

WEST FORK TRINITY RIVER BELOW BRIDGEPORT RESERVOIR RECREATIONAL USE ATTAINABILITY ANALYSES PROJECT

(West Fork Trinity River below Bridgeport Reservoir - Segment 0810)

Contract No. 582-9-90439-05



Prepared for:

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY



Prepared by:

Texas AgriLife Research and Parsons



AUGUST 30, 2010

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ACRONYMS AND ABBREVIATIONS

| | |
|--------|--|
| cfs | Cubic feet per second |
| CWA | Clean Water Act |
| FM | Farm to Market |
| GIS | Geographic information system |
| GPS | Global positioning system |
| km | Kilometer |
| mm | Millimeter |
| NHD | National Hydrography Dataset |
| PDF | Portable Document Format |
| QAPP | Quality assurance project plan |
| RUAA | Recreational Use Attainability Analysis |
| SS-QAP | Site Specific Project Quality Assurance Plan |
| SWQM | Surface water quality monitoring |
| TCEQ | Texas Commission on Environmental Quality |
| TPDES | Texas Pollutant Discharge Elimination System |
| TRWD | Tarrant Regional Water District |
| TSWQS | Texas surface water quality standards |
| USEPA | U.S. Environmental Protection Agency |
| USGS | U.S. Geological Survey |
| WQS | Water quality standard |
| WWTP | Wastewater treatment plant |

SECTION 1 INTRODUCTION

This study was performed to compile and quantify characteristics of a select group of water bodies to assist Texas Commission of Environmental Quality (TCEQ) in the development of appropriate use classifications. Recreational Use Attainability Analyses (RUAA) are assessments of the physical, chemical, biological, and economic conditions affecting attainment of a water body use. Several water bodies in Texas have been identified as not meeting the water quality criteria for the contact recreation use which has been assigned to them. However, concerns have been raised by stakeholders statewide as to the appropriateness of the current recreational uses and criteria, which are based on the U.S. Environmental Protection Agency's (USEPA) *Ambient Water Quality Criteria for Bacteria – 1986*.

1.1 Project Description

Both classified and unclassified segments were chosen by the TCEQ for this study as candidates for a potential change in the designated or presumed contact recreation use. The purpose of this project is to conduct basic RUAA surveys and/or comprehensive RUAA surveys on the water bodies listed in Table 1.1, which are on the 2008 303(d) List of Impaired Waters. While the Assessment Unit Miles represent the area of impairment derived from the Texas 2008 303(d) list, RUAA surveys were conducted on the length of each water body as defined in the National Hydrography Dataset (NHD) in an effort to characterize the entire stream. This investigation provides information necessary for TCEQ to evaluate, and if appropriate, modify contact recreation use designations.

Table 1.1 Water Bodies Targeted for RUAs

| Assessment Unit | Water Body Name | TCEQ 303(d) List Description | Stream Type | 303(d) Listed Assessment Miles | NHD Stream Miles |
|-----------------|--|---|---------------------------------|--------------------------------|------------------|
| 0810 | West Fork Trinity River Below Bridgeport Reservoir | From a point 0.6 km (0.4 miles) downstream of the confluence of Oates Branch in Wise County to Bridgeport Dam in Wise County | Perennial | 36 | 43.37 |
| 0810A | Big Sandy Creek | Fifteen mile stretch of Big Sandy Creek running upstream from confluence with Waggoner Creek to FM 1810, west of Alvord, Wise County | Perennial | 15 | 33.81 |
| 0810B | Garrett Creek | Eighteen mile stretch of Garrett Creek running upstream from confluence with Salt Creek to Wise County Road approximately 14 miles upstream of SH114, Wise County | Intermittent w/ Perennial Pools | 18 | 23.9 |
| 0810C | Martin Branch | The eight mile stretch of Martin Branch running upstream from confluence with Center Creek to FM 730 south of Decatur, Wise County | Perennial | 8 | 9.76 |
| 0810D | Salt Creek | Eleven mile stretch of Salt Creek running upstream from confluence with Garret Creek, Wise County | Intermittent w/ Perennial Pools | 11 | 21 |
| | | | Total Miles | 88 | 132 |

1.2 TCEQ Guidelines for RUAAs

The TCEQ guidance outlined in *Recreational Use-Attainability Analyses (RUAA): Procedures for a Comprehensive RUAA and a Basic RUAA Survey* provided the guidelines for design of this study (TCEQ 2009). The general concept behind RUAAs is to evaluate if an alternative recreational use can be assigned to classified or unclassified streams other than the designated or presumed recreational uses identified in the in the Texas Surface Water Quality Standards (TSWQS) 30 Texas Administrative Code 307.1-307.10. A recreational use that is less stringent than applicable presumed uses can only be assigned to a water body for regulatory purposes after that use is designated for an individual water body in the TSWQS and approved by USEPA (TCEQ 2009).

Designated recreational uses for classified water bodies, located in Appendix A of the TSWQS, include:

- Contact recreation: Recreational activities involving a significant risk of ingestion of water, including wading by children, swimming, water skiing, diving, and surfing.
- Noncontact recreation: Aquatic recreational pursuits not involving a significant risk of water ingestion; including fishing, commercial and recreational boating, and limited body contact incidental to shoreline activity.

Contact recreation is presumed as a use for all unclassified waters. Based on the 2010 TSWQS approved by TCEQ in June 2010, alternative recreational uses that can now be considered for classified and unclassified streams include:

- Primary contact recreation: Water recreation activities, such as wading by children, swimming, water skiing, diving, tubing, surfing, and whitewater kayaking, canoeing, and rafting, involving a significant risk of ingestion of water.
- Secondary contact recreation 1: Water recreation activities, such as fishing, commercial and recreational boating, and limited body contact incidental to shoreline activity, not involving a significant risk of water ingestion and that commonly occur.
- Secondary contact recreation 2: Water recreation activities, such as fishing, commercial and recreational boating, and limited body contact incidental to shoreline activity, not involving a significant risk of water ingestion but that occur less frequently than for secondary contact recreation 1 due to (1) physical characteristics of the water body and/or (2) limited public access.
- Noncontact recreation: Activities, such as ship and barge traffic, birding, and using hike and bike trails near a water body, not involving a significant risk of water ingestion, and where primary and secondary contact recreation should not occur because of unsafe conditions.

A change to a designated use requires a revision in the TSWQS that is adopted by TCEQ and approved by USEPA. RUAAs are the documentation required by TCEQ to evaluate and consider a change to a designated or presumed use.

The procedures for a Comprehensive RUAA and a Basic RUAA Survey contained in this document may be used for unclassified and classified rivers and streams. A Basic RUAA

Survey is conducted to (1) collect information on a water body, such as the presence or absence of water recreation activities, stream flow type, stream depth, (2) establish/verify a presumed use, or (3) provide core information to be included in a Comprehensive RUAA. Basic RUAA surveys can be conducted on a relatively small unclassified water body that is evaluated during conditions amenable for contact recreation and can often be accomplished on a single sampling date. A Comprehensive RUAA, which includes information from a Basic RUAA Survey, is required for classified water bodies or where presumed uses for unclassified water bodies may be inappropriate. It is an expanded effort requiring two or more field observation trips and a historical data review. The procedures for basic and comprehensive RUAAs allow for terminating a survey when primary contact recreation is encountered. This only applies when primary contact recreation is clearly apparent throughout the segment.

SECTION 2 SITE RECONNAISSANCE AND SELECTION

The process of developing a survey site list began by using a combination of geographic information system (GIS) data, review of historical information, meetings and phone conversations with local entities, and field reconnaissance. The Site Specific Project Quality Assurance Plan (SS-QAP) and Monitoring Plan for this investigation was used to present detailed information on site selection, maps of the water bodies and proposed survey sites, survey and interview procedures, field survey equipment, and data handling and reporting.

2.1 Site Selection Criteria

The TCEQ guidance outlined in *Recreational Use-Attainability Analyses (RUAA): Procedures for a Comprehensive RUAA and a Basic RUAA Survey* (TCEQ 2009) recommends that three survey sites be conducted every five miles on streams to collect the information to support RUAs. With the 132 stream miles covered by the five waterbodies listed in Table 1.1 this equates to approximately 80 recommended survey sites. Using this as a guideline, specific criteria were established to evaluate this recommended population of survey sites and determine which of these could be effectively surveyed. Key criteria used in this investigation to aid survey site selection included:

- Locating areas in which the water body is accessible to the public and has the highest potential for recreational use (road crossings, public lands/parks located near the water body, populated areas, federal and state parks, parks operated by the U.S. Army Corps of Engineers, river authorities, counties, cities, and private organizations).
- Utilizing GIS tools to compile supplemental information including locations of Texas Pollution Discharge Elimination System (TPDES) wastewater treatment plants, other pertinent jurisdictional information, and roads crossing streams.
- Riparian corridor characteristics.
- Hydrologic characteristics, such as stream type, stream flow, hydrologic alterations, etc.
- Landowner or tenant permission to access private lands was acquired before conducting surveys.
- When possible, sites were selected at or near existing stream flow gages and existing surface water quality monitoring stations.

Survey site selection was prioritized using the following scheme: public road crossings, publicly accessible locations, then privately owned access points which might be used by the public which resulted in a draft list of 62 potential survey sites. To the degree possible the information listed in the criteria above was integrated into GIS maps and proposed survey sites were also displayed. A GIS map and a draft list of survey sites were produced and used by a field crew to conduct site reconnaissance to verify if each proposed site could in fact be surveyed. The site reconnaissance map is provided in Appendix A and Table 2.1 provides the draft list of survey sites considered.

Table 2.1 Potentially Accessible Sites Evaluated by Reconnaissance Team prior to Survey Data Collection

| Count | Stream Name | Road or Property Name | Alternate Road Name | Site ID Number | Assessment Unit | 5 Mile Subsegment Unit | USGS Flow Location Within 2 Miles | TCEQ SWQM Location | TRWD SWQM Location |
|-------|-------------------------|-------------------------|---------------------|----------------|-----------------|------------------------|-----------------------------------|--------------------|--------------------|
| 1 | West Fork Trinity River | County Road 4757 | | 63 | 0810 | 0810_01 | | 10967 | 10967 |
| 2 | West Fork Trinity River | County Road 4668 | | 55 | 0810 | 0810_02 | | 17844 | 17844 |
| 3 | West Fork Trinity River | County Rd | Old Rhome Rd | 61 | 0810 | 0810_02 | | | |
| 4 | West Fork Trinity River | FM 730 | N FM 730 | 60 | 0810 | 0810_03 | 08044500 | 10969 | 10969 |
| 5 | West Fork Trinity River | State Hwy 114 | E Highway 114 | 65 | 0810 | 0810_03 | | 10968 | |
| 6 | West Fork Trinity River | County Road 3390 | | 66 | 0810 | 0810_05 | | | 14246 |
| 7 | West Fork Trinity River | S FM 51 | FM 51 | 67 | 0810 | 0810_05 | | | |
| 8 | West Fork Trinity River | FM 3259 | | 54 | 0810 | 0810_06 | | | |
| 9 | West Fork Trinity River | County Road 3250 | | 57 | 0810 | 0810_06 | | | |
| 10 | West Fork Trinity River | County Road 3225 | | 52 | 0810 | 0810_07 | | | |
| 11 | West Fork Trinity River | State Hwy 114 | W State Highway 114 | 64 | 0810 | 0810_07 | | | |
| 12 | West Fork Trinity River | Bridgeport Country Club | FM 2123 | 53 | 0810 | 0810_08 | 08043500 | | |
| 13 | West Fork Trinity River | FM 920 | | 68 | 0810 | 0810_08 | | | |
| 14 | West Fork Trinity River | Unnamed Street | | 51 | 0810 | 0810_09 | | | |
| 15 | West Fork Trinity River | N Main St | | 56 | 0810 | 0810_09 | 08043000 | | |
| 16 | West Fork Trinity River | US Hwy 380 | W US Highway 380 | 58 | 0810 | 0810_09 | | 14904 | 14904 |
| 17 | Big Sandy Creek | US Hwy 380 | US Highway 380 | 5 | 0810A | 0810A_01 | 08044000 | 15688 | |
| 18 | Big Sandy Creek | Prairie 1262 | | 8 | 0810A | 0810A_02 | | | |
| 19 | Big Sandy Creek | FM 1810 | | 9 | 0810A | 0810A_02 | 08043950 | 18347 | |
| 20 | Big Sandy Creek | Unnamed Street | | 10 | 0810A | 0810A_02 | | | |
| 21 | Big Sandy Creek | County Road 1490 | | 1 | 0810A | 0810A_03 | | | |
| 22 | Big Sandy Creek | S FM 1655 | | 4 | 0810A | 0810A_04 | | | |
| 23 | Big Sandy Creek | County Road 1590 | Glasco Rd | 6 | 0810A | 0810A_04 | | | |
| 24 | Big Sandy Creek | County Road 1591 | | 12 | 0810A | 0810A_04 | | | |
| 25 | Big Sandy Creek | Unnamed Street | | 3 | 0810A | 0810A_05 | | | |
| 26 | Big Sandy Creek | Unnamed Street | | 7 | 0810A | 0810A_05 | | | |
| 27 | Big Sandy Creek | Unnamed Street | | 11 | 0810A | 0810A_05 | | | |
| 28 | Big Sandy Creek | Echo Rd | | 2 | 0810A | 0810A_06 | | | |
| 29 | Big Sandy Creek | County Road 1790 | | 13 | 0810A | 0810A_05 | | | |
| 30 | Big Sandy Creek | Turkey Creek Road | | 69 | 0810A | 0810A_07 | | | |

