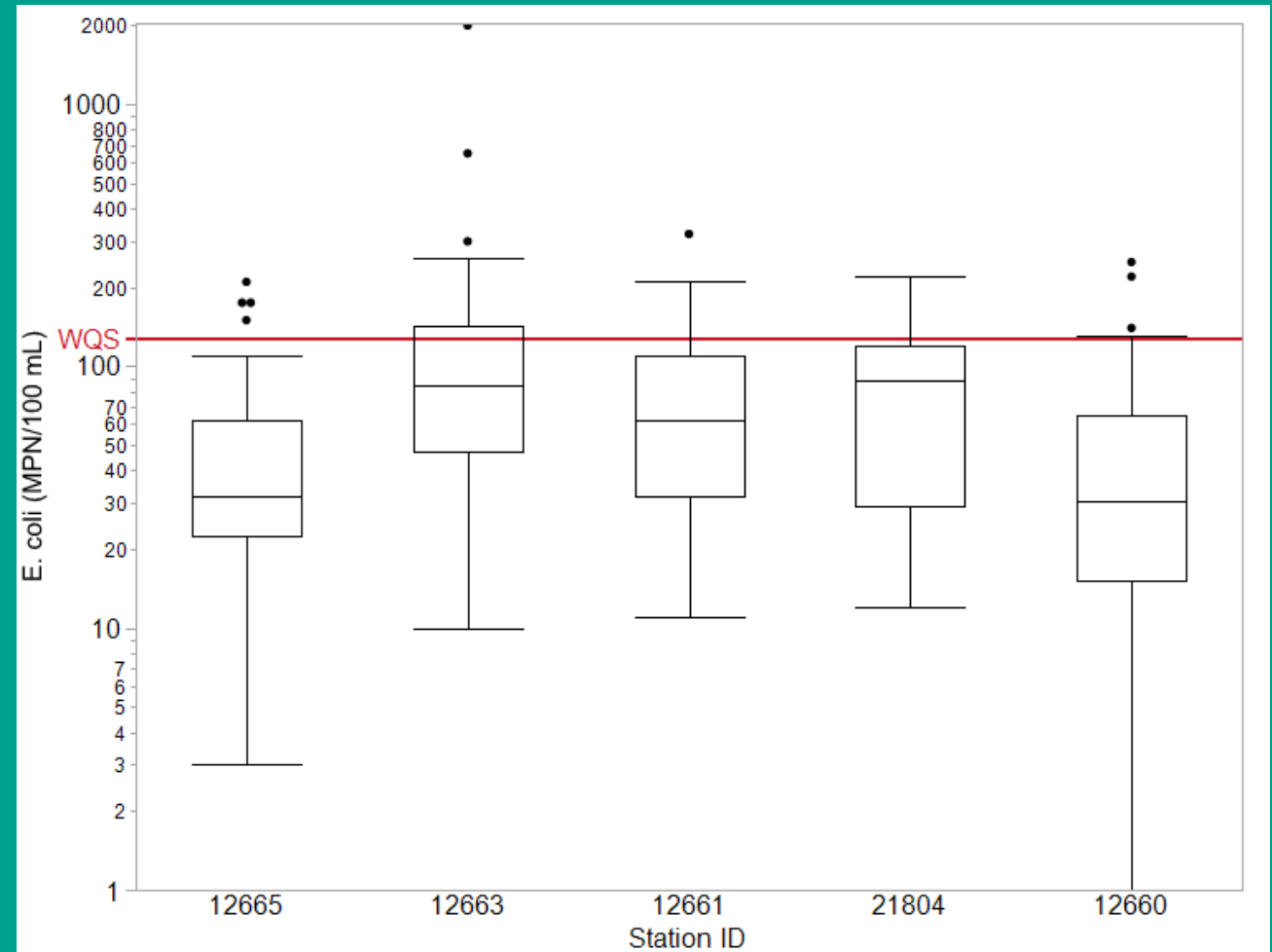
Upper Blanco River

Quarterly Monitoring Results (Mar 2010 – Jun 2020)

