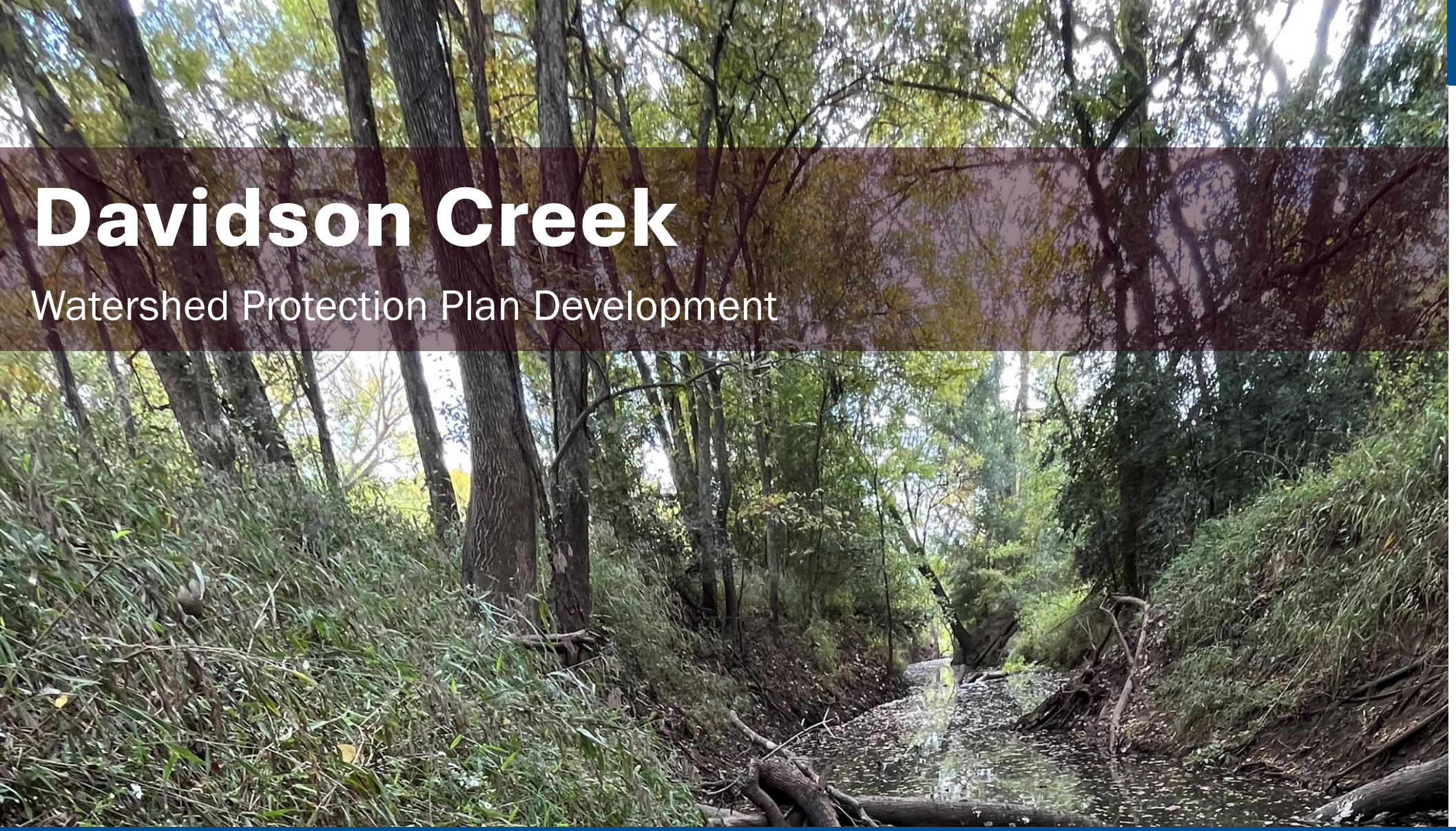


Davidson Creek

Watershed Protection Plan Development

April 29th, 2025

Texas A&M AgriLife

Texas State Soil & Water Conservation Board

Texas Water Resources Institute
make every drop count

Funding provided by the Texas State Soil and Water Conservation Board through the State Nonpoint Source Grant Program

Meeting Agenda

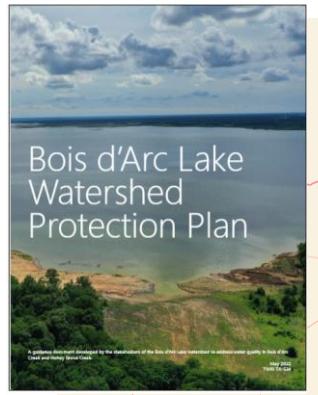
- Introductions
- What is a watershed?
- Davidson Creek
- Watershed Protection Plans
- Stakeholder organization
- Questions and next steps

Texas Water Resources Institute

Making every drop count since 1952| TWRI.TAMU.EDU

Who we are:

- Established in 1952 by Texas A&M Board of Directors
- Became the official State Water Resources Institute in 1964
- Unit of Texas A&M AgriLife