| Count | Stream Name | Road or Property Name | Alternate Road Name | Site ID Number | Assessment Unit | 5 Mile Subsegment Unit | USGS Flow Location Within 2 Miles | TCEQ SWQM Location | TRWD SWQM Location |
|-------|-----------------|--------------------------|--------------------------------------|----------------|-----------------|------------------------|-----------------------------------|--------------------|--------------------|
| 31 | Big Sandy Creek | State Hwy 101 | N State Highway 101 | 70 | 0810A | 0810A_07 | | | |
| 32 | Garrett Creek | State Hwy 114 | E Highway 114 | 23 | 0810B | 0810B_01 | 08044135 | 16767 | 16767 |
| 33 | Garrett Creek | Unnamed Street | | 34 | 0810B | 0810B_01 | | | |
| 34 | Garrett Creek | County Road 3381 | | 35 | 0810B | 0810B_02 | | | |
| 35 | Garrett Creek | County Road 3355 | School House Rd | 38 | 0810B | 0810B_02 | | | |
| 36 | Garrett Creek | County Road 3470 | | 24 | 0810B | 0810B_03 | | | |
| 37 | Garrett Creek | County Road 3555 | | 25 | 0810B | 0810B_03 | | | |
| 38 | Garrett Creek | Driveway | | 27 | 0810B | 0810B_03 | | | |
| 39 | Garrett Creek | near Garrett Creek Ranch | Private Road 3475: near WW 13427-001 | 37 | 0810B | 0810B_03 | | | |
| 40 | Garrett Creek | Unnamed Street | | 28 | 0810B | 0810B_04 | | | |
| 41 | Garrett Creek | County Road 3657 | | 31 | 0810B | 0810B_04 | | | |
| 42 | Garrett Creek | County Road 3855 | | 29 | 0810B | 0810B_05 | | | |
| 43 | Garrett Creek | County Road 3855 | | 32 | 0810B | 0810B_05 | | | |
| 44 | Garrett Creek | Unnamed Street | | 33 | 0810B | 0810B_05 | | | |
| 45 | Garrett Creek | Unnamed Street | | 36 | 0810B | 0810B_05 | | | |
| 46 | Garrett Creek | Unnamed Street | | 39 | 0810B | 0810B_05 | | | |
| 47 | Garrett Creek | Unnamed Street | | 30 | 0810B | 0810B_04 | | | |
| 48 | Martin Branch | Unnamed Street | | 14 | 0810C | 0810C_01 | | | |
| 49 | Martin Branch | County Road 4191 | | 15 | 0810C | 0810C_01 | | | |
| 50 | Martin Branch | S FM 51 | F-M 51 | 22 | 0810C | 0810C_01 | | 17848 | 17848 |
| 51 | Martin Branch | Old Reunion Rd | | 21 | 0810C | 0810C_02 | | | |
| 52 | Martin Branch | US Hwy 81 | US Hwy 287 | 16 | 0810C | 0810C_02 | | | |
| 53 | Salt Creek | State Hwy 114 | E Highway 114 | 40 | 0810D | 0810D_01 | 08044140 | 16766 | 16766 |
| 54 | Salt Creek | Unnamed Street | | 45 | 0810D | 0810D_01 | | | |
| 55 | Salt Creek | County Road 3585 | | 41 | 0810D | 0810D_02 | | | |
| 56 | Salt Creek | County Road 3581 | | 42 | 0810D | 0810D_02 | | | |
| 57 | Salt Creek | FM 2123 | | 43 | 0810D | 0810D_02 | | | |
| 58 | Salt Creek | County Road 3381 | | 47 | 0810D | 0810D_02 | | | |
| 59 | Salt Creek | County Road 3672 | | 44 | 0810D | 0810D_03 | | | |
| 60 | Salt Creek | Unnamed Street | | 46 | 0810D | 0810D_04 | | | |
| 61 | Salt Creek | County Road 3657 | Gentry's Rd | 48 | 0810D | 0810D_04 | | | |
| 62 | Salt Creek | Unnamed Street | | 49 | 0810D | 0810D_04 | | | |

2.2 Agency and Landowner Input

Input from local water resource managers and citizens were recognized as another important information source that could improve the prioritization of selecting survey sites. Two meetings were held within the target region prior to field data collection. The first meeting targeted environmental agencies and local organizational representatives with the goal of informing them about RUAAs as well as gathering their input on the draft list of 62 potential survey sites. Appendix B provides a list of individuals who were invited to this meeting which was held at the Decatur city meeting hall on June 26, 2009. Appendix C provides the list of individuals that attended this meeting.

At the first meeting, TCEQ discussed the requirements associated with and purpose of performing RUAAs. TCEQ staff discussed the proposed changes in bacteria standards as well as the current and proposed *E. coli* standards associated with primary contact recreation and secondary contact recreation. Texas AgriLife Research presented the procedures for RUAAs and discussed how and when basic measurements would be taken to determine if a stream is able to support primary or secondary contact recreation. Discussion of proposed sampling sites was led by Texas AgriLife Research. Meeting participants provided insight and a historical perspective on the uses of the streams being surveyed.

A second stakeholder meeting targeted landowners, land managers, community leaders and the general public. This was held on July 17, 2009 at the Decatur Meeting Hall and was held in conjunction with an Eagle Mountain Lake Watershed Protection Plan meeting. Landowners, general public, and organizations and agencies involved in the watershed were invited to attend, both via newspaper announcements and individual calls. Lists of those invited to attend the second meeting are provided in Appendix D and E. A list of individuals who attended the second meeting is provided in Appendix F. Most of the participants were stakeholders for the watershed protection plan and were not specific landowners within the watershed of the West Fork Trinity River below Bridgeport Reservoir and therefore did not have a direct interest in the RUAA project. Two major landowners and leasers in the watershed were in attendance. Both landowners indicated that field crews could have access to their owned or leased land for survey purposes. These individuals included Phillip Haynes of West Fork Trinity and James Haynes of Big Sandy Creek.

At the second meeting TCEQ staff again discussed the requirements associated with conducting a RUAA and the purpose of performing a RUAA. TCEQ discussed the proposed changes in contact recreation classifications as well as the basic requirements associated with the classifications of primary contact recreation and secondary contact recreation. Texas AgriLife Research presented the procedures for conducting the field work required by RUAAs. Discussion of proposed sampling sites was led by Texas AgriLife Research. Meeting participants provided insight into the uses of the streams being surveyed. They also reviewed survey site selection and concluded that very little public access exists and that the proposed sites did not miss any major public access points.

2.3 Site Reconnaissance

Using the site reconnaissance map (Appendix A), the draft survey site list, and equipped with the information gleaned from the two local meetings, a two-man reconnaissance team

attempted to reach each of the 62 potential sites to obtain and record details about the condition and accessibility of each survey site. Locating potential sites at points where public road access was possible using GIS mapping was an important, time-efficient step taken prior to conducting the reconnaissance survey. Not all sites were accessible to the public; however, attempts to contact property owners through local organizations such as the Wise County Extension agent Mr. Gary Clayton and the Wise County Appraisal District office resulted in access to only a few additional survey sites. Efforts were made to evaluate the accessibility along 300 meters of the creek bed at each of the sites. TCEQ and Texas AgriLife Research agreed that the field team would not enter fenced or signed private property without landowner or tenant permission for safety and property rights reasons. This decreased the total number of sites that could actually be surveyed. Only those sites that the survey team could access from public roads or through prior approval from property owner were surveyed. The site reconnaissance proved to be a valuable and necessary step to prepare the field crews for conducting the actual surveys to support the RUAA. The site reconnaissance resulted in the determination that of the original 62 potential sites only 42 survey sites could be accessed and these would serve as the basis for the RUAA for the five different streams targeted in this study. The 42 survey sites are displayed in Figure 2.1 and are listed in Table 2.2. Thirteen of the 42 sites were surveyed twice in accordance with the TCEQ RUAA guidance for Comprehensive RUAs. These 13 sites are identified in Table 2.2.

Figure 2.1 RUAA Survey Sites for the West Fork Trinity River below Bridgeport Reservoir

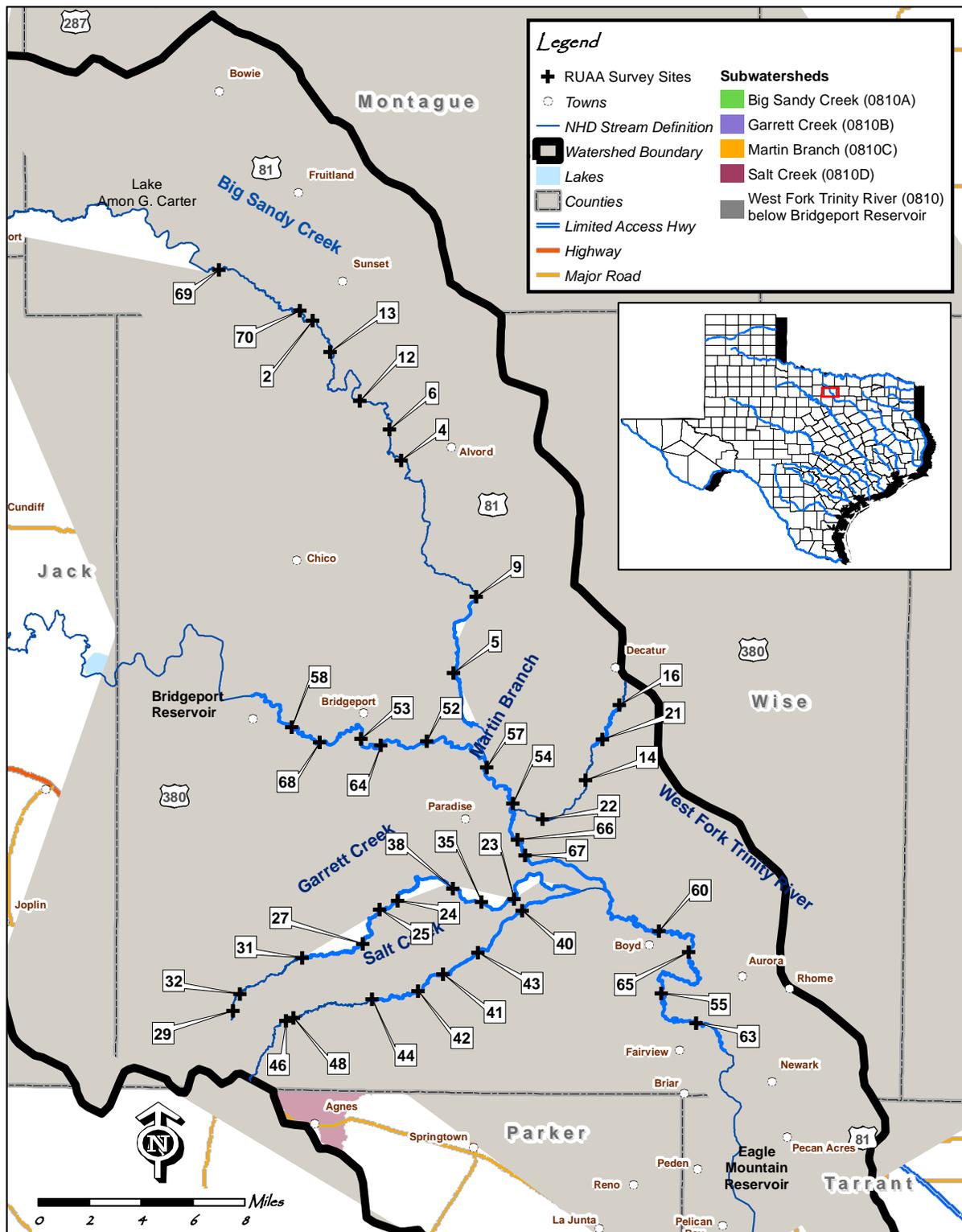


Table 2.2 List of Survey Sites for the West Fork Trinity River below Bridgeport Reservoir RUAA

| Count | Stream Name | Road or Property Name | Site ID Number | Assessment Unit | 5 Mile Subsegment Unit | Scheduled Monitoring Frequency FY2009/10 | USGS Flow Location Within 2 Miles | TCEQ WQM Location | TRWD Location | X Coordinate | Y Coordinate |
|-------|----------------------------|-------------------------|----------------|-----------------|------------------------|--|-----------------------------------|-------------------|---------------|------------------|------------------|
| 1 | West Fork Trinity River*** | County Road 4757 | 63 | 0810 | 0810_01 | Twice | | 10967 | 10967 | 97° 32' 3.05" W | 33° 2' 5.16" N |
| 2 | West Fork Trinity River | County Road 4668 | 55 | 0810 | 0810_02 | Twice | | 17844 | 17844 | 97° 33' 27.36" W | 33° 3' 5.90" N |
| 3 | West Fork Trinity River | FM 730 | 60 | 0810 | 0810_03 | Twice | 08044500 | 10969 | 10969 | 97° 33' 31.32" W | 33° 5' 8.33" N |
| 4 | West Fork Trinity River | State Hwy 114 | 65 | 0810 | 0810_03 | Twice | | 10968 | | 97° 32' 19.68" W | 33° 4' 27.97" N |
| 5 | West Fork Trinity River | County Road 3390 | 66 | 0810 | 0810_05 | Twice | | | 14246 | 97° 39' 10.04" W | 33° 8' 19.53" N |
| 6 | West Fork Trinity River | S FM 51 | 67 | 0810 | 0810_05 | Twice | | | | 97° 38' 50.70" W | 33° 7' 47.95" N |
| 7 | West Fork Trinity River | FM 3259 | 54 | 0810 | 0810_06 | Twice | | | | 97° 39' 19.76" W | 33° 9' 31.42" N |
| 8 | West Fork Trinity River | County Road 3250 | 57 | 0810 | 0810_06 | Twice | | | | 97° 40' 21.66" W | 33° 10' 45.64" N |
| 9 | West Fork Trinity River | County Road 3225 | 52 | 0810 | 0810_07 | Twice | | | | 97° 42' 45.75" W | 33° 11' 38.17" N |
| 10 | West Fork Trinity River | State Hwy 114 | 64 | 0810 | 0810_07 | Twice | | | | 97° 44' 35.80" W | 33° 11' 30.96" N |
| 11 | West Fork Trinity River | Bridgeport Country Club | 53 | 0810 | 0810_08 | Twice | 08043500 | | | 97° 45' 21.95" W | 33° 11' 47.13" N |
| 12 | West Fork Trinity River*** | FM 920 | 68 | 0810 | 0810_08 | Twice | | | | 97° 47' 2.97" W | 33° 11' 37.42" N |
| 13 | West Fork Trinity River*** | US Hwy 380 | 58 | 0810 | 0810_09 | Twice | | 14904 | 14904 | 97° 48' 10.94" W | 33° 12' 7.67" N |
| 14 | Big Sandy Creek | US Hwy 380 | 5 | 0810A | 0810A_01 | Once | 08044000 | 15688 | | 97° 41' 40.35" W | 33° 13' 55.46" N |
| 15 | Big Sandy Creek | FM 1810 | 9 | 0810A | 0810A_02 | Once | 08043950 | 18347 | | 97° 40' 43.76" W | 33° 16' 29.37" N |
| 16 | Big Sandy Creek | S FM 1655 | 4 | 0810A | 0810A_04 | Once | | | | 97° 43' 42.06" W | 33° 21' 5.17" N |
| 17 | Big Sandy Creek | County Road 1590 | 6 | 0810A | 0810A_04 | Once | | | | 97° 44' 9.90" W | 33° 22' 7.85" N |
| 18 | Big Sandy Creek | County Road 1591 | 12 | 0810A | 0810A_04 | Once | | | | 97° 45' 20.64" W | 33° 23' 7.12" N |
| 19 | Big Sandy*** Creek | Echo Rd | 2 | 0810A | 0810A_06 | Once | | | | 97° 47' 13.43" W | 33° 25' 49.48" N |
| 20 | Big Sandy Creek | County Road 1790 | 13 | 0810A | 0810A_05 | Once | | | | 97° 46' 31.72" W | 33° 24' 44.84" N |
| 21 | Big Sandy Creek | Turkey Creek Road | 69 | 0810A | 0810A_07 | Once | | | | 97° 50' 57.51" W | 33° 27' 33.57" N |
| 22 | Big Sandy Creek | State Hwy 101 | 70 | 0810A | 0810A_07 | Once | | | | 97° 47' 43.13" W | 33° 26' 9.38" N |