10

E. coli bacteria

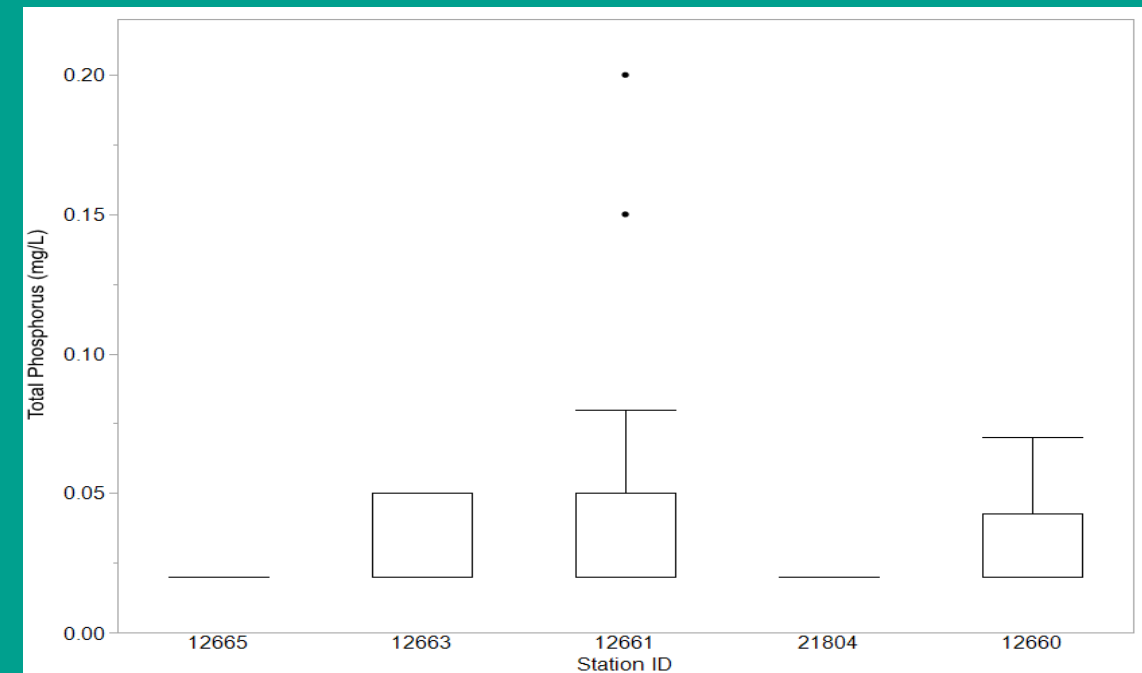
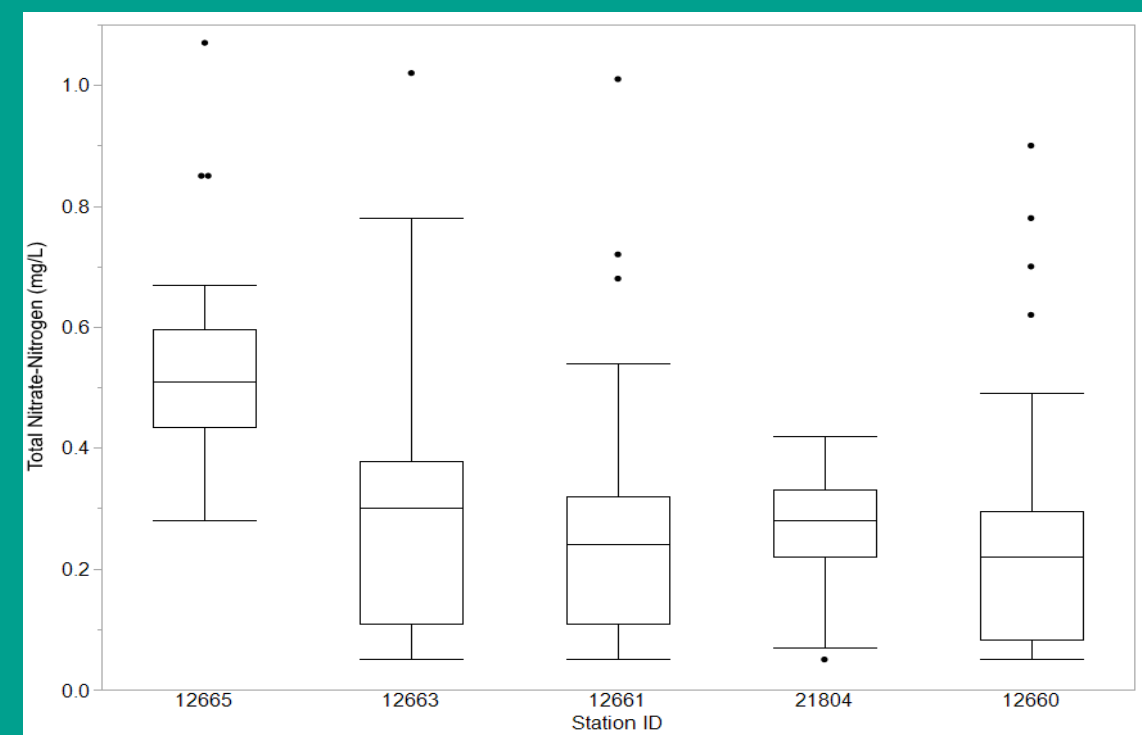
- Mean values below WQS (126 MPN/100 mL)
- All stations had single sample values greater than the WQS
- Higher colony counts in urbanized areas