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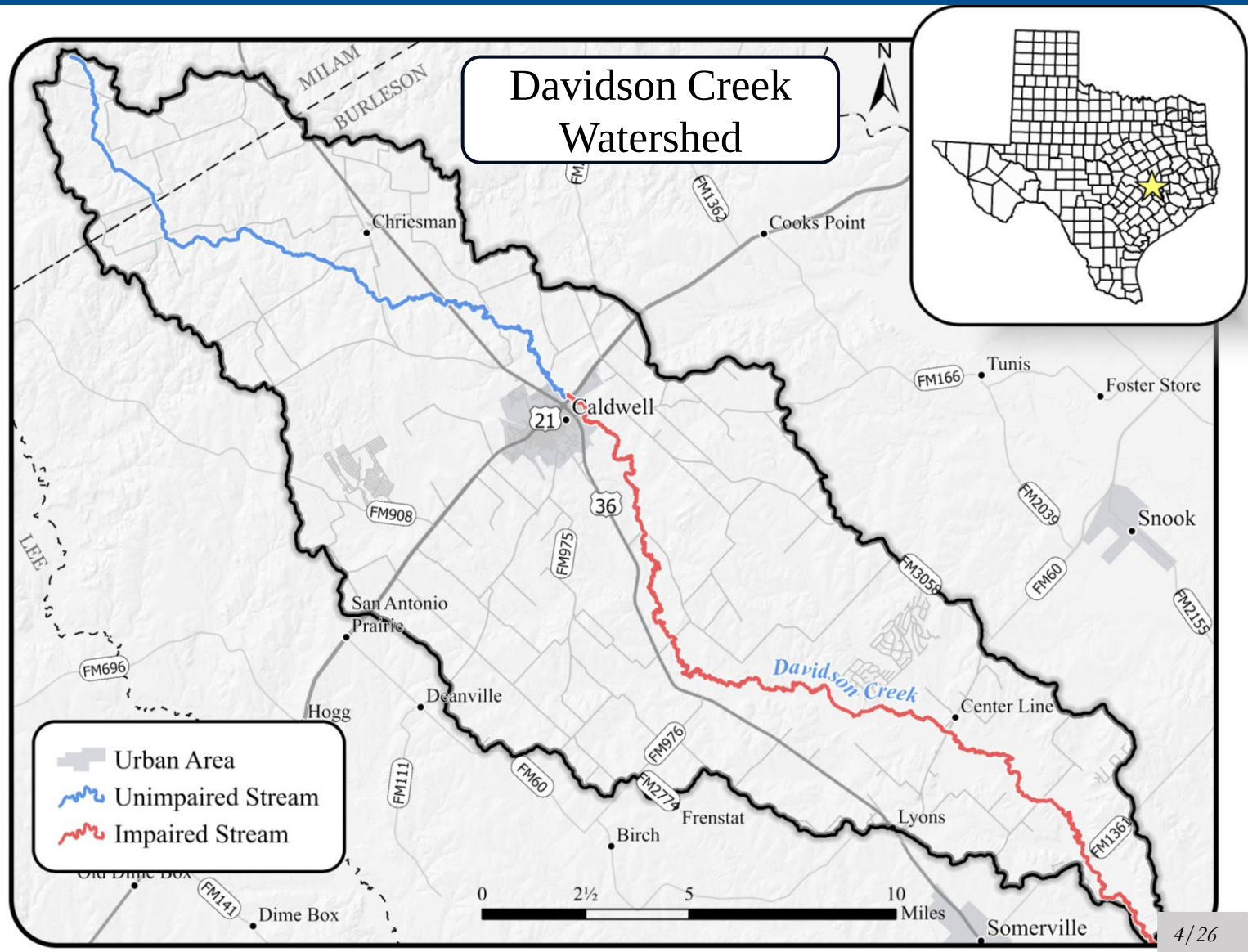
Why are we here?

- Elevated bacteria – determined by TCEQ in 2002
- Low dissolved oxygen – identified by TCEQ in 2010

TWRI's Role?

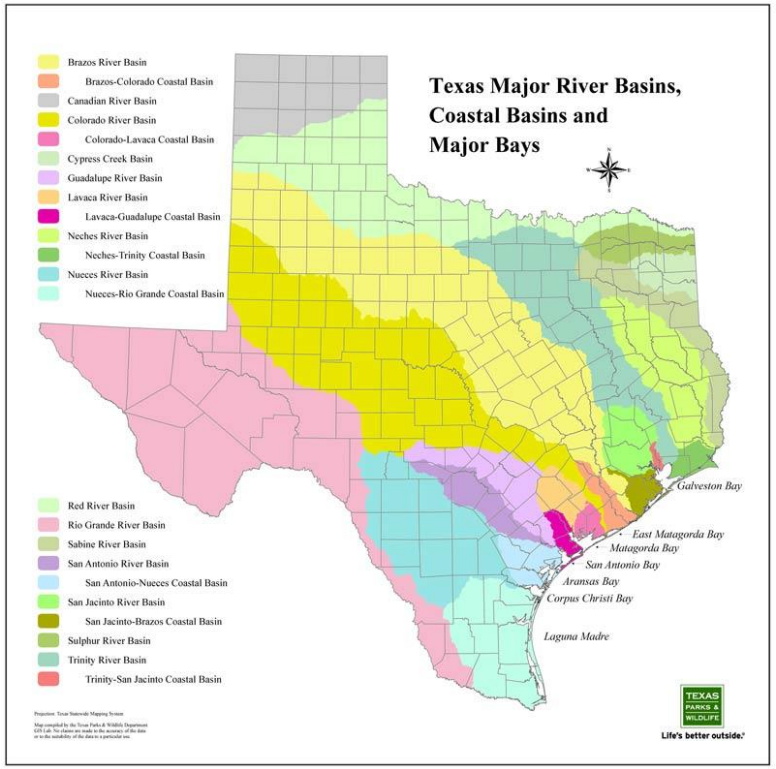
- Facilitate local knowledge and actions to restore water quality



What is a watershed?