| Count | Stream Name | Road or Property Name | Site ID Number | Assessment Unit | 5 Mile Subsegment Unit | Scheduled Monitoring Frequency FY2009/10 | USGS Flow Location Within 2 Miles | TCEQ WQM Location | TRWD Location | X Coordinate | Y Coordinate |
|-------|------------------|-----------------------|----------------|-----------------|------------------------|--|-----------------------------------|-------------------|---------------|------------------|------------------|
| 23 | Garrett Creek | State Hwy 114 | 23 | 0810B | 0810B_01 | Once | 08044135 | 16767 | 16767 | 97° 39' 17.79" W | 33° 6' 18.69" N |
| 24 | Garrett Creek | County Road 3381 | 35 | 0810B | 0810B_02 | Once | | | | 97° 40' 37.95" W | 33° 6' 12.97" N |
| 25 | Garrett Creek | County Road 3355 | 38 | 0810B | 0810B_02 | Once | | | | 97° 41' 43.92" W | 33° 6' 40.09" N |
| 26 | Garrett Creek | County Road 3470 | 24 | 0810B | 0810B_03 | Once | | | | 97° 43' 59.11" W | 33° 6' 16.93" N |
| 27 | Garrett Creek | County Road 3555 | 25 | 0810B | 0810B_03 | Once | | | | 97° 44' 39.86" W | 33° 5' 59.03" N |
| 28 | Garrett Creek | Driveway | 27 | 0810B | 0810B_03 | Once | | | | 97° 45' 26.25" W | 33° 4' 50.76" N |
| 29 | Garrett Creek | County Road 3657 | 31 | 0810B | 0810B_04 | Once | | | | 97° 47' 47.99" W | 33° 4' 23.08" N |
| 30 | Garrett Creek | County Road 3855 | 29 | 0810B | 0810B_05 | Once | | | | 97° 50' 34.38" W | 33° 2' 36.79" N |
| 31 | Garrett Creek | County Road 3855 | 32 | 0810B | 0810B_05 | Once | | | | 97° 50' 18.74" W | 33° 3' 11.53" N |
| 32 | Martin Branch*** | Unnamed Street | 14 | 0810C | 0810C_01 | Once | | | | 97° 36' 22.26" W | 33° 10' 19.62" N |
| 33 | Martin Branch | S FM 51 | 22 | 0810C | 0810C_01 | Once | | 17848 | 17848 | 97° 38' 10.10" W | 33° 8' 58.44" N |
| 34 | Martin Branch | Old Reunion Rd | 21 | 0810C | 0810C_02 | Once | | | | 97° 35' 43.00" W | 33° 11' 40.15" N |
| 35 | Martin Branch | US Hwy 81 | 16 | 0810C | 0810C_02 | Once | | | | 97° 34' 56.45" W | 33° 12' 49.88" N |
| 36 | Salt Creek | State Hwy 114 | 40 | 0810D | 0810D_01 | Once | 08044140 | 16766 | 16766 | 97° 38' 59.74" W | 33° 5' 54.34" N |
| 37 | Salt Creek | County Road 3585 | 41 | 0810D | 0810D_02 | Once | | | | 97° 42' 11.50" W | 33° 3' 48.35" N |
| 38 | Salt Creek*** | County Road 3581 | 42 | 0810D | 0810D_02 | Once | | | | 97° 43' 10.51" W | 33° 3' 12.65" N |
| 39 | Salt Creek | FM 2123 | 43 | 0810D | 0810D_02 | Once | | | | 97° 40' 46.85" W | 33° 4' 30.92" N |
| 40 | Salt Creek | County Road 3672 | 44 | 0810D | 0810D_03 | Once | | | | 97° 45' 0.80" W | 33° 2' 59.07" N |
| 41 | Salt Creek | Unnamed Street | 46 | 0810D | 0810D_04 | Once | | | | 97° 48' 58.85" W | 33° 1' 45.33" N |
| 42 | Salt Creek | County Road 3657 | 48 | 0810D | 0810D_04 | Once | | | | 97° 48' 10.25" W | 33° 2' 22.26" N |

 Survey Sites summarized in Section 4 of this report.

*** Access Granted Sites

SECTION 3 RUAAs TECHNICAL APPROACH

3.1 Experimental Design

Basic RUAAs Surveys were conducted to collect information on each water body. Field collection activities focus on documenting the presence or absence of water recreation activities, stream flow type, and stream depth (TCEQ 2009). Basic RUAAs surveys were performed during the summer of 2009. A second set of surveys, Comprehensive RUAAs surveys, were conducted for all 13 sites on the West Fork Trinity River below Bridgeport Reservoir in July 2010 to verify that characteristics documented in 2009 had not changed. Basic RUAAs Surveys and Comprehensive RUAAs Surveys were performed following the TCEQ *Recreational Use-Attainability Analyses (RUAAs) Procedures for a Comprehensive RUAAs and a Basic RUAAs Survey* (May 2009 version) and according to the following requirements described in the most current TCEQ TMDL RUAAs QAPP:

- Data Representativeness - TCEQ TMDL RUAAs QAPP Section A7
- Field measurement techniques found in the Surface Water Quality Monitoring (SWQM) Procedures Manual – TCEQ TMDL RUAAs QAPP Section B2
- Data Management - TCEQ TMDL RUAAs QAPP Section B10

Field measurements and data collection were performed according to TCEQ SWQM Procedures Manual (TCEQ RG-415) (TCEQ 2008).

3.2 Sampling Conditions

The RUAAs surveys were conducted during normal warm season conditions (air temperature greater than or equal to 70 degrees Fahrenheit) under baseflow conditions when people are most likely to use the water bodies for recreation. Baseflow conditions are defined as sustained or typical warm-weather flows between rainfall events, excluding unusual antecedent conditions of drought or wet weather. When discussions with local entities or users indicated that recreational use timing differs from the normal conditions, attempts were made to conduct RUAAs surveys at those times of use. Site surveys were conducted during the weekends (Friday through Sunday) in the months of May through September.

3.3 Field Tasks

Field Survey Forms were obtained from *Recreational Use-Attainability Analyses (RUAAs): Procedures for a Comprehensive RUAAs and a Basic RUAAs Survey*, (TCEQ 2009). These forms were used to define and organize the data collected and observations made at each survey site. The focus of the data collection effort was on the stream corridor and to observe recreational uses or to document evidence showing possible uses.

Field collection of data was performed using a combination of the following:

- Hardcopy of TCEQ RUAAs Procedures (May 2009 version) Data Collection Sheets;
- Field Logbook;

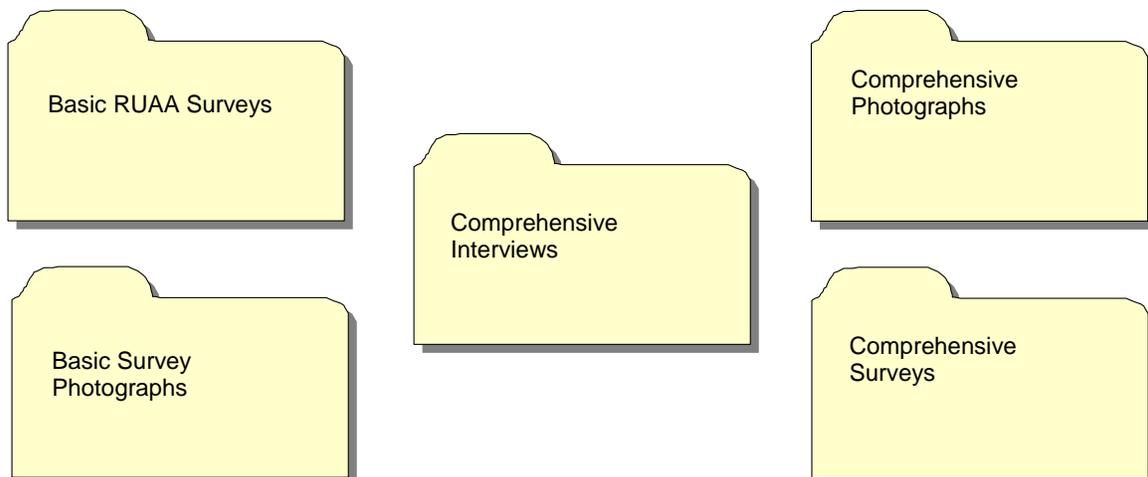
- Global Positioning System (GPS) unit meeting TCEQ GPS Requirements. This Trimble GeoXT GPS unit was also utilized to input field data for the RUAA survey forms directly into digital format for electronic download to a computer database format;
- Digital camera for all photographs taken; and
- Measurement equipment (measuring tapes, measuring survey rods, water velocity meter, compass, water thermometer, air thermometer).

The field surveys began as the field team approached the survey area, looking for signs of recreational use and ways of access to the streambed. Initial observations were made to find a 300 meter long section of the stream which had the most potential for recreational use, which was wadeable, and which had public, or permitted, access.

The tasks performed at each survey site consisted of collecting measurements (stream or pool dimensions, water flow, air and water temperature), documenting streambed and adjacent area conditions, completing the survey forms, documenting uses or possible uses of the water body, talking with local people on known uses of the water body, and collecting GPS coordinates and a standard set of photographs. For most sites photographs were taken facing upstream, downstream, left bank and right bank at the 30 meter, 150 meter, and 300 meter transect. If for some reason safe access was not possible to collect data or photographs at any one of the three transects the reason was documented.

3.4 Data Management

Each site surveyed generates a considerable amount of written information and data and numerous photographs. After the RUAA Field Data Sheets were completed in the field significant time was logged at the office to ensure the written data was effectively, sufficiently and accurately conveyed on each form. Each photograph file name was labeled in a manner that was consistent with the upstream, downstream, left bank, right bank nomenclature set forth for each transect from the Field Data Sheets. Consistent methods were established for organizing hard copy files of survey and interview forms, scanning of written information into PDFs for electronic cataloguing, and labeling and cataloguing all photographs by survey site. All data was organized into the following electronic file structure:



Given the file sizes associated with these different data groups, each folder was submitted electronically to TCEQ at the completion of the project. Approximately 10 percent of each data type (GPS data, Field Data Sheet information, and photographs) were verified for completeness and accuracy. Given the large file sizes and the vast number of pages associated with the Field Data Sheets and the numerous photographs taken at each site, copies are not included as part of this report. Appendix G provides a list of the categories of electronic data files submitted to TCEQ.

SECTION 4 PROJECT RESULTS

Section 4 organizes and summarizes the data that was collected from the field surveys by waterbody. A historical perspective of recreational use on the five different waterbodies is summarized first. The remainder of Section 4 summarizes the site survey data collected and observations made for each of the five different waterbodies.

4.1 Historical Evidence of Recreational Use

Archival research of local newspapers, web sites and libraries was performed for historical documentation of recreational use occurring on the segments in the West Fork Trinity River below Bridgeport Reservoir watershed since 1975. No relevant documents were located. One internet site provided information for the public regarding canoeing or kayaking conditions for the West Fork Trinity River below Bridgeport Reservoir however, the website indicates that limited to no public use of this segment of the river for canoeing occurs because of lack of access, steep banks and various obstructions encountered on along the river (see <http://southwestpaddler.com/docs/trinity2.html>).

In addition, local coffee shops, retirement homes, community leaders and government functionaries were interviewed in an effort to garner historical evidence of recreational use of the target segments. The only segment for which historical evidence of recreational use of water was reported was the West Fork Trinity River below Bridgeport. This included fishing, hunting, and boating. A company called Trinity River Outfitters, at one time outfitted kayaking for that segment. Attempts to contact Trinity River Outfitters were successful and conversations with the owners did reveal specific verification that the company remains in operation in accordance with release from the lake. Feedback was provided indicating that fishermen frequent the West Fork Trinity River when Tarrant Regional Water District (TRWD) releases water from the Bridgeport Reservoir dam. No specific historical information was found for recreational activities on Big Sandy Creek, Martin Branch, Garrett Creek, and Salt Creek.