Upper Blanco River

Quarterly Monitoring Results (Mar 2010 – Jun 2020)

- Total Nitrate-Nitrogen (mg/L)
 - All values below WQS (1.95 mg/L)
- Total Phosphorus (mg/L)
 - All values below WQS (0.69 mg/L)



Cypress Creek

Quarterly Monitoring

12

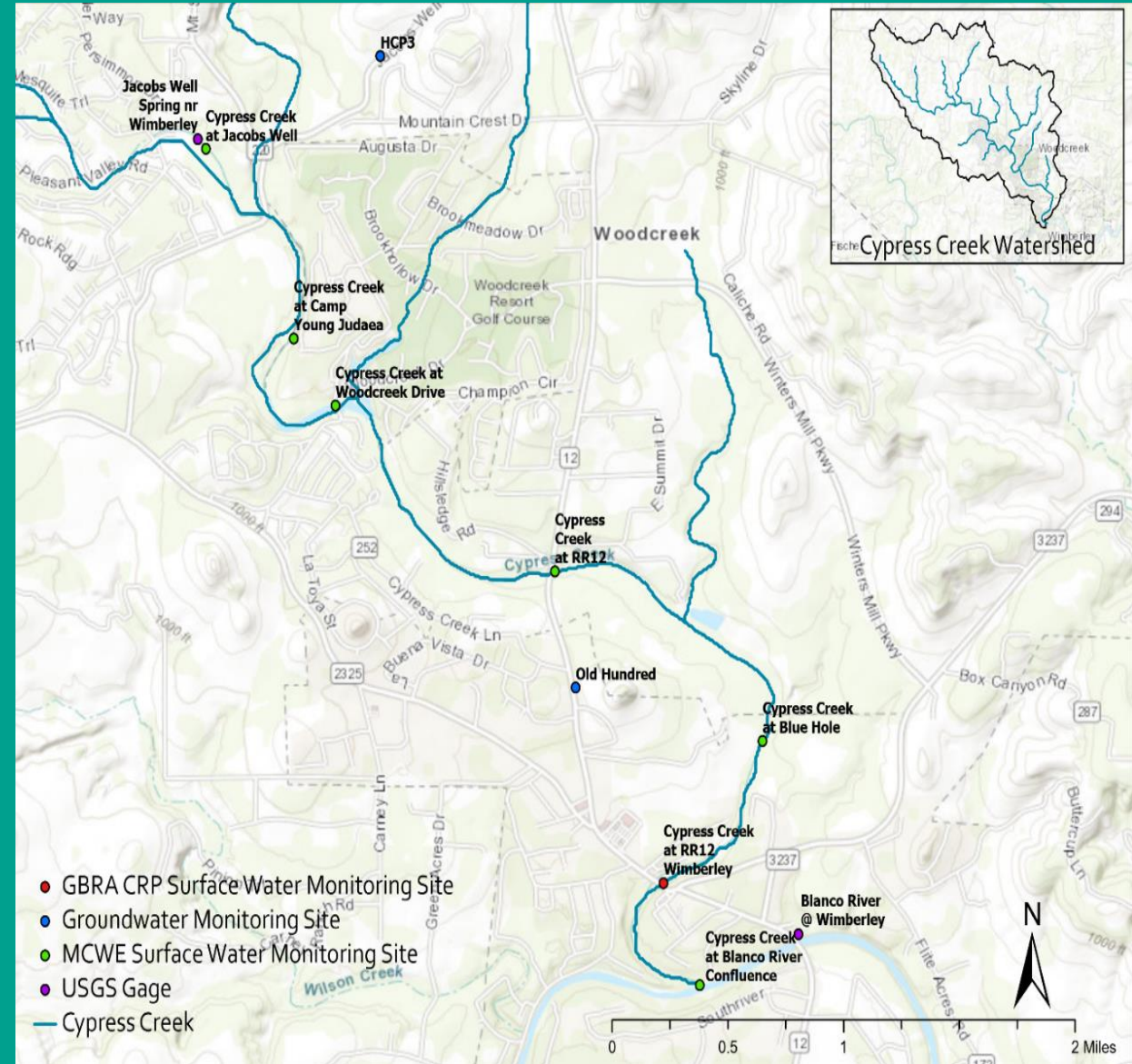
Purpose: To collect water quality data in support of the WPP.

Six locations:

- 12677 – CC @ Jacob's Well
- 22109 – CC @ Camp Young Judea
- 22110 – CC @ Woodcreek Dr.
- 12676 – CC @ RR12
- 12675 – CC @ Blue Hole*
- 12674 – CC @ FM12 in Wimberley
- 12673 – CC @ Blanco Riv. Confluence*

Parameters:

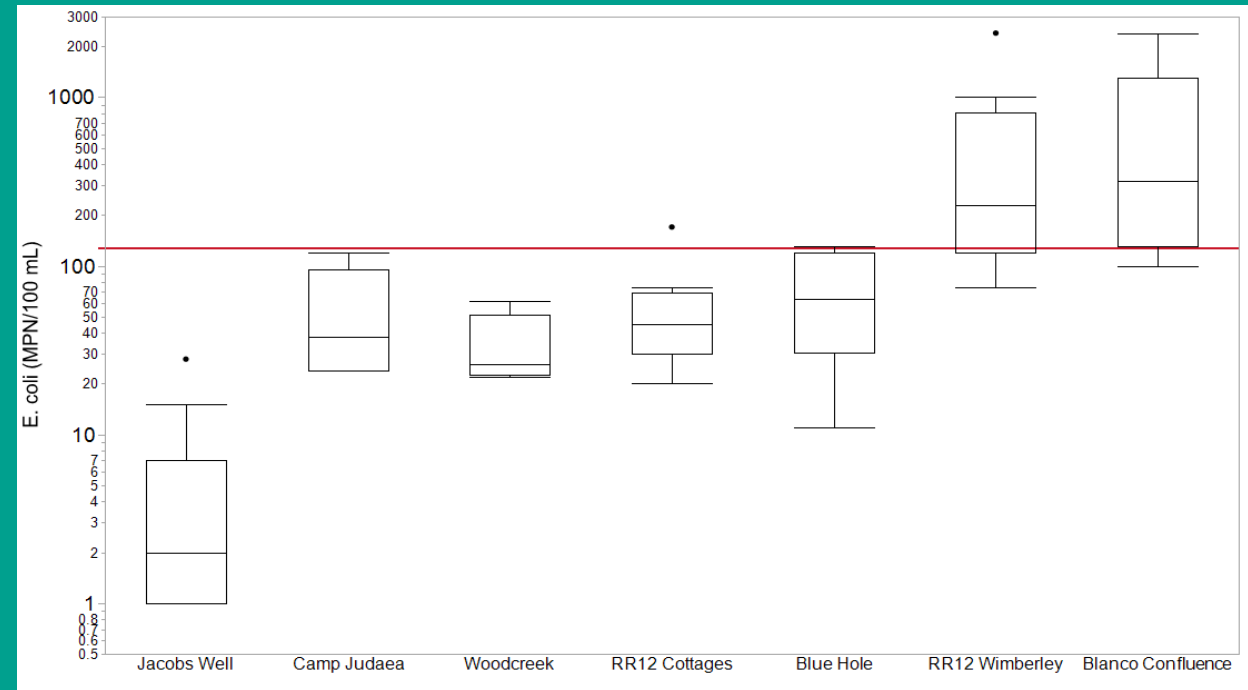
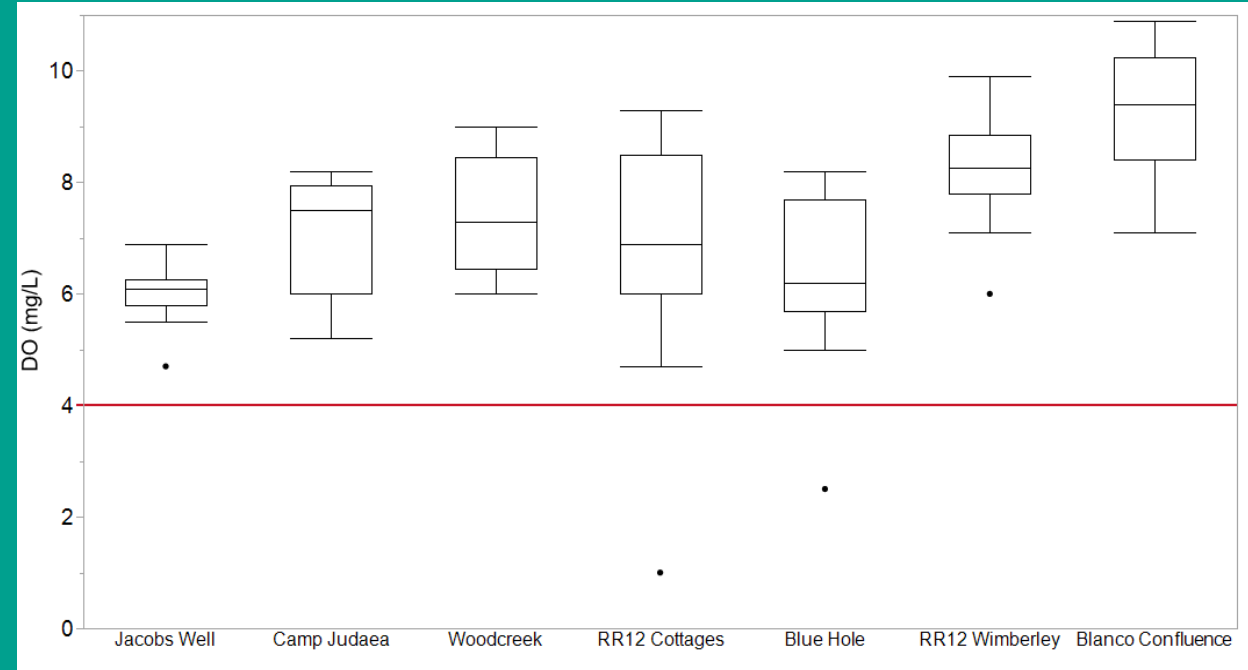
- | | |
|----------------|-------------------------|
| Field | Flow |
| Conventional | <i>E. coli</i> Bacteria |
| 24-hour DO (*) | Groundwater wells |