- An area of land where water flows across or through to a specific point in a stream or lake
- Water sources include rainfall, springs, and many more
- Everything that happens on land affects the waterbody
- Does not follow political boundaries
- Can be split into smaller subwatersheds

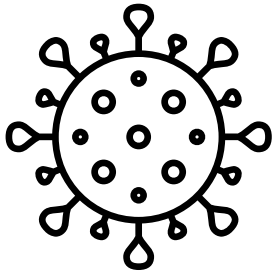
https://czo-archive.criticalzone.org/national/blogs/post/what-can-the-watershed-approach-tell-us-about-the-critical-zone/



Texas Parks and Wildlife Department

Missouri Department of Conservation

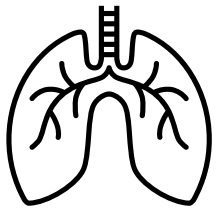
Measuring water quality



Fecal Indicator Bacteria (*Escherichia coli*)

- Isolating all harmful pathogens is difficult and expensive. Instead, presence of fecal indicator bacteria is measured
- *E. coli* indicates the potential for pathogens from the intestinal tract of warm-blooded animals to be present in water
- CFU – Colony Forming Units (analogous to MPN – Most Probable Number)

Dissolved Oxygen



- Primary measurement to determine a waterbody's ability to support and maintain aquatic life

Surface Water Quality Standards

Recreational Use

- Primary contact – swimming, water skiing, etc., likely to result in ingestion of water. Set at a geometric mean of 126 CFU/100 mL of *E. coli*
- Secondary contact – boating, wading, rowing, immersion is unlikely. Set at a geometric mean of 630 CFU/100 mL of *E. coli*

Aquatic Life Use

- Designated intermediate – mean of 4.0 mg/L of dissolved oxygen over a 24-hour period

Recreational Use Attainability Analysis

A detailed assessment of the default standard at a specific waterbody.

- Conducted in 2010 by Texas A&M University
- Completed 27 surveys along the creek plus an additional 5 roadside surveys
- TCEQ determined that the Primary Contact Recreation Standard should remain in effect for the creek
- Awaits final EPA approval, but standard will remain the same