4.2 General Stream Characteristics

The West Fork Trinity River below Bridgeport Reservoir watershed is located almost entirely in Wise County with a small portion that includes the headwater of Big Sandy Creek located in Montague County. The population of Wise County in 2000 was 48,797 (U.S. Census 2010). Big Sandy Creek, Garrett Creek, and Salt Creek do not flow through any urbanized (developed) area as they meander through herbaceous grassland, deciduous forest and some cultivated cropland. West Fork Trinity River below Bridgeport Reservoir flows primarily through herbaceous grassland, deciduous forest, some pastureland and two urban areas. A 3.3 mile stretch of the river runs along the south side of Bridgeport, TX and a 3.2 mile stretch runs through the north side of Boyd, TX on its way to Eagle Mountain Reservoir. The headwater of Martin Branch originates in downtown Decatur, TX with the remainder of the creek traversing herbaceous grassland, deciduous forest and cultivated cropland. The only public recreational facility that is located along river front is the Bridgeport Country Club golf

course situated along the West Fork Trinity River below Bridgeport Reservoir south of Bridgeport, TX.

Using the U.S. Geological Survey (USGS) 2001 National Land Cover Dataset the general landuse/land cover characteristics of each subwatershed are summarized in Table 4.1. The majority of the watershed is rural with the dominant land uses being herbaceous grassland and deciduous forest (USGS 2007).

Table 4.1 Landuse/Land Cover Summary by Subwatershed

| Landuse Category | Big Sandy Creek | Garrett Creek | Martin Branch | Salt Creek | West Fork Trinity River below Bridgeport Reservoir | Total |
|---|-----------------|---------------|---------------|---------------|--|----------------|
| Acres of Barren Land | 169 | 17 | 14 | 47 | 3,526 | 3,774 |
| Acres of Cultivated Crops | 6,745 | 1,199 | 602 | 1,391 | 6,348 | 16,285 |
| Acres of Deciduous Forest | 34,870 | 6,734 | 701 | 6,067 | 15,835 | 64,207 |
| Acres of Developed, High Intensity | 187 | | 132 | 1 | 310 | 631 |
| Acres of Developed, Low Intensity | 4,429 | 551 | 596 | 550 | 4,433 | 10,559 |
| Acres of Developed, Medium Intensity | 962 | 30 | 248 | 44 | 1,250 | 2,534 |
| Acres of Developed, Open Space | 10,172 | 1,840 | 673 | 1,940 | 8,376 | 23,000 |
| Acres of Emergent Herbaceous Wetlands | 6 | | | | 228 | 234 |
| Acres of Evergreen Forest | 170 | | | 2 | 27 | 199 |
| Acres of Hay/Pasture | 14,700 | 3,046 | 1,524 | 2,546 | 17,100 | 38,916 |
| Acres of Herbaceous Grassland | 87,161 | 22,200 | 3,093 | 22,878 | 72,406 | 207,739 |
| Acres of Open Water | 2,015 | 161 | 6 | 153 | 2,657 | 4,992 |
| Acres of Shrub/Scrub | 117 | 6 | 2 | 3 | 173 | 300 |
| Totals | 161,703 | 35,784 | 7,592 | 35,622 | 132,669 | 373,370 |
| Percent of Barren Land | 0.1% | 0.0% | 0.2% | 0.1% | 2.7% | |
| Percent of Cultivated Crops | 4.2% | 3.4% | 7.9% | 3.9% | 4.8% | |
| Percent of Deciduous Forest | 21.6% | 18.8% | 9.2% | 17.0% | 11.9% | |
| Percent of Developed, High Intensity | 0.1% | | 1.7% | 0.0% | 0.2% | |
| Percent of Developed, Low Intensity | 2.7% | 1.5% | 7.8% | 1.5% | 3.3% | |
| Percent of Developed, Medium Intensity | 0.6% | 0.1% | 3.3% | 0.1% | 0.9% | |
| Percent of Developed, Open Space | 6.3% | 5.1% | 8.9% | 5.4% | 6.3% | |
| Percent of Emergent Herbaceous Wetlands | 0.0% | | | | 0.2% | |
| Percent of Evergreen Forest | 0.1% | | | 0.0% | 0.0% | |
| Percent of Hay/Pasture | 9.1% | 8.5% | 20.1% | 7.1% | 12.9% | |
| Percent of Herbaceous Grassland | 53.9% | 62.0% | 40.7% | 64.2% | 54.6% | |
| Percent of Open Water | 1.2% | 0.5% | 0.1% | 0.4% | 2.0% | |
| Percent of Shrub/Scrub | 0.1% | 0.0% | 0.0% | 0.0% | 0.1% | |

4.3 Site Data Collection

Data collection was conducted at 42 accessible sites in July and August of 2009 when the Palmer Drought Index indicated near normal conditions. Rainfall was 3” (76 mm) in July and 1.3” (33 mm) in August of 2009. Total precipitation during the 14 days preceding any survey (31 July through 20 August 2010), did not exceed 2.81” (see Appendix H). All thirteen of the sites located on the West Fork Trinity River below Bridgeport Reservoir were visited a second time in June 2010 because the segment is a classified stream and requires a comprehensive RUAA. The Palmer Drought Index for the 13 surveys conducted in July 2010 indicated normal conditions. Rainfall in July 2010 was 1.57” (40 mm) at Bridgeport, Texas. Figure 2.1 above displays the location of all 42 sites that were surveyed. Physical characteristics as well as observations and evidence of recreational use are summarized by waterbody in the following subsections.

4.3.1 West Fork Trinity River below Bridgeport Reservoir (Segment 0810).

There are three WWTPs that discharge directly into West Fork Trinity River below Bridgeport Reservoir. There are also seven other WWTPs that discharge into tributaries of West Fork Trinity River below Bridgeport Reservoir. Seasonal release of water from the Bridgeport Reservoir dam has a significant effect on the flow and potential recreation use of the West Fork Trinity River below Bridgeport Reservoir. No photographs were taken of West Fork Trinity River below Bridgeport Reservoir immediately downstream of the dam because safe, public access was not possible.

The most upstream survey site that was accessible was #58 located at U.S. Hwy 380. When no release occurs from Bridgeport Reservoir, the river typically flows slowly under a thick, closed canopy of hardwood trees which is portrayed by photographs in Figure 4.1 which were taken at Site 58 from the 30 meter transect. The photographs depict the shrub dominated riparian corridor, a shallow thalweg (average thalweg depth = 0.49 meters), no public access and no evidence of recreation use. Flow was measured at 1.73 cubic feet per second (cfs).

Figure 4.1 West Fork Trinity River below Bridgeport Reservoir, Survey Site #58



Site #58 @ U.S. Hwy 380 Upstream View



Site #58 @ U.S. Hwy 380 Downstream View

Site #53, located 300 meters downstream from the bridge at County Road 2123, is adjacent to the Bridgeport Country Club golf course. There is a parking lot nearby and a trail that leads to the river. Figure 4.2 provides photographs which were taken under normal flow conditions from the 30 meter transect. The photographs depict the shrub dominated riparian corridor, a low water dam, and a public access point to the edge of the river from the trail. The average thalweg depth at Site #53 is > 0.94 meters deep (downstream transects were too deep to wade) and evidence of primary and secondary contact recreation use was documented during both the basic and comprehensive surveys (July 2009 and July 2010). Flow was measured at 6.5 cfs.

Figure 4.2 West Fork Trinity River below Bridgeport Reservoir, Survey Site #53



Site #53 @ Bridgeport CC Upstream View



Site #53 @ Bridgeport CC Downstream View

Site #66, located east of Paradise, TX at County Road 3390 is typical of much of the West Fork Trinity River below Bridgeport Reservoir. Figure 4.3 provides photographs which were taken from the 30 meter transect depicting the shrub dominated riparian corridor. The estimated thalweg depth at Site #53 is 1.52 meters. Public access is possible at the site; however there was no evidence recreational use documented.

Figure 4.3 West Fork Trinity River below Bridgeport Reservoir, Survey Site #66



Site #66 @ County Road 3390 Upstream View



Site #66 @ County Road 3390 Downstream View

Farther downstream at Site #60 the West Fork Trinity River below Bridgeport Reservoir flows near the small town of Boyd, TX (population 1,099) (Wikipedia 2010). Site #60, located at FM 730, continues to flow through private rural land at this point and there appears to be little or no recreational influence in the river corridor at this site despite its close proximity to a town. Conditions at this site are typical of much of the West Fork Trinity River below Bridgeport Reservoir. Figure 4.4 provides photographs which were taken from the 30 meter transect depicting the shrub dominated riparian corridor. For safety reasons, measurements for thalweg depth at Site #60 were not recorded. There is public access at Site #60 and secondary contact recreation activity was identified.

Figure 4.4 West Fork Trinity River below Bridgeport Reservoir, Survey Site #60



Site #60 @ FM 730 Upstream View



Site #60 @ FM 730 Downstream View

The most downstream site that was surveyed was Site #63 located at County Road 4757. Conditions at this site are typical of much of the West Fork Trinity River below Bridgeport Reservoir. Figure 4.5 provides photographs which were taken from the 30 meter transect depicting the shrub dominated riparian corridor. For safety reasons, measurements for thalweg depth and water flow at Site #63 were not recorded. Public access is possible at Site #60 and no primary or secondary contact recreation activity was evident.

Figure 4.5 West Fork Trinity River below Bridgeport Reservoir, Survey Site #63



Site #63 @ County Road 4757 Upstream View



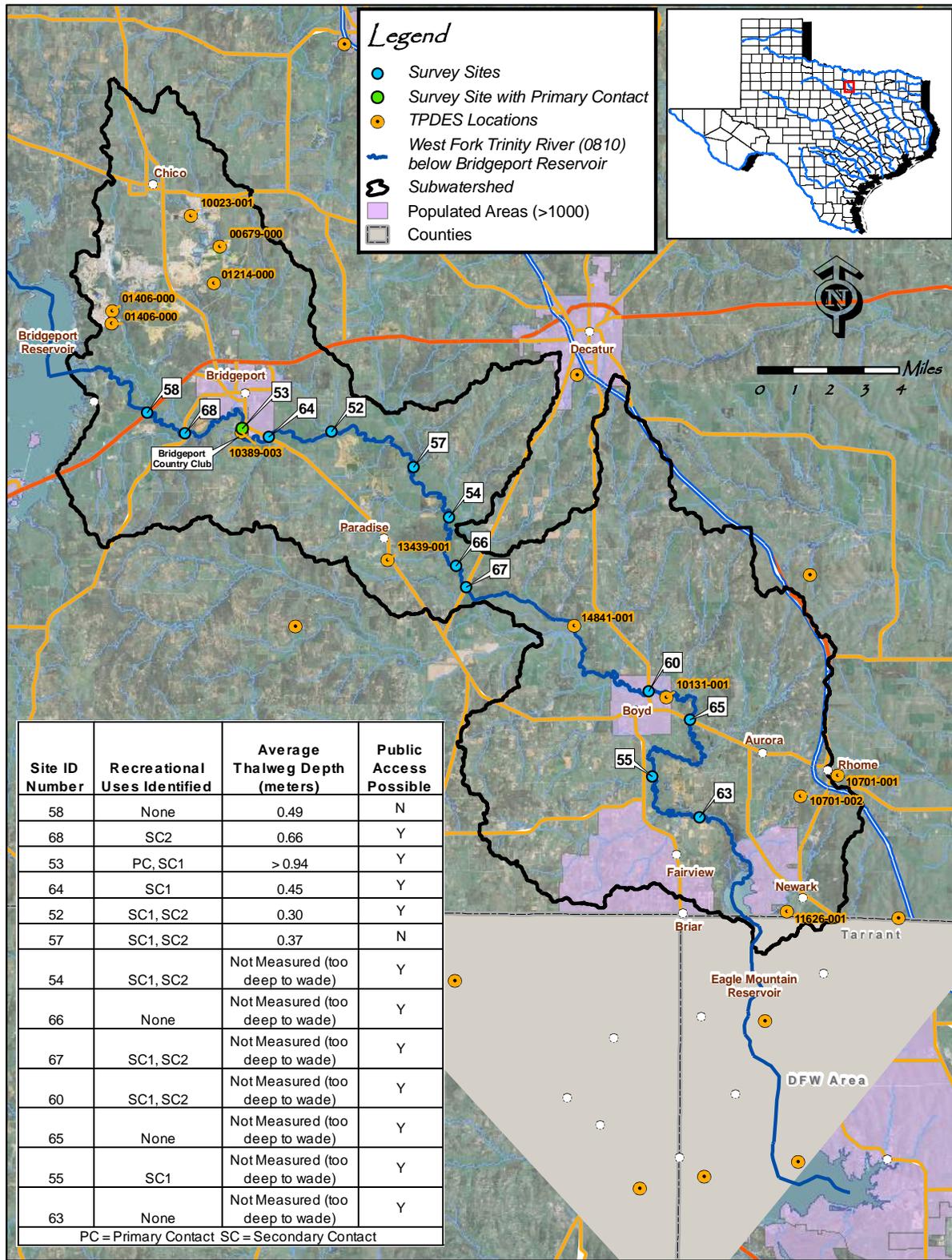
Site #63 @ County Road 4757 Downstream View

Figure 4.6 provides a map that summarizes the average thalweg depth (where measurement was possible), observed uses, and availability of public access documented at the sites surveyed along West Fork Trinity River below Bridgeport Reservoir. The map also displays other relevant information that may influence the potential for recreation activities along the river corridor including parks, bridge crossings, cities, and wastewater treatment plant outfalls. Additional information providing evidence or lack of evidence that recreation activities have occurred are provided in the field data summary sheets completed for each site surveyed.

A second site visit was conducted at all thirteen survey sites along the West Fork Trinity River below Bridgeport Reservoir as this is a classified segment. These second visits took place in July 2010, one year after the basic RUAA surveys and focused on observing and documenting any recreational activity as well as taking upstream and downstream images from the access site (usually a bridge). Both the observations (electronic submittal, Appendix G) and the shortened surveys (electronic submittal, Appendix G) confirmed recreational uses observed in the 2009 basic survey.