Cypress Creek

Quarterly Monitoring Results (Sep. 2016-Dec 2019)

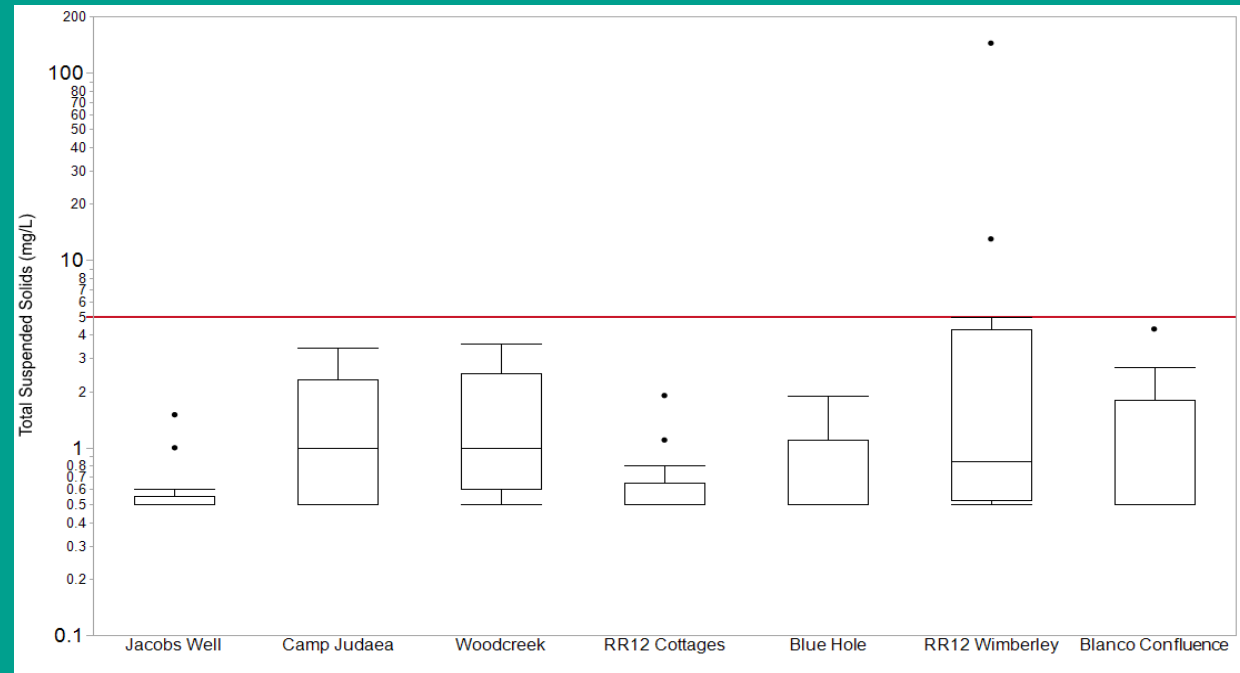
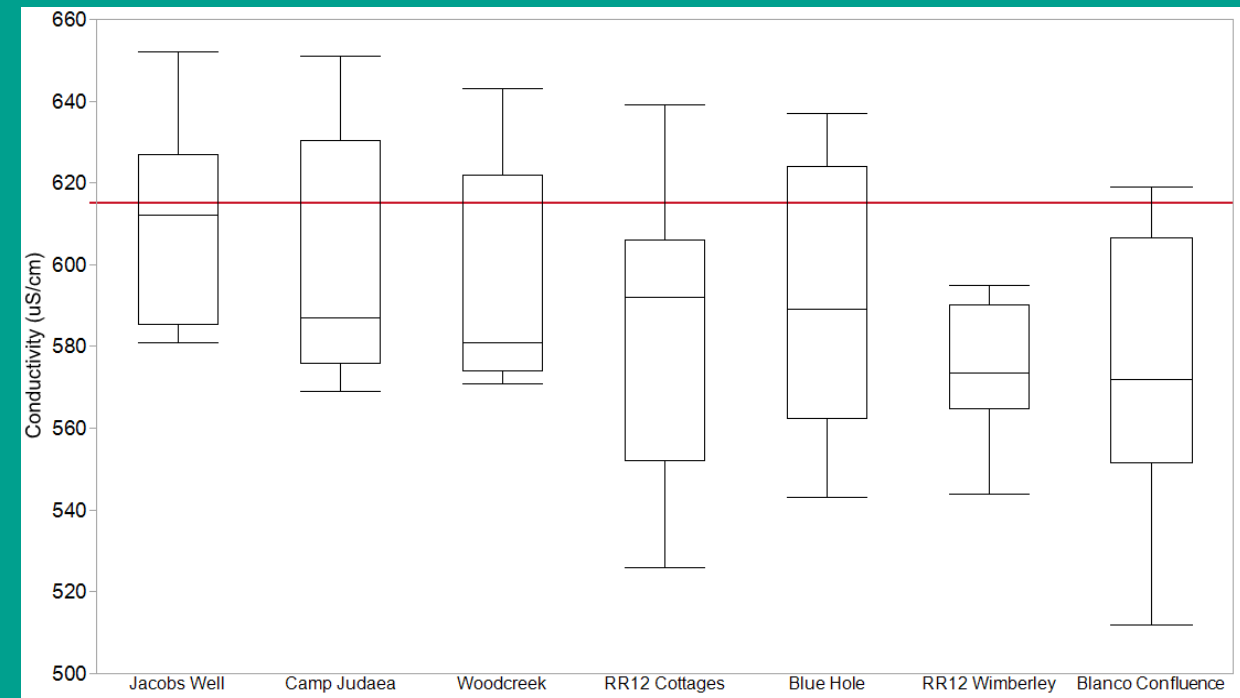
- Dissolved Oxygen (mg/L)
 - Grab – two events below WQ
 - RR12 Cottages
 - Blue Hole
 - 24-hour (2 events – Apr, Sep 2019)
 - Blue Hole – Sep event exceeded both criteria
 - Blanco Confluence – Both events met criteria
- E. coli (MPN/100 mL)
 - Geometric means below WQS at all sites except two
 - RR12 Wimberley
 - Blanco River Confluence