https://www.tceq.texas.gov/waterquality/standards/ruaas/brazospt1

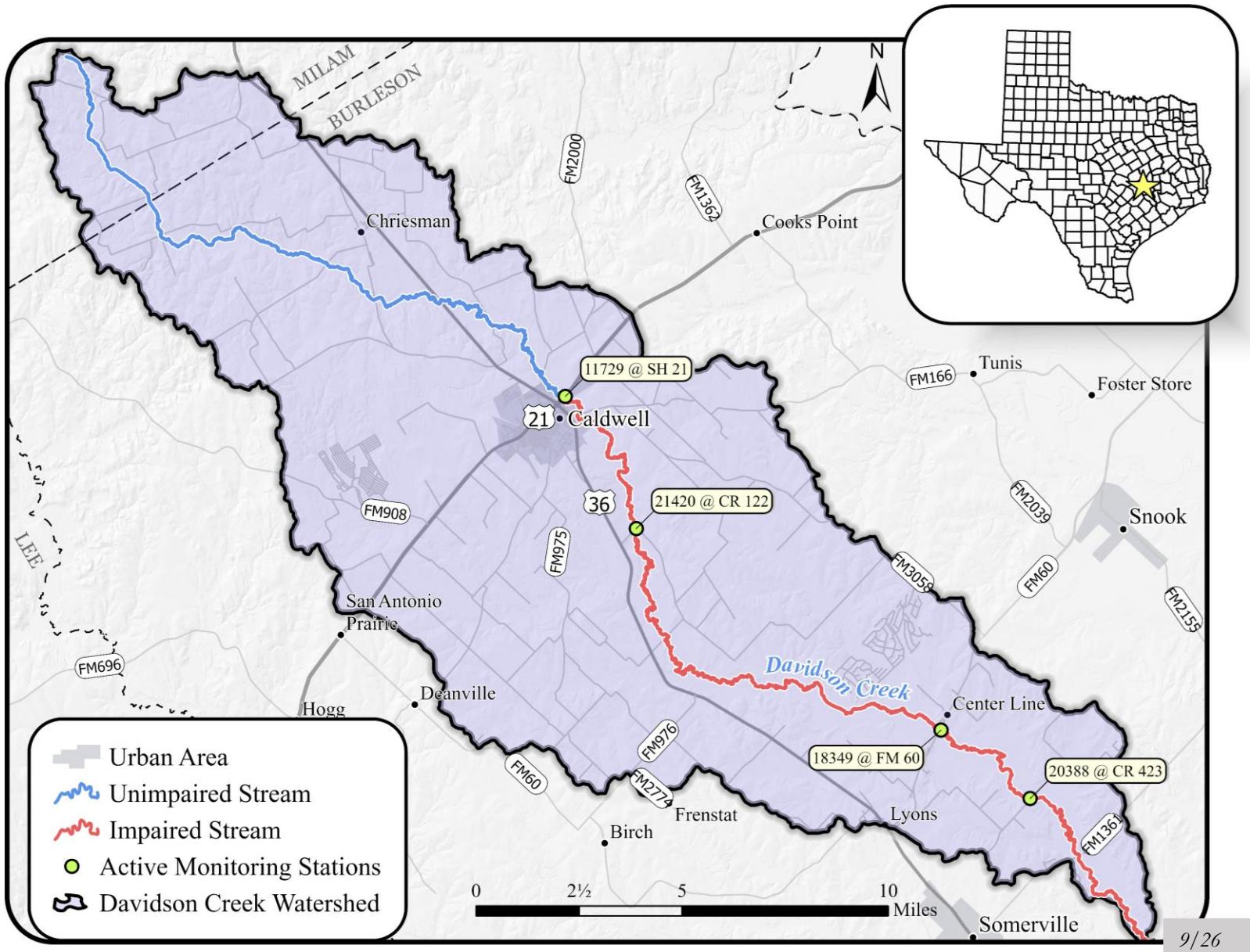
Davidson Creek

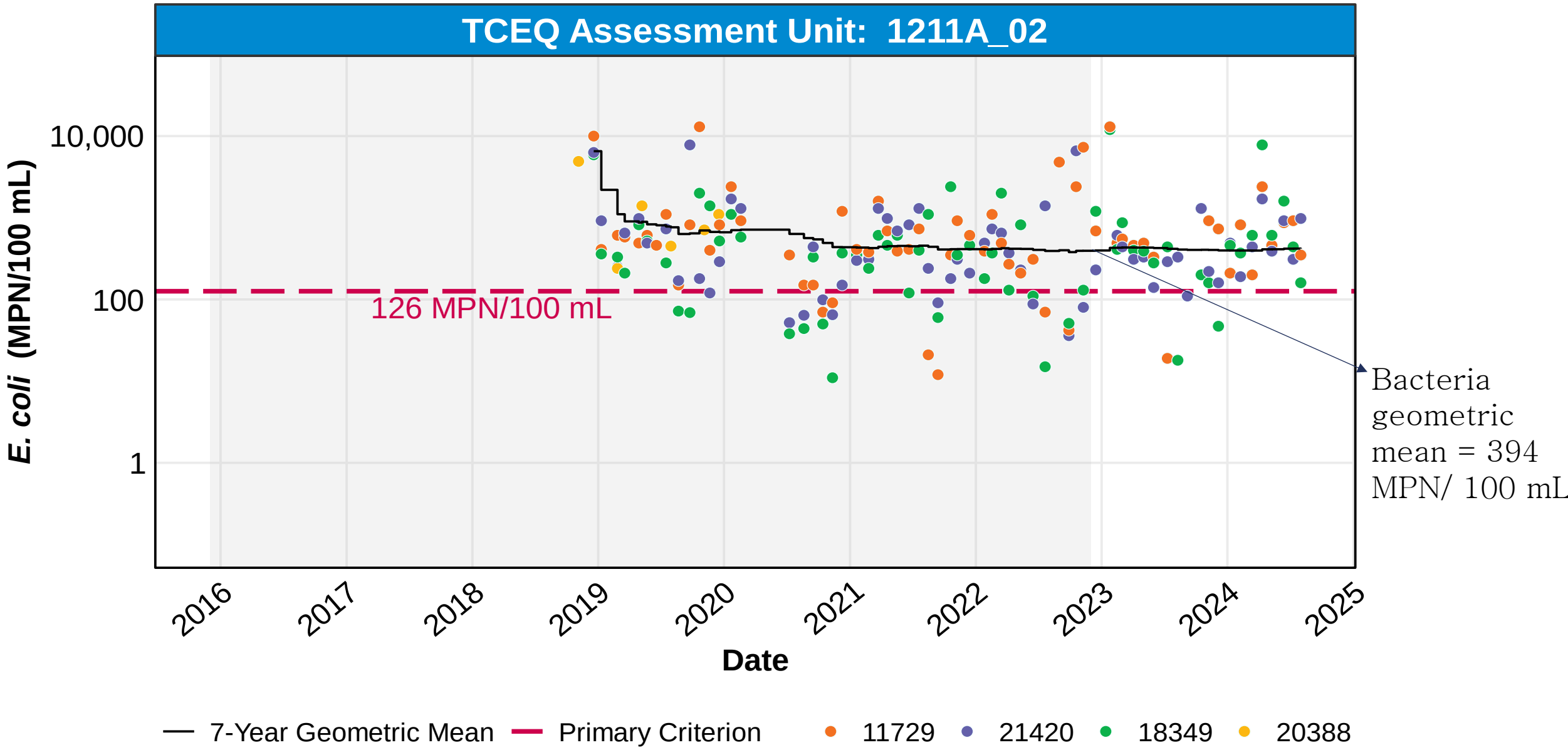
Watershed

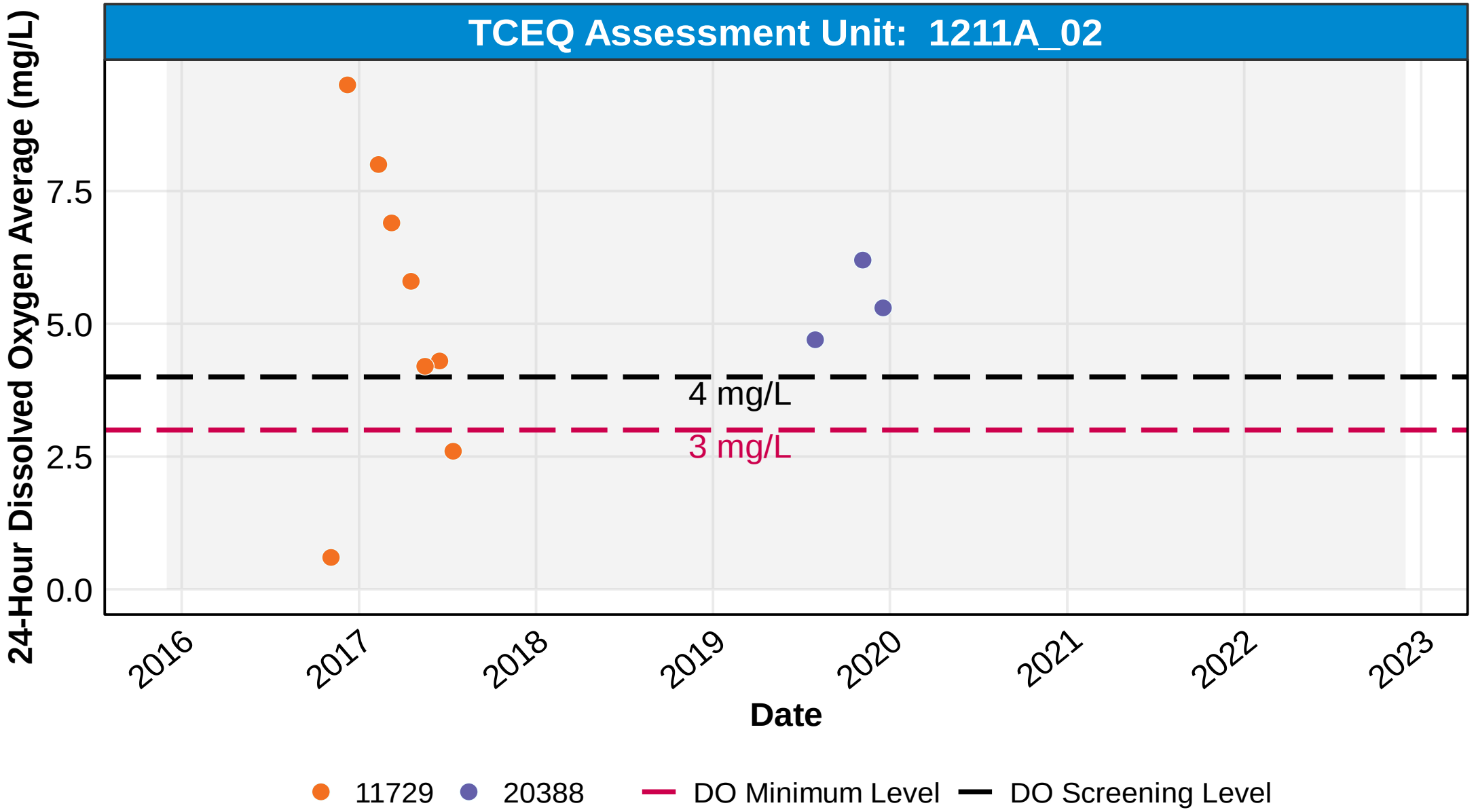
- Approximately 218 square miles
- Includes portions of Burleson and Milam Counties