Twelve interviews were attempted to collect additional information on the West Fork Trinity River. Six were conducted with landowners along the West Fork Trinity and another four were conducted with local agencies such as Tarrant Regional Water District, TCEQ regional staff, Texas State Soil Water Conservation Board staff, and Kevin Burns who owns and operates a kayaking outfit in Bridgeport. Of those who were interviewed, all but one was familiar with the river and confirmed that both primary and secondary contact recreation occurred at multiple locations along the river.

Figure 4.6 West Fork Trinity River below Bridgeport Reservoir

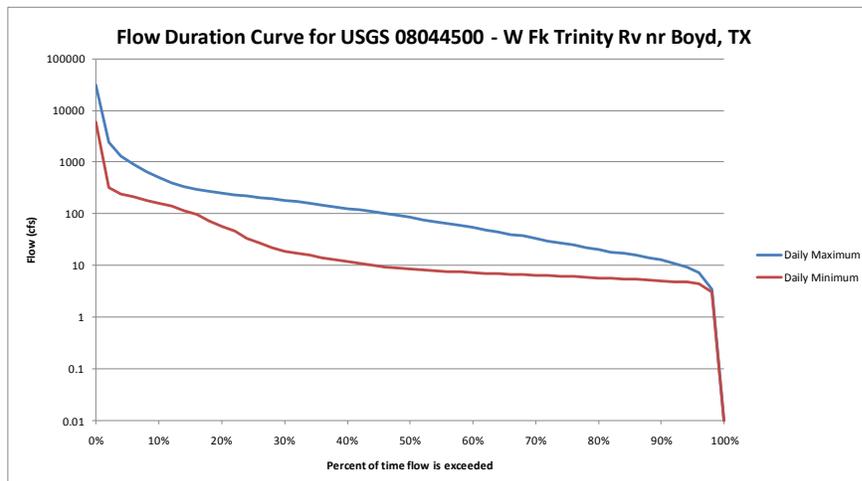


Under normal flow conditions the West Fork Trinity River below Bridgeport Reservoir is murky and has unpredictable depths that changed 1 to 2 meters without warning. Table 4.2 provides a summary of the means of monthly flow data between 1990 and 2009 at the USGS gage station 08044500 located on the West Fork Trinity River at Boyd, TX (USGS 2010). Figure 4.7 provides a flow duration curve derived from the flow data collected at USGS gage station 08044500 between 1990 and 2009.

Table 4.2 Flow Data from USGS Gage 08044500 on the West Fork Trinity River at Boyd, TX

| YEAR | 00060, Discharge, cubic feet per second, Monthly mean in cfs (Calculation Period: 1990-01-01 -> 2009-08-30) | | | | | | | | | | | |
|---------------------------|--|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | Period-of-record for statistical calculation restricted by user | | | | | | | | | | | |
| | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
| 1990 | 67.5 | 35.5 | 813.7 | 4,339 | 5,908 | 877.6 | 79.4 | 56.8 | 170.8 | 183 | 94.9 | 229.6 |
| 1991 | 68.5 | 47.4 | 46 | 77.3 | 203.1 | 232.2 | 138.4 | 99.6 | 37.5 | 904.2 | 413.3 | 3,073 |
| 1992 | 928.7 | 944 | 929.2 | 29.6 | 481.7 | 1,553 | 229.7 | 60.9 | 45.6 | 116.6 | 140.1 | 248.6 |
| 1993 | 88 | 388.1 | 565.5 | 274.9 | 599.2 | 726.9 | 40.1 | 241.4 | 83.3 | 618.8 | 79.3 | 102.9 |
| 1994 | 52.1 | 115.3 | 89.9 | 32.4 | 1,315 | 65.3 | 77.8 | 216.8 | 129.5 | 214.6 | 927.5 | 235.6 |
| 1995 | 115.5 | 84.6 | 262.8 | 274 | 1,258 | 138.8 | 143.9 | 444.2 | 19.7 | 82.4 | 142.2 | 47.4 |
| 1996 | 20 | 36.9 | 73.9 | 46.6 | 133.3 | 124.8 | 137.2 | 225.4 | 169.2 | 310 | 390.5 | 83.1 |
| 1997 | 35.3 | 2,003 | 537.8 | 538.8 | 1,086 | 588.3 | 83.3 | 133.7 | 123.8 | 71.8 | 47.6 | 101.1 |
| 1998 | 139.5 | 119.6 | 1,728 | 152.2 | 58.6 | 77.5 | 256.3 | 185.7 | 83.9 | 47 | 44.6 | 29.7 |
| 1999 | 38.5 | 24.6 | 81.5 | 89.4 | 194.4 | 85.4 | 78.5 | 175.8 | 184.7 | 291.6 | 132.6 | 49.6 |
| 2000 | 30.6 | 19.4 | 24 | 295.1 | 70.8 | 75.9 | 61.7 | 138.5 | 109.8 | 112.9 | 98.6 | 66.2 |
| 2001 | 115 | 938.6 | 681.1 | 418.7 | 155.4 | 29.8 | 198.8 | 266.5 | 82.8 | 132.8 | 107 | 31 |
| 2002 | 41.6 | 49.5 | 229.1 | 195.2 | 173.1 | 138.7 | 46.6 | 32.8 | 145.3 | 91.8 | 57.5 | 40.4 |
| 2003 | 19.3 | 50.8 | 44.5 | 24.7 | 179.5 | 211.6 | 186.4 | 286.5 | 123.4 | 170.5 | 104.7 | 124.4 |
| 2004 | 101.3 | 77.4 | 40.2 | 43 | 25.5 | 1,211 | 110.5 | 14.3 | 153.5 | 136.1 | 101.1 | 39.8 |
| 2005 | 41.1 | 37.2 | 48.3 | 34.9 | 61.4 | 96.6 | 245 | 153.5 | 246.4 | 225.2 | 73.3 | 4.07 |
| 2006 | 105.5 | 59.8 | 43.8 | 103.5 | 71.5 | 179.8 | 277.8 | 178.6 | 15.8 | 0.148 | 1.9 | 10.9 |
| 2007 | 12 | 3.7 | 167.7 | 511.1 | 677.1 | 1,032 | 1,223 | 95 | 102.1 | 167.1 | 73.3 | 33.8 |
| 2008 | 124.6 | 83.4 | 465.5 | 252 | 71.6 | 99.9 | 226.9 | 166.2 | 143.3 | 154.8 | 100 | 30.3 |
| 2009 | 66.4 | 67.5 | 36.5 | 73.5 | 69.5 | 16.9 | 169.6 | 277.2 | | | | |
| Mean of monthly Discharge | 111 | 259 | 345 | 390 | 640 | 378 | 201 | 172 | 114 | 212 | 165 | 241 |

Figure 4.7 Flow Duration Curve for USGS Gage 08044500



Substantial pools were identified at all survey sites along the West Fork Trinity River. The survey team for this investigation found wading at sites for the West Fork Trinity River to be precarious because of rapidly changing depths and poor water clarity. Fishermen, where their past presence was apparent, have created well-marked paths along its shores to access the water's edge without evidence of actually entering the stream. Evidence of their activities, including discarded fishing lines, bait containers and lure packaging was abundant at points near road bridges where public access is unimpeded.

Evidence of primary and secondary contact recreation was documented along the West Fork Trinity River below Bridgeport Reservoir. Primary contact recreation was confirmed to occur through an interview at site #53. No evidence of swimming or wading was observed despite indirect evidence of human use observed at the majority of the sites surveyed. According to interviews, boating and primary contact (wading and sitting under a low dam overflow) have occurred historically at site #53. Evidence of river corridor activities included fishing, picnicking, camping and golfing. A rope swing was found at site #68 by the field crew but no observations of its use were able to be documented. Bridgeport Country Club owns approximately 1000 meters of river frontage which provides access to members but not the general public. Based on information derived from an interview, the Bridgeport Country Club has been used as a launch location for kayakers. The remainder of the frontage was privately owned and was clearly marked with fencing, no-trespassing signs and/or purple no-trespassing markings. Some boating does occur according to interviews that mentioned occasional kayak trips, so public access to the majority of the river has been possible via boating.

4.3.2 Big Sandy Creek (810A)

Big Sandy Creek is appropriately named given the entire substrate from the upstream site #69 all the way to the most downstream site #9 consists of deep sand. During the survey dates there was no water in the creek from the most upstream site #69 to some point between site #4 and site #9. Standing pools were documented starting at site #9 to the end of Big Sandy Creek where it merges with Waggoner Creek. There are no WWTPs that discharge directly into Big Sandy Creek, but there are four small permitted facilities that discharge into its tributaries. Despite the fairly large subwatershed (161,703 acres) Big Sandy Creek is typically an ephemeral stream.

The most upstream survey site accessible was #69 located at Turkey Creek Road downstream of the Amon Carter Lake dam. When no release occurs from Amon Carter Lake, there is no flow in Big Sandy Creek. The creek had no flow when the site was visited and the stream corridor has steep incised banks with deciduous trees and shrubs dominating both banks which are portrayed by photographs in Figure 4.8 taken at the 30 meter transect. Public access is possible at this site; however no evidence of recreation use was identified. Flow and thalweg depth could not be measured because the stream was dry.

Figure 4.8 Big Sandy Creek, Survey Site #69



**Site #69 @ Turkey Creek Road
Upstream View**



Site #69 @ Turkey Creek Road Downstream View

Site #4, west of the town of Alvord, is located on the north side of FM 1655. Figure 4.9 provides photographs from the 30 meter transect which depict the typical dry condition of the stream and the dense deciduous trees and shrubs along both banks. The average thalweg depth and flow could not be measured given the dry condition. No evidence of contact recreation use was identified. The site is at a remote, rural location surrounded by pastureland and there is public access.

Figure 4.9 Big Sandy Creek, Survey Site #4



Site #4 @ FM 1655 Upstream View



Site #4 @ FM 1655 Downstream View

The most downstream site that was surveyed on Big Sandy Creek was Site #5 located at U.S. Hwy 380. Figure 4.10 provides photographs which were taken from the 30 meter transect depicting shallow pooling water and negligible flow. The average thalweg depth measured was 0.5 meters and a flow of 0.49 cfs was measured. There is public access at Site #5 from a steep dirt road that has been made from U.S. Hwy 380 down to the creek. There was no evidence of primary contact, however, evidence of secondary contact recreation activity (fishing tackle) was observed.

Figure 4.10 Big Sandy Creek, Survey Site #5



Site #5 @ U.S. Hwy 380 Upstream View

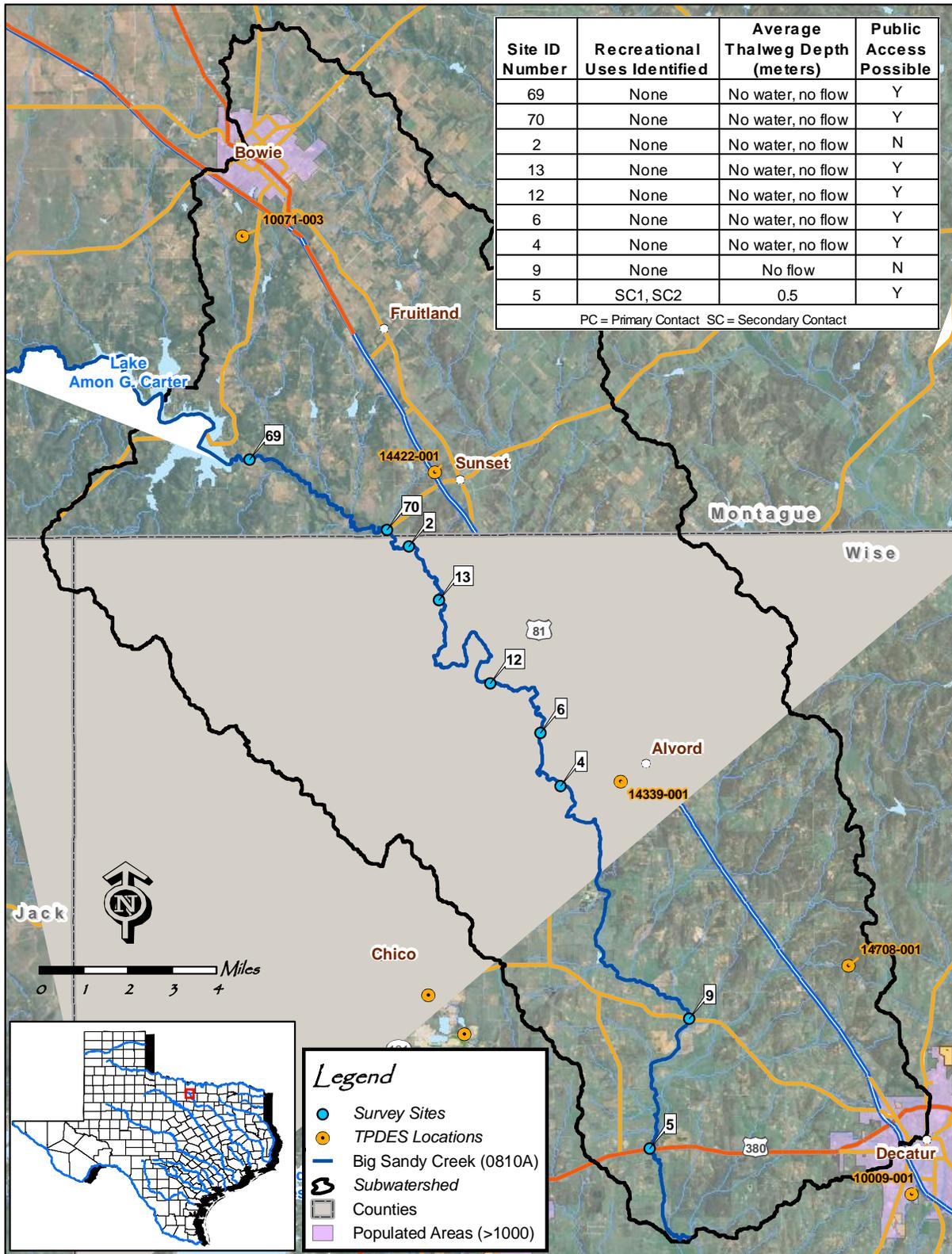


Site #5 @ U.S. Hwy 380 Downstream View

Figure 4.11 provides a map that summarizes the average thalweg depth (where measurement was possible), observed uses, and availability of public access documented at the sites surveyed along Big Sandy Creek. The map also displays other relevant information that may influence the potential for recreation activities along the river corridor including parks, bridge crossings, cities, and wastewater treatment plant outfalls. Additional information providing evidence or lack of evidence that recreation activities have occurred are provided in the field data summary sheets completed for each site surveyed.

