



Tarleton State University
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Bois D' Arc Creek

Recreational Use Attainability Analysis Overview

Texas Institute for Applied Environmental Research
Stephenville, Texas



March 4, 2014



Project Partners

- Texas State Soil and Water Conservation Board (TSSWCB)
- Texas Institute for Applied Environmental Research (TIAER)



TSSWCB

- Provide state oversight
- Management and coordination of project activities
 - Project partners
 - Texas Commission on Environmental Quality (TCEQ)
- Provide project funding



TIAER

- Project administration
- Develop & maintain stakeholder relations
- Perform RUAA survey activities
- GIS inventory
- Facilitate meetings
- Develop final technical reports



Importance of Being a Stakeholder

- Stakeholders:
 - Make and implement decisions
 - Affected by decisions made
 - Participate in the implementation planning process



Who is a Stakeholder?

- Landowners
- Citizens
- Citizen Groups
- Local Representatives
- Local Governmental entities (cities, counties, Soil and Water Conservation Districts)
- Non-Governmental Organizations



Why We Are Here

- EPA – Clean Water Act
 - November, 1972
- TCEQ – Texas Integrated Water Quality Report
 - Texas 303 (d) List
 - Bois d'Arc Creek (2010)



Bacteria Impairment

- Bois D' Arc Creek currently does not meet the water quality standard for primary contact recreation
 - Due to elevated levels of bacteria, *E. coli*.
 - Requires action to meet the standards that are set by the State of Texas and EPA.
 - Geometric mean should not exceed 126 cfu/ 100ml

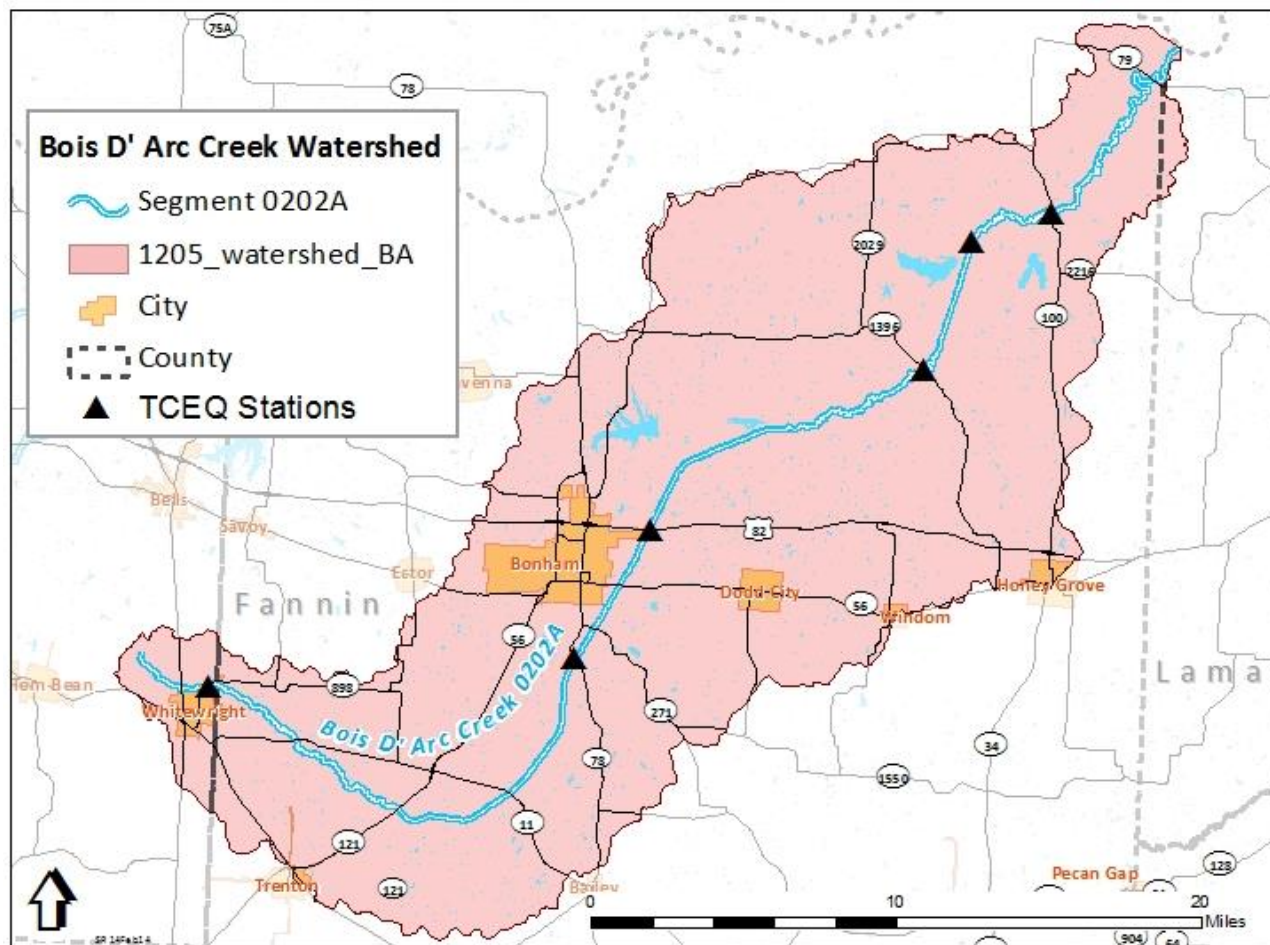


Impaired Stream Segments

- Bois D' Arc Creek (0202A) is listed as impaired for primary contact recreation
 - 2010 Texas Water Quality 303(d) List
 - Bacteria
 - Current Geometric mean = 177 cfu/ 100mL