Cypress Creek

Quarterly Monitoring Results (Sep. 2016-Dec 2019)

- Conductivity
 - WQS exceeded at all sites except RR12 Wimberley
- Total Suspended Solids (mg/L)
 - All means below WQS
 - Two events above WQS at RR12 Wimberley



Cypress Creek

Monthly Texas Stream Team Monitoring



Conclusions

Upper Blanco River – Monthly Monitoring

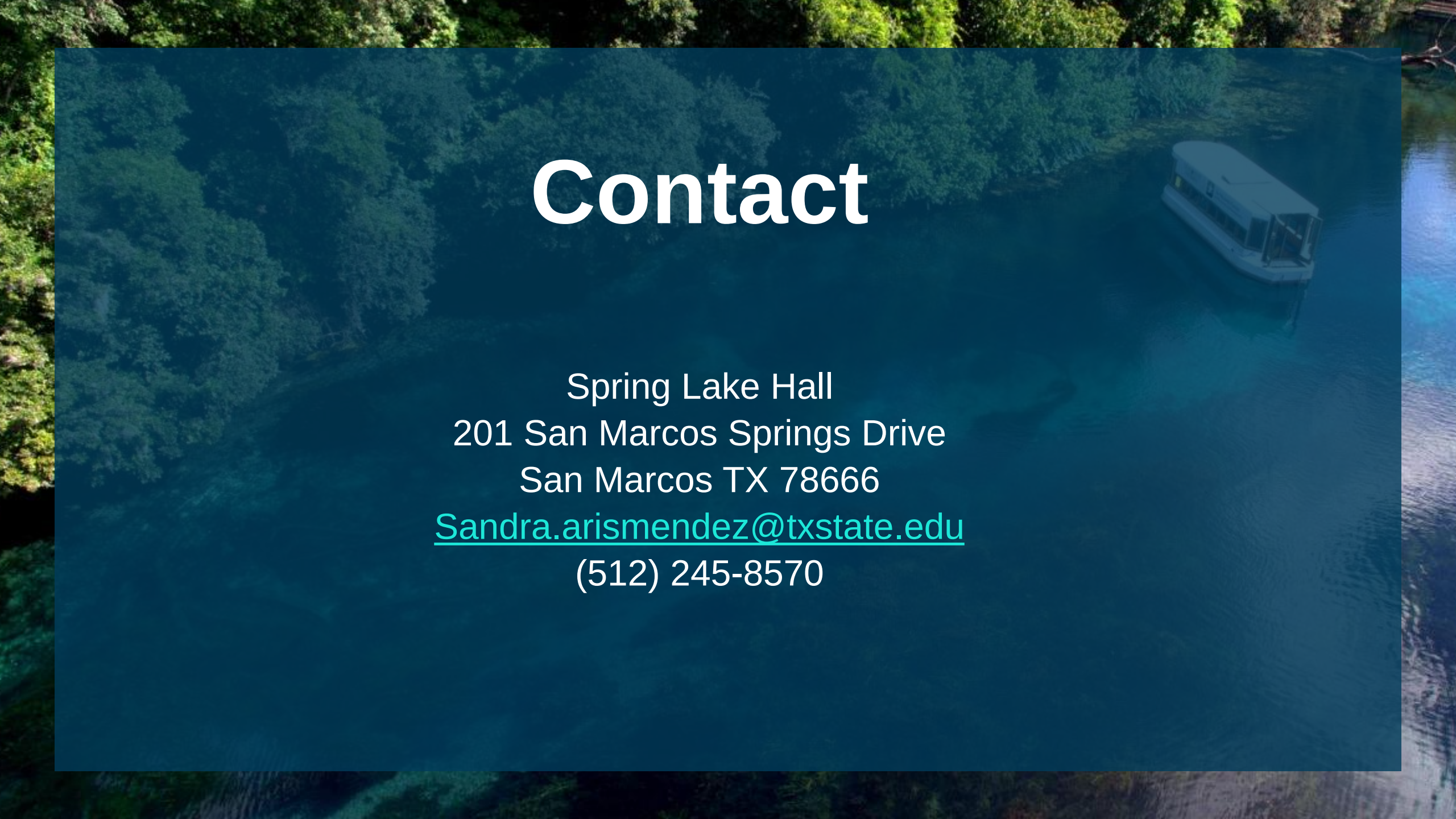
- Aesthetically unpleasant

Upper Blanco River – Quarterly Monitoring

- E. coli bacteria values high may be of concern

Cypress Creek

- E. coli bacteria values high at two stations
- Dissolved oxygen values low (grab and 24-hour)
- 2020 Integrated Report – 303d List impairments
 - Dissolved Oxygen
 - Fish and Macrobenthic Communities

An aerial photograph of a calm lake surrounded by a dense green forest. A small white boat with a canopy is visible on the right side of the lake. The image is overlaid with a semi-transparent dark blue rectangle containing white text.

Contact

Spring Lake Hall
201 San Marcos Springs Drive
San Marcos TX 78666

Sandra.arismendez@txstate.edu

(512) 245-8570