Public access from bridges is possible at seven of the nine sites surveyed. Evidence of recreation including four-wheeling tracks and hunting stands was identified. The creek bed was 4 to 12 meters wide, shaded by native hardwoods, and consisted of deep sand, with almost no clay or silt. Wildlife and cattle spoor was common.

Figure 4.11 Big Sandy Creek



4.3.3 Garrett Creek (810B)

At its upper reaches, Garrett Creek was little more than a dry bed dominated by deep sands incapable of maintaining permanent water flow. Open pastures, both cultivated and rangeland, dominated the adjoining land. There is one WWTP that discharges into Garrett Creek downstream of site #24.

The most upstream survey site that was accessible was #29 located at County Road 3855. The site is at a remote, rural location surrounded by shrub land and deciduous woods with no public access. The creek bed at this site, portrayed by photographs in Figure 4.12 taken at the 30 meter transect, is overgrown with vegetation and had no flow when the site was visited. Evidence of recreation use identified at the site included a diving board and a flat bottom boat. Flow and thalweg depth could not be measured because the stream was dry.

Figure 4.12 Garrett Creek, Survey Site #29



Site #29 @ County Road 3855 Upstream View



Site #29 @ County Road 3855 Downstream View

Further downstream, at approximately the midpoint of the creek, is survey Site #27 which was accessed from a private driveway. The site is at a remote, rural location surrounded by shrub land and deciduous woods. The creek bed at this site, portrayed by photographs in Figure 4.13 taken at the 30 meter transect, has steep, eroded banks and no flow. Public access is possible at the site however; no evidence of recreation use was identified. Flow and thalweg depth could not be measured because the stream was dry.

Figure 4.13 Garrett Creek, Survey Site #27



Site #27 @ Private Driveway Upstream View



Site #27 @ Private Driveway Downstream View

Site #23, located at State Hwy 114, is the most downstream site that was surveyed. The creek bed at this site, portrayed by photographs in Figure 4.14 taken at the 150 meter transect, is wadeable with shrub dominated banks that impede access. The average thalweg depth measured at this site was 0.45 meters. Public access is possible at the site however; no evidence of recreation use was identified. The site is at a remote, rural location surrounded by pastureland and some deciduous woods.

Figure 4.14 Garrett Creek, Survey Site #23



Site #23 @ State Hwy 114 Upstream View

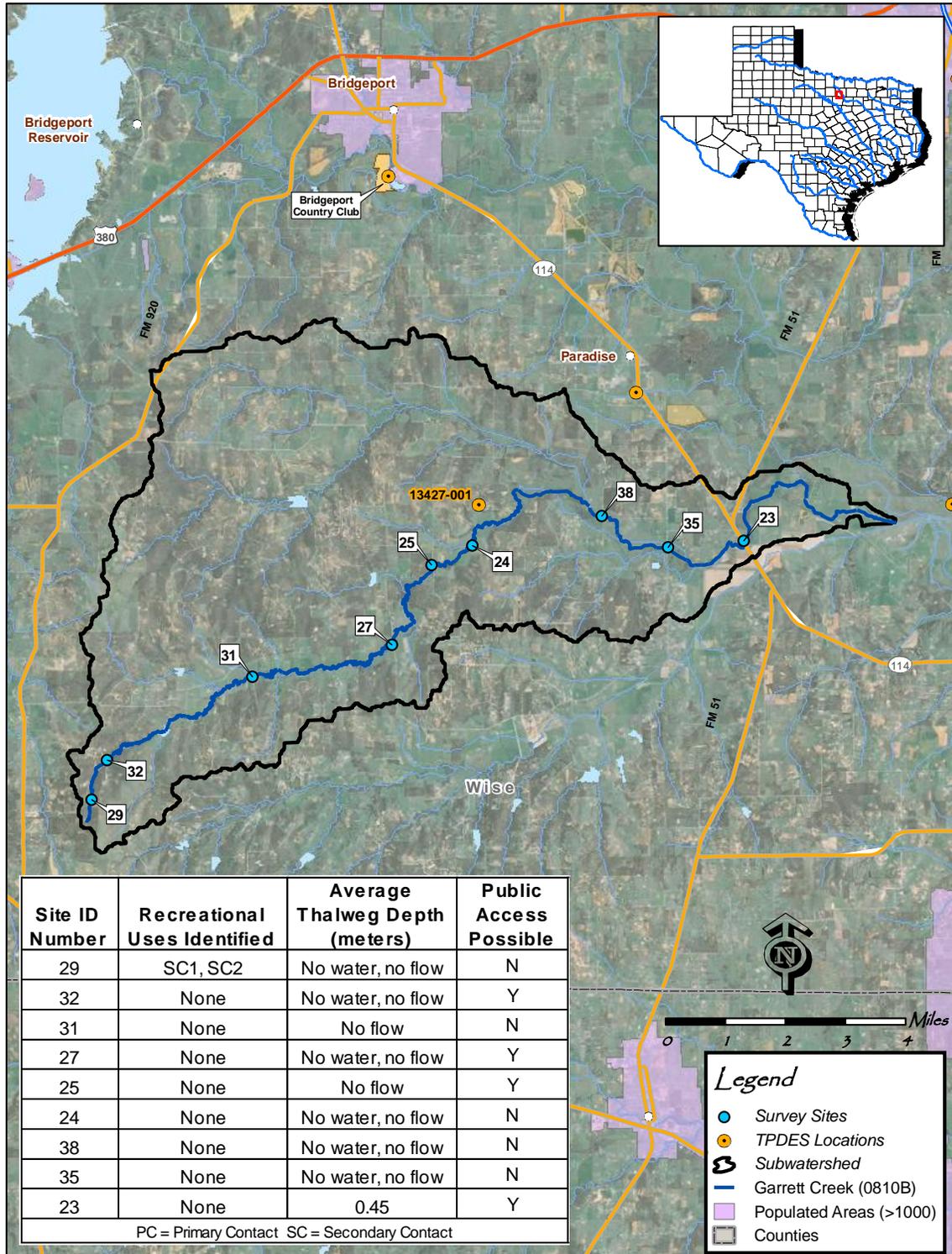


Site #23 @ State Hwy 114 Downstream View

Figure 4.15 provides a map that summarizes the average thalweg depth (where measurement was possible), identified uses, and availability of public access documented at the sites surveyed along Garrett Creek. The map also displays other relevant information that may influence the potential for recreation activities along the river corridor including parks, bridge crossings, cities, and wastewater treatment plant outfalls. There was some farming along Garrett Creek. There were more permanent water pools with no accessibility for measurements as Garrett Creek approached the confluence with Salt Creek and before it flowed into the West

Fork Trinity River, but no evidence of fish that would lead to an interest in secondary recreation. Evidence of water recreation was only identified at site #29.

Figure 4.15 Garrett Creek



4.3.4 Martin Branch (0810C)

The headwater of Martin Branch is located in the City of Decatur. Typically there is no flow in the upper half of Martin Branch and intermittent flow in the lower half. There are no WWTPs that discharge directly into Martin Branch, but there is one facility that discharges into a tributary.

The most upstream survey site accessible was #16 located at U.S. Hwy 287 on the south side of Decatur. Martin Branch at this site is an eroded channel with steep banks. The creek bed at this site, portrayed by photographs in Figure 4.16 taken at the 30 meter transect, is overgrown with vegetation and had no flow when the site was visited. Public access from the roadside is possible and there was no evidence of recreation use at the site. Flow and thalweg depth could not be measured because the stream was dry.

Figure 4.16 Martin Branch, Survey Site #16



Site #16 @ U.S Hwy 287 Upstream View



Site #16 @ U.S Hwy 287 Downstream View

Further downstream, at approximately the midpoint of the Martin Branch, is survey Site #14 which was accessed from an unnamed street. The site is at a remote, rural location and is publicly accessible. The creek bed at this site, portrayed by photographs in Figure 4.17 taken at the 150 meter transect, has shrub and tree dominated banks. There was no evidence of recreation use identified at the site. The average thalweg depth was 2 meters and flow was measured at 7.48 cfs.

Figure 4.17 Martin Branch, Survey Site #14



Site #14 @ Unnamed Street Upstream View



Site #14 @ Unnamed Street Downstream View

Site #22, located at FM 51, is the downstream most site that was surveyed on Martin Branch. The creek bed at this site, portrayed by photographs in Figure 4.18 taken at the 150 meter transect, is wadeable with stream banks that are dominated by large trees and dense shrubs. The average thalweg depth measured at this site was 0.31 meters and a flow of 1.7 cfs was measured. There is public access at the site however; no evidence of recreation use was identified. The average width of the creek at the 300 meter transect was 2 meters. The site is at a remote, rural location surrounded by pastureland and some deciduous woods.

Figure 4.18 Martin Branch, Survey Site #22



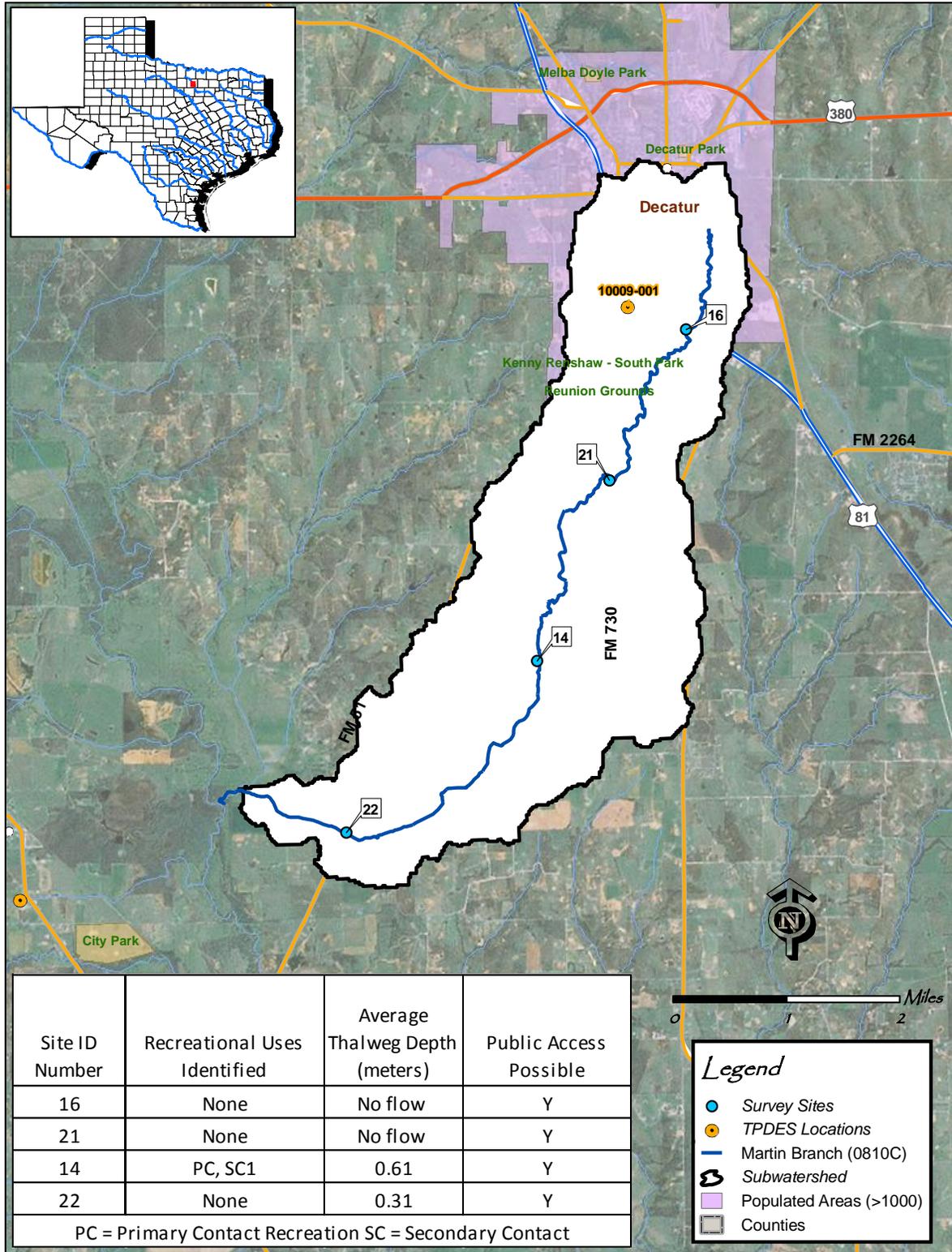
Site #22 @ FM 51 Upstream View



Site #22 @ FM 51 Downstream View

Figure 4.19 provides a map that summarizes the average thalweg depth (where measurement was possible), identified uses, and availability of public access documented at the sites surveyed along Martin Branch. The map also displays other relevant information that may influence the potential for recreation activities along the river corridor including parks, bridge crossings, cities, and wastewater treatment plant outfalls.

Figure 4.19 Martin Branch



Further downstream Martin Branch had some water flow in contrast to the other creeks that feed into the West Fork Trinity River. Between the four survey sites that were publicly accessible all other frontage is privately owned, clearly marked as private and inaccessible to the general public. Despite the likelihood of permanent fish habitat in the lower reaches, none of the surveyed sites produced tangible evidence of recreational use. However, the sole interviewee that had any knowledge of the Martin Branch was a private landowner who stated that he and his neighbors took their grandkids to Martin Branch where it ran through their land for wading, fishing and hunting. A survey done on his private land near site #14 indicated a trickle of clear running water, some small fish, but very uneven and slick river bottom that was not conducive to wading much less swimming.