Water Quality Monitoring Locations for Bois D' Arc Creek



Water Quality Monitoring Locations for Bois D' Ark Creek

Site Description

Bois D' Arc Creek at State Hwy 898 – TCEQ 15036

Bois D' Arc Creek at FM 100 – TCEQ 15318

Bois D' Arc Creek at HWY 78 – TCEQ 18652

Bois D' Arc Creek at FM 1396 – TCEQ 20167

Bois D' Arc Creek at HWY 82 – TCEQ 21028

Bois D' Arc Creek at HWY 82 – TCEQ 21029





RUAA

- One method for removing Bois D' Arc Creek from the impaired list for bacteria
 - Assess recreational use to determine if standard is appropriate
 - Recreational use attainability analysis (RUAA)



Purpose of RUAA

- To determine if primary contact recreation is occurring, or if another recreational use category may be more appropriate.



RUAA Use Categories

- **Primary Contact Recreation** – 126 cfu/100mL
 - Activities that are presumed to involve a significant risk of ingestion of water
 - (e.g. wading by children, swimming, water skiing, diving, tubing, surfing, and the following white water activities: kayaking, canoeing, and rafting).
- **Secondary Contact Recreation 1** – 630 cfu/100mL
 - Activities that commonly occur but have limited body contact incidental to shoreline activity
 - Wading by adults, fishing, canoeing
 - Activities are presumed to pose a less significant risk of water ingestion than primary contact recreation but more than secondary contact recreation 2.



RUAA Use Categories

- **Secondary Contact Recreation 2** – 1030 cfu/100 mL
 - These activities occur less frequently than secondary contact recreation 1 due to physical characteristics of the water body or limited public access.
- **Noncontact Recreation** – 2060 cfu / 100 mL
 - Activities that do not involve a significant risk of water ingestion, such as those with limited body contact incidental to shoreline activity, including birding, hiking, and biking.



RUAA Components

- **Historical Information Review**- to document past recreational uses
- **Interviews**- to obtain feedback on current and past recreational uses from stakeholders
- **Field Surveys**- to document current stream conditions and uses



RUAA Components

Historical Information Review

- November 28, 1975 – Present
 - Any documentation of recreational use of Bois D' Arc Creek
 - Newspaper clippings or other publications
 - Historical or Museum Records
 - Personal pictures or letters



RUAA Components

Stakeholder Interviews

- Document use of the creeks from individuals
 - Conducted during field surveys (if individuals are encountered)
 - Streamside landowners
 - Local residents
 - Other users
 - Interviews can be anonymous and conducted by phone, USPS mail, or email.



RUAA Components

Field Surveys

- Goal: 3 sites for every 5 miles
 - At each site:
 - 300 meter reach traversed
 - Document
 - Stream characteristics that may promote or hinder recreational use
 - Observations of direct use or signs of recreational use
 - Interviews with individuals



RUAA Components

- 2 Field Surveys Conducted

- Base Flow Conditions

1. Sustained typical dry warm-weather flow
2. Between rainfall events

- Periods of Likely Use (May-Sept)

Air Temperature > 70°F

1. Spring Break
2. Weekends
3. Holidays
4. Summer



RUAA Components

- Field Data Sheets:
 - Stream characteristics
 - Current weather conditions & daily conditions for the previous month
 - Riparian zone, ease of bank access, dominant substrate
 - Document recreation observed (if any)
 - Stream and pool measurements



RUAA Components

- Field Photographic Records
 - Each Survey Site
 - Upstream
 - Left
 - Right Bank
 - Downstream
 - At 30, 150, 300 M