Water Quality

- Elevated bacteria – risk to human health
- Low dissolved oxygen – risk to fish & aquatic life

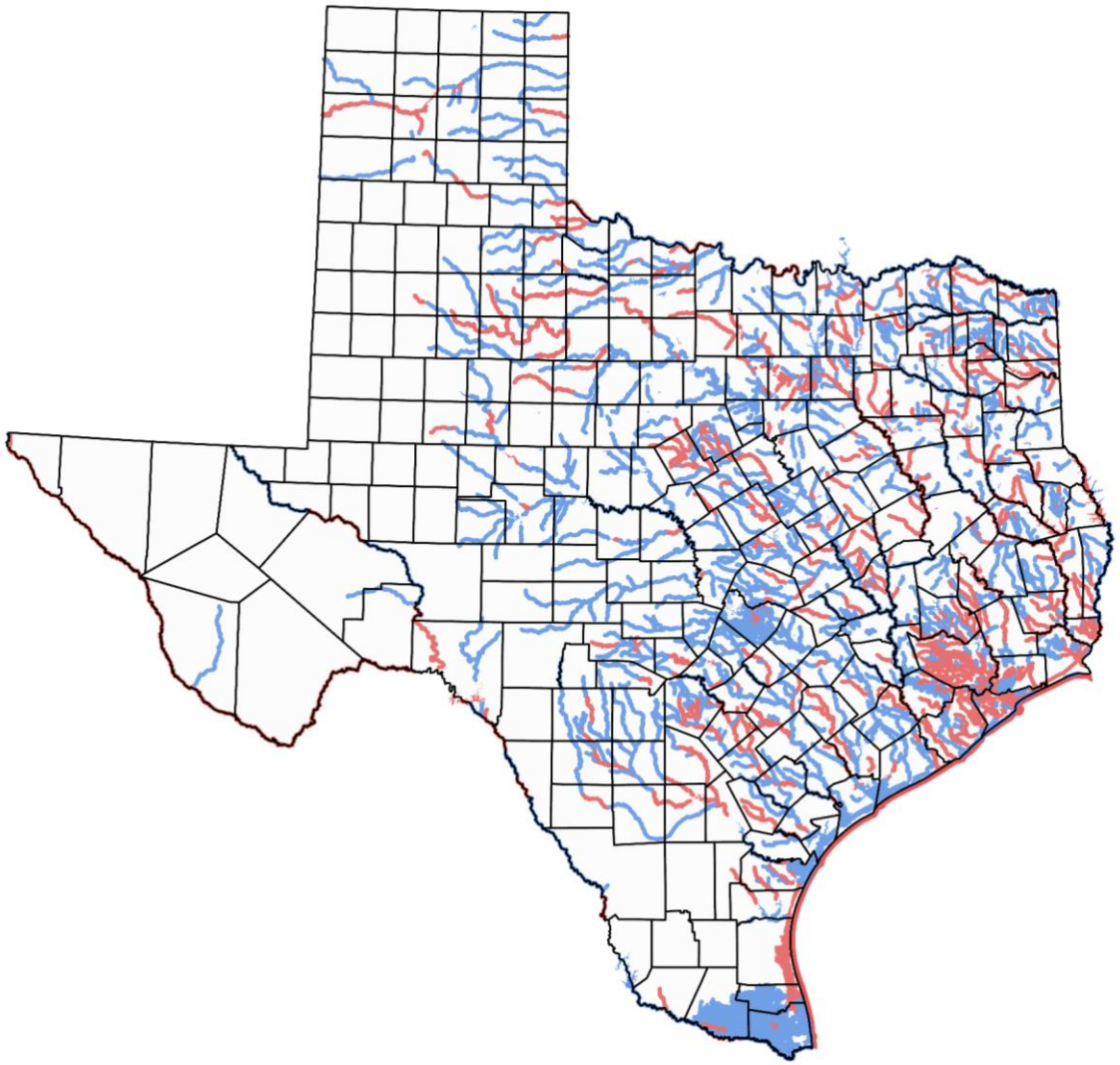



TCEQ Assessment Unit: 1211A_02
E. coli (MPN/100 mL)
10,000
100
1
126 MPN/100 mL
2016
2017
2018
2019
2020
2021
2022
2023
2024
2025
Date
Bacteria geometric mean = 394 MPN/ 100 mL
7-Year Geometric Mean
Primary Criterion
11729
21420
18349
20388