A single interview was conducted in person with a local landowner along Martin Branch who stated that the family has used the river to fish, hunt, and wade in. The landowner did state that it is sometimes difficult to access his property when the flow is up, as the crossing is a low water crossing and expressed that he would like to see a reservoir upstream to create a steady flow.

4.3.5 Salt Creek (810D)

The majority of Salt Creek, like its adjacent neighbor Garrett Creek, was dry or had no flowing water. It was a completely dry sandy, brushy creek bed surrounded by cattle pastureland. There are no WWTPs within the Salt Creek subwatershed. The most upstream survey site accessible was #46 located at an unnamed street. Salt Creek at this site is an eroded channel with steep banks. The creek bed at this site, portrayed by photographs in Figure 4.20 taken at the 30 meter transect, is overgrown with vegetation and had no flow and no standing water. Public access from the roadside is possible but very difficult and there is no evidence of recreation use at the site. Flow and thalweg depth could not be measured because there was no water.

Figure 4.20 Salt Creek, Survey Site #46



Site #46 @ Unnamed Street Upstream View



Site #46 @ Unnamed Street Downstream View

Further downstream, at approximately the midpoint of the Salt Creek, is survey Site #41 which located at County Road 3585. The site is on private property in a remote, rural location. The creek bed at this site, portrayed by photographs in Figure 4.21 taken at the 150 meter transect, is an open channel with steep sloping grass banks bordered by pastureland. There was no evidence of recreational use identified at the site.

Figure 4.21 Salt Creek, Survey Site #41



Site #41 @ County Road 3585 Upstream View



Site #41 @ County Road 3585 Downstream View

Site #40, located at State Hwy 114 is the downstream most site that was surveyed on Salt Creek. The creek bed at this site, portrayed by photographs in Figure 4.22 taken at the 30 meter transect, is wadeable with stream banks that are dominated by some trees and dense shrubs. The average thalweg depth measured at this site was 0.54 meters and the average width of the creek at the 300 meter transect was 20 meters. A flow of 2.3 cfs was measured at the site. There was no public access and no evidence of recreation use at the site. The site is at a remote, rural location surrounded by pastureland and some deciduous forest.

Figure 4.22 Salt Creek, Survey Site #40



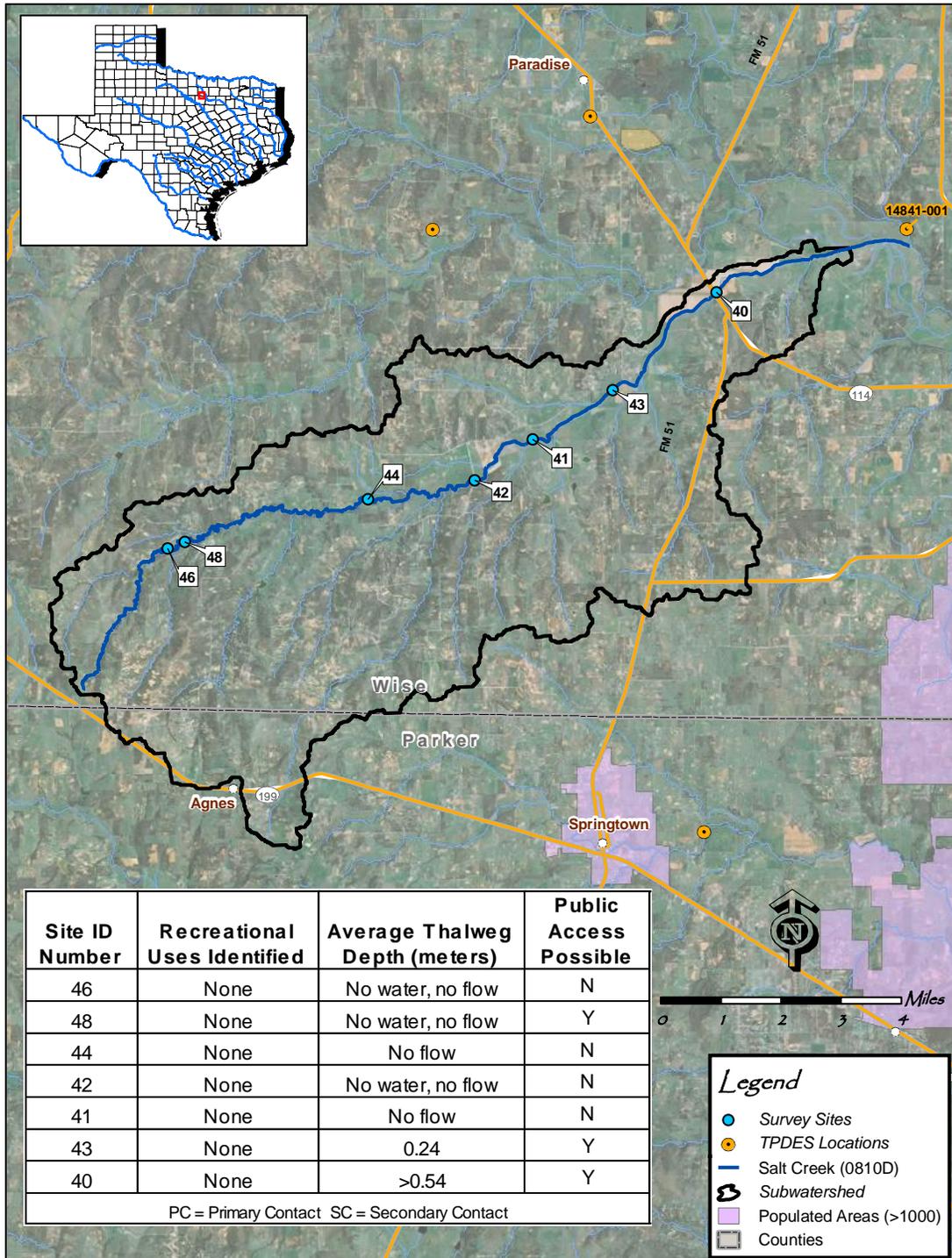
Site #40 @ State Hwy 114 Upstream View



Site #40 @ State Hwy 114 Downstream View

Figure 4.23 provides a map that summarizes the average thalweg depth (where measurement was possible), identified uses, and availability of public access documented at the sites surveyed along Salt Creek.

Figure 4.23 Salt Creek



The only appreciable water within the entire segment was downstream near the confluence with Garrett Creek where the presence of perennial water pools indicated the likelihood of aquatic habitat. No evidence of recreation was registered in the surveys or interviews and public access is not possible at 4 of the 7 sites surveyed along the Salt Creek.

A sole interview was conducted along Salt Creek with a landowner who has owned the adjoining property for five years and stated that when the creek does flow, it usually is fast moving and washes out the banks on either side. He added that along with the efforts he has taken to help stop washouts he would also like to get state help with creating a system that would further solve the problem.

4.4 Summary Results

Basic RUAA surveys were conducted at forty two sites in 2009. A second site visit was conducted at the thirteen sites on the West Fork Trinity River below Bridgeport Reservoir in 2010 because this is a classified stream. These surveys were completed to evaluate whether the existing and/or attainable recreational uses of the 5 streams in the West Fork Trinity River below Bridgeport Reservoir watershed might be different than the designated and presumed recreational uses. Important data collected in this RUAA included general stream characteristics, observations and evidence of recreational use, and surrounding conditions that promote and/or impede recreation in the riparian corridor including channel obstructions.

The riparian corridor characteristics for all 5 waterbodies were dominated by steep channelized banks, shrubs, and deciduous woods. Pastureland and rangeland is the dominant land use adjacent to each stream corridor. Only West Fork Trinity River below Bridgeport Reservoir had consistent flow and an average thalweg depth of greater than 0.5 meters (water depth was too deep to wade for measurement at several stations on this waterbody). Table 4.3 provides a summary of the key findings derived from the field data collected for each waterbody.

Table 4.3 Summary of Observations by Water Body Name

| Segment Name / # | Count of Sites Accessed | Average Thalweg Depth >0.5 m | Pool Depth >1 m | Public Access | Observation Type | Observed Use (Yes/No) | | | |
|------------------------|-------------------------|------------------------------|-----------------|---------------|-------------------------|-----------------------|-----|-----|-----|
| | | | | | | PCR | SC1 | SC2 | NCR |
| West Fork Trinity 0810 | 13 | Y | Y | 11 of 13 | Field Crews/ Interviews | Y | Y | N | N |
| Big Sandy Creek 0810A | 9 | N | N | 7 of 9 | N | N | N | N | N |
| Garrett Creek 0810B | 9 | N | N | 4 of 9 | N | N | N | N | N |

| Segment Name / # | Count of Sites Accessed | Average Thalweg Depth >0.5 m | Pool Depth >1 m | Public Access | Observation Type | Observed Use (Yes/No) | | | |
|---------------------|-------------------------|------------------------------|-----------------|---------------|------------------|-----------------------|-----|-----|-----|
| | | | | | | PCR | SC1 | SC2 | NCR |
| Martin Branch 0810C | 4 | N | N | 4 of 4 | Interviews | Y | Y | N | N |
| Salt Creek 0810D | 7 | N | N | 3 of 7 | N | N | N | N | N |

Tables 4.4 and 4.5 provide further information on the 13 sites of the West Fork Trinity River below Bridgeport obtained from the surveys and interviews. This was the only water body in this investigation in which recreational use was observed during the basic RUAA survey. Table 4.3 details the ease of access to the waterbody, the number of people observed using it, contact use categories observed, information on frequency of use, and evidence of use. Table 4.4 summarizes additional evidence of recreational activities collected from the surveys and interviews on the West Fork Trinity River below Bridgeport.

Table 4.4 RUAA Summary of Unit 810 West Fork Trinity River below Bridgeport

| Site # | # of People Observed | Ease of Access | Observed Primary | Observed Secondary | Frequency Based on interviews | Evidence of Human Use Yes/No |
|--------|----------------------|----------------|------------------|--------------------|-------------------------------|------------------------------|
| 52 | 0 | MD | N | N | U | Y |
| 53 | 1 | ME | N | F | Y ¹ DA | Y |
| 54 | 0 | MD | N | N | U | Y |
| 55 | 0 | E | N | N | U | Y |
| 57 | 0 | DI | N | N | U | N |
| 58 | 0 | ME | N | N | U | Y |
| 60 | 0 | MD | N | N | U | Y |
| 63 | 0 | MD | N | N | U | Y |
| 64 | 0 | MD | N | N | U | Y |
| 65 | 0 | MD | N | N | U | Y |
| 66 | 0 | DI | N | N | U | N |
| 67 | 0 | ME | N | N | U | Y |
| 68 | 1 | MD | N | F | W | Y |

MD = Moderately Difficult
ME = Moderately Easy
DI = Difficult
E = Easy
N = None, No
F = Fishing

U = Unknown
W = Weekly
DA = Daily
Y = Yes
¹ = Information gathered in interview near site.

Table 4.5 West Fork Trinity River 2009 - 2010: Recreation Summary

| Activity | Observed by Surveyors | Reported (by Interviews) | | |
|--------------------------|-----------------------|--------------------------|----------|----------------------|
| | | Personal | Observed | Secondhand Knowledge |
| # Surveys/interviews | 13 | 3 | 1 | 1 |
| Campsites | 2 | 0 | 0 | 0 |
| Fire pits | 1 | 0 | 0 | 0 |
| Swimming | 0 | 0 | 1 | 1 |
| Kayaking | 0 | 1 | 0 | 1 |
| Rope swings | 1 | 0 | 0 | 0 |
| Wading | 0 | 1 | 1 | 1 |
| Boating | 0 | 1 | 2 | 1 |
| Canoeing | 0 | 0 | 1 | 0 |
| Dock | 1 | 0 | 0 | 0 |
| NPDES Discharge | 1 | 0 | 0 | 0 |
| Fishing | 1 | 4 | 2 | 3 |
| Filletted fish carcasses | 1 | 0 | 0 | 0 |
| Fishing paraphernalia | 6 | 0 | 0 | 0 |
| Hunting | 0 | 0 | 0 | 1 |

Table 4.6 West Fork Trinity River/Martin Branch Summary of Contact Recreation Reported by Field Teams and Interviews

| Site # | # of People observed | Field Team | | | Interviews | |
|------------------------|----------------------|------------|----------------|-----------------|------------------------|------------------|
| | | PCR | SC | Other | PCR | SC |
| West Fork Trinity # 52 | 0 | N | N | N | N | N |
| West Fork Trinity # 53 | 1 | N | Fishing | NPDES Discharge | Swimming | Fishing |
| West Fork Trinity # 54 | 0 | N | Fishing Tackle | N | N | N |
| West Fork Trinity # 55 | 0 | N | Fishing Tackle | Campsite, Dock | N | N |
| West Fork Trinity # 57 | 0 | N | N | N | N | N |
| West Fork Trinity # 58 | 0 | N | N | Fire Pit/Ring | N | N |
| West Fork Trinity # 60 | 0 | N | Fishing Tackle | N | N | N |
| West Fork Trinity # 61 | Private Property | N | N | N | N | Fishing |
| West Fork Trinity # 63 | 0 | N | Fishing Tackle | N | Kayaking | Fishing, Boating |
| West Fork Trinity # 64 | 0 | N | N | Trout Line | N | N |
| West Fork Trinity # 65 | 0 | N | Fishing Tackle | N | N | N |
| West Fork Trinity # 66 | 0 | N | N | N | N | N |
| West Fork Trinity # 67 | 0 | N | Fishing Tackle | Campsite | N | N |
| West Fork Trinity # 68 | 1 | N | Craw fishing | Rope Swing | Canoeing | Fishing, Boating |
| Martin Branch # 14 | 0 | N | N | N | Wading Children/Adults | Fishing, Hunting |
| Martin Branch # 15 | 0 | N | N | N | N | N |
| Martin Branch # 16 | 0 | N | N | N | N | N |
| Martin Branch # 22 | 0 | N | N | N | N | N |