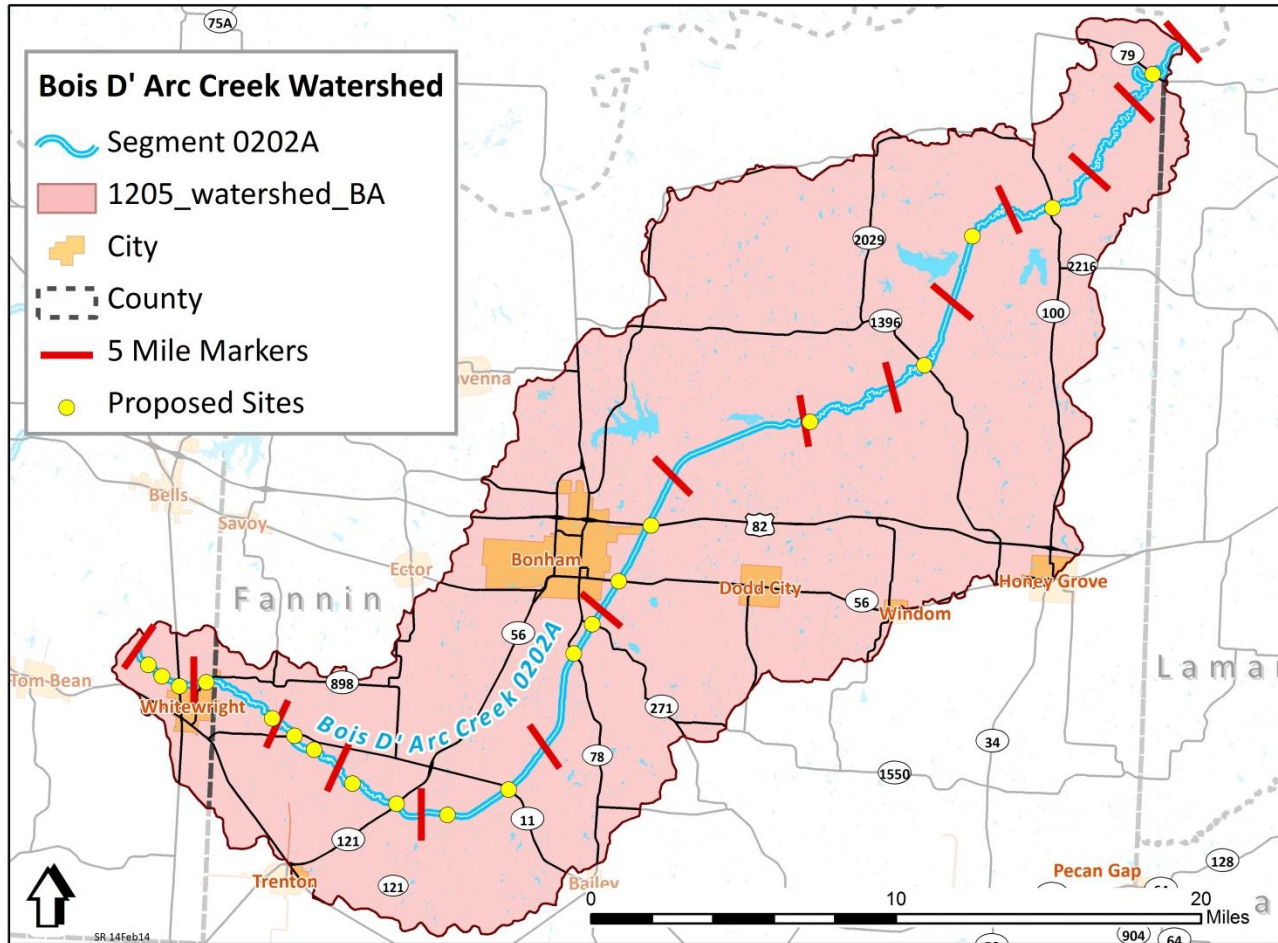


Site Selection for RUAA

- Currently proposed sites represent public road crossings, many of which are fenced
- Seeking Landowner permission to access points above and below road crossing and additional points on the creek
- Need stakeholder input on site selection and additional sites



Proposed Survey Sites for Bois D' Arc Creek



Proposed Survey Sites for Bois D' Arc Creek

Site Description
Bois D' Arc Creek at CR 4516
Bois D' Arc Creek at State Hwy 898 – TCEQ 15036
Bois D' Arc Creek at FM 100 – TCEQ 15318
Bois D' Arc Creek at HWY 78
Bois D' Arc Creek at FM 1396 – TCEQ 20167
Bois D' Arc Creek at HWY 82
Bois D' Arc Creek at FM 409 – TCEQ 21029
Bois D' Arc Creek at FM 697
Bois D' Arc Creek at State HWY 69
Bois D' Arc Creek at CR 4300



Proposed Survey Sites for Bois D' Arc Creek

Site Description

Bois D' Arc Creek at CR 11

Bois D' Arc Creek at CR 4510

Bois D' Arc Creek at State HWY 121

Bois D' Arc Creek at CR 896

Bois D' Arc Creek at State HWY 11

Bois D' Arc Creek at FM 271

Bois D' Arc Creek at HWY 56

Bois D' Arc Creek at CR 2645

Bois D' Arc Creek at FM 79

Bois D' Arc Creek At FM 697



RUAA Site Selection Guidelines

- Identify areas where the water body is:
 - Accessible to the public
 - Has a high potential for recreational use
 - Road crossings
 - Public lands
 - Parks
 - Populated areas
- Characterize the full waterbody reach





RUAA Site Selection Guidelines

- Goal for RUAA Survey
 - 3 sites for every 5 miles of stream
- Bois D' Arc Creek is approximately 68 river miles long
 - Goal: 41 sites





Time Frame

- Proposed Field Survey Dates
 - May 20 – 25, 2014
 - July 15 – 19, 2014Or
 - June 16 – 21, 2014
 - August 11 – 16, 2014



Questions on RUAA Overview?

Project Website:

<http://tiaer.tarleton.edu/ruaa/bois-d-arc-creek.html>

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