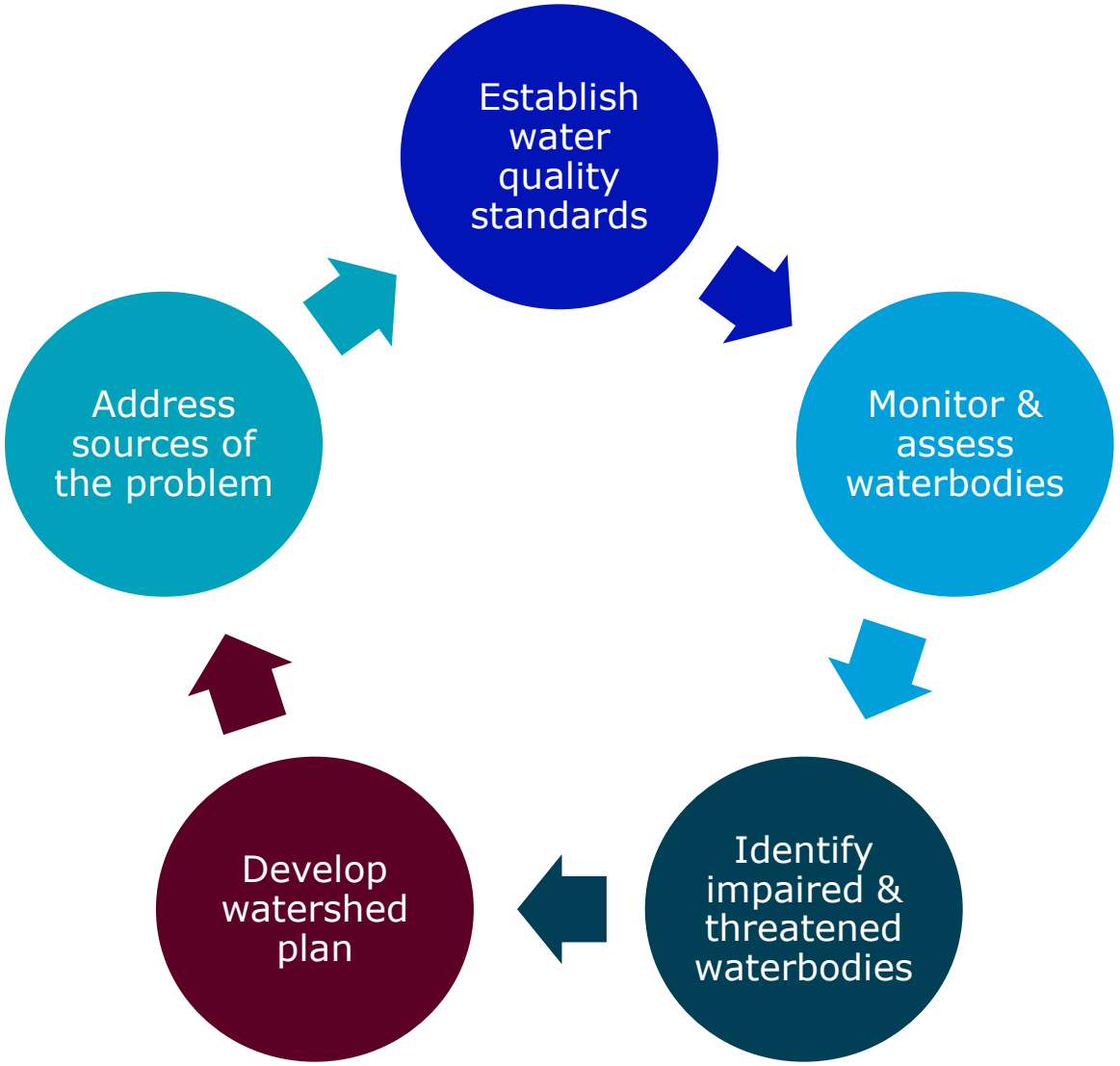

TCEQ Assessment Unit: 1211A_02
24-Hour Dissolved Oxygen Average (mg/L)
7.5
5.0
2.5
0.0
4 mg/L
3 mg/L
2016
2017
2018
2019
2020
2021
2022
2023
Date
11729
20388
DO Minimum Level
DO Screening Level

How many streams are in a similar boat?

- Currently we use the *Texas 2024 Integrated Assessment Report*
- Overall, 567 streams are impaired for exceedance of bacteria standards for recreational uses
- 154 are impaired for low dissolved oxygen for aquatic life



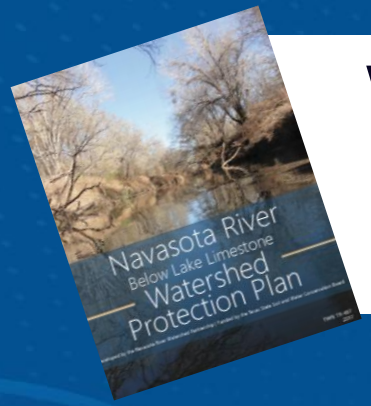
Surface Water Quality Management in Texas



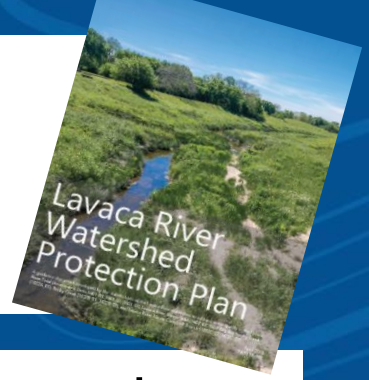
Strategy for Improving Water Quality:

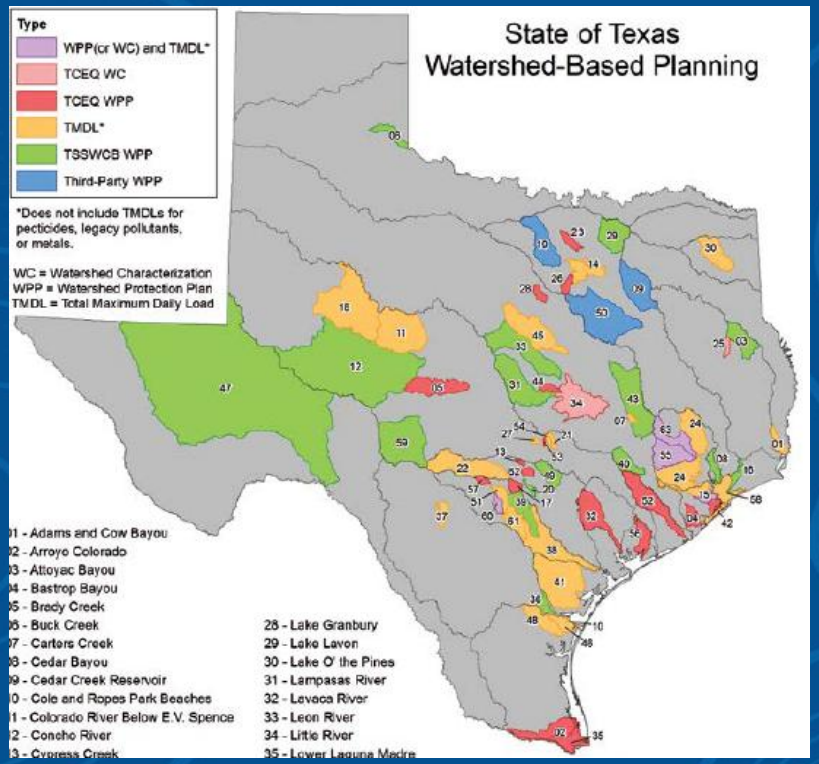
Watershed Protection Plan (WPP)

- Stakeholder driven plan that holistically addresses all impairments and concerns in a watershed through voluntary measures



What is a Watershed Protection Plan?





- Stakeholder-driven plan that addresses water quality in a watershed rather than political subdivisions
- Address all water body impairments
- A mechanism for voluntarily address complex water quality issues
- A framework for coordinated management strategies
- Prioritizes strategies based on technical merit and benefits to the community
- Typically focused on 10-year goals

Watershed Protection Planning

1. Build partnerships
2. Watershed Characterization
3. Identify solutions and finalize goals
4. Design Implementation Plan
5. Follow through on Implementation
6. Measure Progress and adjust as necessary

Watershed Protection Plan Outline

- Executive summary
- Chapter 1 – Introduction to the Watershed Approach
- Chapter 2 – Watershed Characterization
  - E.g., soils, topography, land use, climate, population
- Chapter 3 – Water Quality
  - E.g., bacteria, dissolved oxygen, nutrients, streamflow
- Chapter 4 – Potential Pollution Sources
  - Point source, nonpoint source
- Chapter 5 – Pollutant Source Assessment
  - Required load reduction, priority areas
- Chapter 6 – Management Measures
- Chapter 7 – Education and Outreach Plan
- Chapter 8 – Implementation Resources
- Chapter 9 – Measures of Success

Example Watershed Protection Plan

- Middle Yegua Watershed Protection Plan – February 2024
- Impairment – bacteria
- Concerns – low dissolved oxygen

https://middleyegua.twri.tamu.edu/resources/

EPA accepts Middle Yegua Creek Watershed Plan, stakeholders invited to March 31 meeting

February 27, 2025 / By Leslie Lee / Middle Yegua, WPP, Watershed Protection Plan

Stakeholders

A stakeholder is anyone who ***lives***, ***works***, or ***has interest*** within the watershed or may be ***affected*** by efforts to address water quality issues.

Stakeholder Roles

- Provide guidance and input
- Set goals and objectives
- Identify reasonable strategies
- Identify community needs

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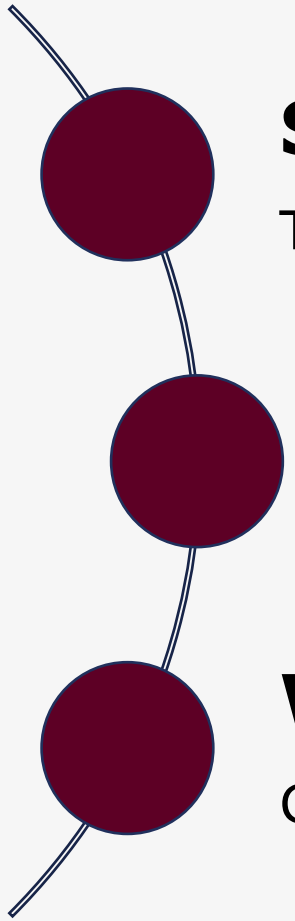
Organizational Frameworks and Decision-Making Processes

Possible Stakeholder Structure



Stakeholder Group

The general body of individuals who participate in public meetings

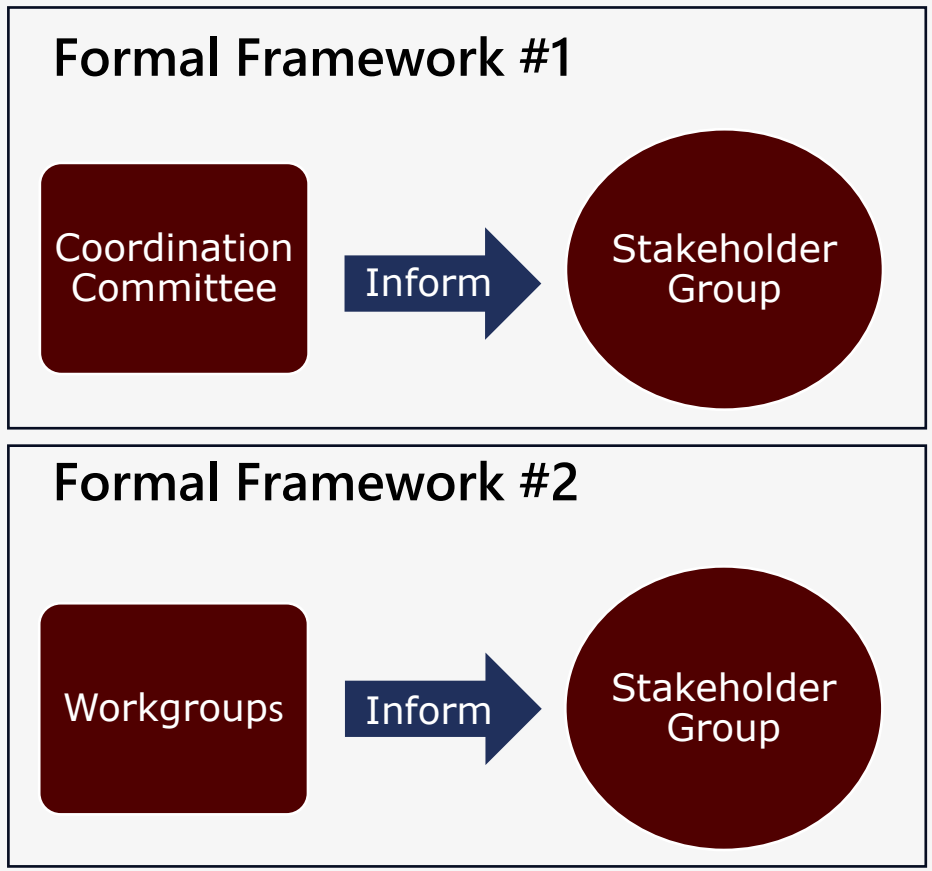
Coordination (Steering) Committee

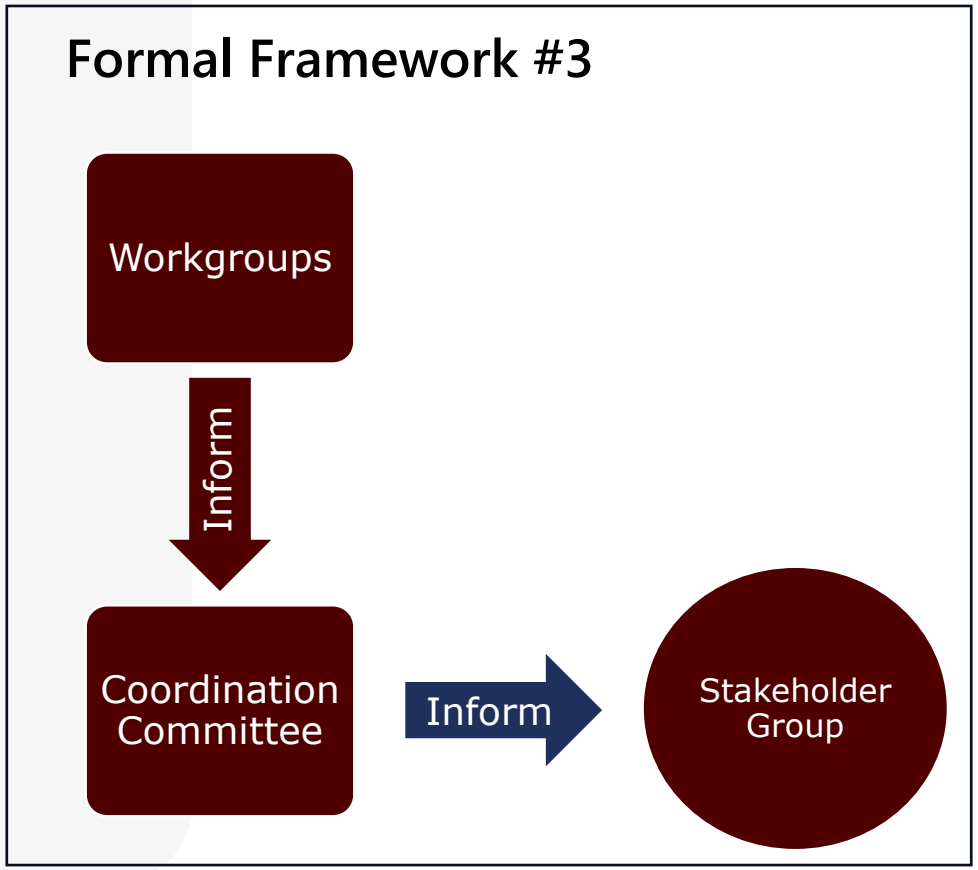
A decision-making body made up of stakeholders from diverse interest/backgrounds

Workgroups

Groups made up of stakeholders of a similar interest/background

Possible Frameworks for Organizing Stakeholders





Option #4
No Formal Framework

Possible Steering Committee Members – If Needed

- Landowners
- Agricultural Producers
- Business and Industry Reps
- Academia
- County and City Officials
- Educators
- Soil and Water Conservation Districts
- Nonprofit Organizations
- Others

Possible Workgroups – If Needed

- Agriculture & Wildlife
- Wastewater
- Urban runoff

Possible Decision-Making Processes

Formal

- Establish bylaws that govern the actions of the committee
- Adhere to Open Meeting Act Requirements
- Formal voting of Coordination Committee

Informal

- Use ground rules to govern coordination committee and work groups
- Strive to have most stakeholder groups represented in meeting
  - Will also see feedback via email
- Decision making via consensus building

Ground Rules Examples

More formal

- Goals
- Powers
- Timeframe
- Membership selection
- Steering committee
- Workgroup
- Technical advisory
- Replacement/additions
- Alternates
- Decision making
- Quorum
- Facilitators

Less formal

- No formal voting committee/representative
- Speak up
- Disagree respectfully
- Silence is presumed consent
- Listen during discussion
- Respect opinions and don’t criticize people
- Be open to new ideas
- Silence cell phones
- Have fun

Additional Meetings and Overall Timeline

- About 1-2 months between meetings
- Cover 2 to 3 WPP chapters per meeting
- Send out and post online meeting reminders and recap of previous meeting
- Continued monitoring for Davidson Creek will begin soon

Questions?

https://davidson.twri.tamu.edu/

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