N – None Observed or Reported in Interviews

SECTION 5 REFERENCES

- TCEQ 2009. Recreational Use-Attainability Analyses (RUAAs): Procedures for a Comprehensive Recreational UAA and a Basic UAA Survey, May 2009.
- TCEQ 2008. TCEQ SWQM Procedures Manual (TCEQ RG-415, October 2008).
- TMDL Program Texas Recreational Use Attainability Analysis Quality Assurance Project Plan, Revision 1, June 1, 2009.
- U.S. Census 2010. U.S. Census Bureau State and County Quick Facts. Accessed via internet, August 18, 2010. <http://quickfacts.census.gov/qfd/states/48/48497.html>
- USGS 2007. Multi-Resolution Land Characteristics Consortium. <http://www.mrlc.gov/index.asp>
- USGS 2010. USGS National Water Information System Website. Accessed via internet, August 27, 2010. http://waterdata.usgs.gov/tx/nwis/uv/?site_no=08044500&PARAMETER_cd=00065,00060
- Wikipedia 2010. Accessed via internet, August 18, 2010. http://en.wikipedia.org/wiki/Boyd,_Texas

**APPENDIX A
RECONNAISSANCE MAP OF POTENTIAL SURVEY SITES**

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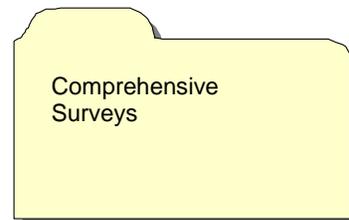
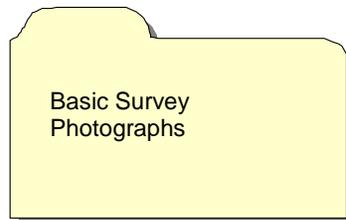
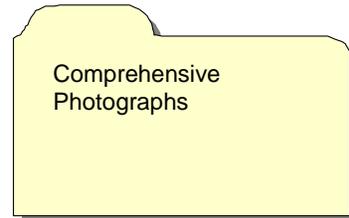
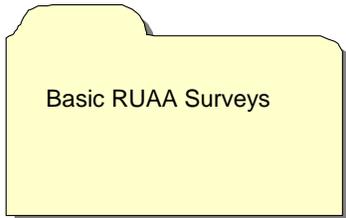
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| Van | James | City Administrator | Bridgeport | 940-683-3417 | vjanes@cityofbridgeport.net |
| Rachel | Huitt | Assistant City Administrator | Bridgeport | 940-683-3404 | rhuit@cityofbridgeport.net |
| Brett | Shannon | City of Decatur | Decatur | 940-627-2741 | bshannon@decaturtx.org |
| Earl | Smith | City of Decatur | Decatur | 940-627-9600 | esmith@decaturtx.org |
| Chris | Crawford | City of Azle | Azle | 817-444-4065 | ccrawford@ci.azle.tx.us |
| Jennifer | Delk | TCEQ- CRP | | 512-239-4712 | jedelk@tceq.state.tx.us |
| Angela | Kilpatrick | Trinity River Authority | Arlington | | kilpatricka@trinityra.org |
| Ned | Meister | Texas Farm Bureau | Waco | 254-751-2457 | nmeister@txfb.org |
| Kevin | Burns | Wise County Commissioner | Decatur | 940-427-4881 | burnauto@yahoo.com |
| Joy | Patterson | City of Boyd | Boyd | | jpatterson@cityofboyd.com |
| Lou | Bridges | WCID | Paradise | 940-433-5136 | lbridges@ntws.net |
| Curt | Burdorf | Parsons | Austin | 512-656-9879 | curt.burdorf@parsons.com |
| Eric | Reese | TCEQ | Austin | 512-239-5936 | ereese@tceq.state.tx.us |

APPENDIX G LIST OF ELECTRONIC FILES SUBMITTED TO TCEQ

Given the volume of the following list of data, these files were provided to TCEQ in electronic and hard copy format in a separate submittal at the end of the project.



APPENDIX H JULY AND AUGUST 2009 WEATHER HISTORY – BRIDGEPORT, TX

(July 2009)

| 2009 | Temp. (°F) | | | Dew Point (°F) | | | Humidity (%) | | | Sea Level Pressure (inch) | | | Visibility (mile) | | | Wind (mph) | | Gust (mph) | Precip (inch) | Events |
|------|------------|-----|-----|----------------|-----|-----|--------------|-----|-----|---------------------------|-----|-----|-------------------|-----|-----|------------|-----|------------|---------------|--------------------|
| | high | avg | low | high | avg | low | high | avg | low | high | avg | low | high | avg | low | high | avg | high | sum | |
| 1 | 98 | 84 | 69 | 69 | 68 | 55 | 89 | 61 | 24 | 30 | 30 | 30 | 10 | 10 | 10 | 8 | 4 | - | 0 | |
| 2 | 101 | 85 | 69 | 68 | 65 | 53 | 82 | 49 | 20 | 30 | 30 | 30 | 10 | 10 | 10 | 10 | 2 | 16 | 0 | |
| 3 | 102 | 87 | 72 | 66 | 61 | 53 | 76 | 44 | 20 | 30 | 30 | 30 | 10 | 10 | 10 | 15 | 5 | 22 | 0 | |
| 4 | 103 | 92 | 82 | 70 | 61 | 61 | 63 | 50 | 25 | 30 | 30 | 30 | 10 | 10 | 10 | 16 | 7 | 23 | 0 | |
| 5 | 82 | 78 | 75 | 74 | 71 | 69 | 94 | 83 | 68 | 30 | 30 | 30 | 10 | 10 | 5 | 12 | 9 | 17 | 0.17 | Rain, Thunderstorm |
| 6 | 86 | 78 | 70 | 74 | 70 | 61 | 90 | 68 | 41 | 30 | 30 | 30 | 10 | 10 | 10 | 12 | 2 | 17 | 0 | |
| 7 | 96 | 80 | 64 | 66 | 65 | 60 | 94 | 59 | 31 | 30 | 30 | 30 | 10 | 10 | 7 | 7 | 0 | - | 0 | |
| 8 | 102 | 86 | 70 | 70 | 64 | 63 | 87 | 54 | 29 | 30 | 30 | 30 | 10 | 10 | 7 | 16 | 3 | 22 | 0 | |
| 9 | 105 | 91 | 77 | 72 | 70 | 55 | 80 | 49 | 19 | 30 | 30 | 30 | 10 | 10 | 7 | 17 | 8 | 22 | 0 | |
| 10 | 105 | 92 | 79 | 68 | 64 | 51 | 63 | 41 | 16 | 30 | 30 | 30 | 10 | 10 | 10 | 16 | 10 | 24 | 0 | |
| 11 | 103 | 92 | 80 | 65 | 62 | 54 | 58 | 42 | 20 | 30 | 30 | 30 | 10 | 10 | 10 | 13 | 5 | 18 | 0 | |
| 12 | 104 | 89 | 74 | 66 | 59 | 57 | 70 | 45 | 21 | 30 | 30 | 30 | 10 | 10 | 10 | 12 | 6 | 23 | 0 | |
| 13 | 106 | 92 | 79 | 64 | 58 | 54 | 55 | 42 | 18 | 30 | 30 | 30 | 10 | 10 | 10 | 12 | 10 | 20 | 0 | |
| 14 | 106 | 94 | 82 | 63 | 59 | 53 | 52 | 41 | 18 | 30 | 30 | 30 | 10 | 10 | 10 | 18 | 9 | 24 | 0 | |
| 15 | 105 | 92 | 80 | 65 | 59 | 49 | 58 | 40 | 15 | 30 | 30 | 30 | 10 | 10 | 10 | 15 | 8 | 21 | 0 | |
| 16 | 104 | 90 | 75 | 66 | 62 | 53 | 71 | 42 | 18 | 30 | 30 | 30 | 10 | 10 | 5 | 20 | 4 | 26 | 0 | |
| 17 | 96 | 84 | 71 | 70 | 67 | 60 | 89 | 58 | 30 | 30 | 30 | 30 | 10 | 10 | 7 | 21 | 12 | 29 | 0.04 | Rain |
| 18 | 94 | 82 | 71 | 62 | 59 | 53 | 70 | 46 | 25 | 30 | 30 | 30 | 10 | 10 | 10 | 9 | 3 | - | 0 | |
| 19 | 99 | 84 | 68 | 68 | 59 | 58 | 80 | 53 | 28 | 30 | 30 | 30 | 10 | 10 | 10 | 15 | 4 | 21 | 0 | |
| 20 | 94 | 82 | 71 | 73 | 66 | 58 | 95 | 64 | 29 | 30 | 30 | 30 | 10 | 9 | 4 | 16 | 8 | 20 | 0.15 | Rain, Thunderstorm |
| 21 | 92 | 82 | 71 | 72 | 72 | 64 | 93 | 68 | 41 | 30 | 30 | 30 | 10 | 10 | 5 | 17 | 6 | 23 | 0.14 | Rain, Thunderstorm |
| 22 | 89 | 78 | 67 | 67 | 67 | 52 | 92 | 60 | 28 | 30 | 30 | 30 | 10 | 10 | 10 | 12 | 0 | 24 | 0 | |
| 23 | 84 | 76 | 68 | 69 | 62 | 57 | 90 | 65 | 40 | 30 | 30 | 30 | 10 | 10 | 4 | 10 | 0 | - | 0.13 | Rain |
| 24 | 99 | 85 | 71 | 70 | 69 | 46 | 93 | 57 | 16 | 30 | 30 | 30 | 10 | 10 | 10 | 17 | 0 | 25 | 0 | |

| 2009 | Temp. (°F) | | | Dew Point (°F) | | | Humidity (%) | | | Sea Level Pressure (inch) | | | Visibility (mile) | | | Wind (mph) | | Gust (mph) | Precip (inch) | Events |
|------|------------|----|----|----------------|----|----|--------------|----|----|---------------------------|----|----|-------------------|----|---|------------|---|------------|---------------|--------------------|
| | | | | | | | | | | | | | | | | | | | | |
| 25 | 104 | 86 | 68 | 68 | 67 | 50 | 91 | 50 | 16 | 30 | 30 | 30 | 10 | 10 | 7 | 18 | 5 | 26 | 0 | |
| 26 | 102 | 90 | 79 | 70 | 59 | 56 | 72 | 44 | 22 | 30 | 30 | 30 | 10 | 10 | 5 | 17 | 3 | 29 | 0.03 | Rain |
| 27 | 82 | 78 | 75 | 74 | 68 | 66 | 91 | 80 | 58 | 30 | 30 | 30 | 10 | 10 | 7 | 9 | 5 | 16 | 0.09 | Rain, Thunderstorm |
| 28 | 94 | 82 | 71 | 73 | 70 | 67 | 95 | 71 | 41 | 30 | 30 | 30 | 10 | 7 | 2 | 8 | 2 | - | 0.01 | Rain |
| 29 | 90 | 80 | 70 | 73 | 73 | 65 | 87 | 74 | 47 | 30 | 30 | 30 | 10 | 10 | 7 | 16 | 2 | 25 | 0.08 | Rain, Thunderstorm |
| 30 | 87 | 78 | 69 | 71 | 69 | 64 | 96 | 74 | 46 | 30 | 30 | 30 | 10 | 9 | 1 | 15 | 5 | 21 | 2.14 | Rain, Thunderstorm |
| 31 | 89 | 78 | 68 | 70 | 69 | 64 | 95 | 68 | 43 | 30 | 30 | 30 | 10 | 9 | 7 | 9 | 3 | - | 0 | |

<http://www.wunderground.com/history/airport/KXBP/2009/7/15/MonthlyHistory.html#calendar>

(August 2009)

| 2009 | Temp. (°F) | | | Dew Point (°F) | | | Humidity (%) | | | Sea Level Pressure (inch) | | | Visibility (mile) | | | Wind (mph) | | Gust (mph) | Precip (inch) | Events |
|----------|------------|-----|-----|----------------|-----|-----|--------------|-----|-----|---------------------------|-----|-----|-------------------|-----|-----|------------|-----|------------|---------------|--------------------|
| | high | avg | low | high | avg | low | high | avg | low | high | avg | low | high | avg | low | high | avg | high | sum | |
| August 1 | 92 | 82 | 71 | 72 | 68 | 68 | 93 | 70 | 44 | 30 | 30 | 30 | 10 | 9 | 2 | 9 | 1 | - | 0.32 | Rain, Thunderstorm |
| 2 | 95 | 83 | 71 | 72 | 71 | 66 | 94 | 64 | 38 | 30 | 30 | 30 | 10 | 10 | 10 | 10 | 3 | - | 0 | |
| 3 | 98 | 86 | 74 | 70 | 70 | 55 | 83 | 48 | 24 | 30 | 30 | 30 | 10 | 10 | 10 | 16 | 7 | 21 | 0 | |
| 4 | 98 | 86 | 75 | 68 | 64 | 60 | 75 | 56 | 31 | 30 | 30 | 30 | 10 | 10 | 10 | 13 | 2 | 18 | 0 | |
| 5 | 100 | 86 | 73 | 70 | 64 | 61 | 82 | 54 | 27 | 30 | 30 | 30 | 10 | 10 | 10 | 23 | 5 | 36 | 0 | |
| 6 | 96 | 85 | 74 | 72 | 69 | 64 | 83 | 64 | 39 | 30 | 30 | 30 | 10 | 10 | 10 | 15 | 8 | 22 | 0.03 | Rain |
| 7 | 98 | 86 | 75 | 74 | 72 | 62 | 89 | 56 | 31 | 30 | 30 | 30 | 10 | 10 | 10 | 14 | 8 | 21 | 0 | |
| 8 | 96 | 87 | 78 | 68 | 68 | 62 | 66 | 56 | 32 | 30 | 30 | 30 | 10 | 10 | 10 | 16 | 7 | 25 | 0 | |
| 9 | 97 | 88 | 78 | 69 | 67 | 60 | 66 | 58 | 30 | 30 | 30 | 30 | 10 | 10 | 10 | 15 | 6 | 23 | 0 | |
| 10 | 99 | 88 | 78 | 70 | 68 | 60 | 75 | 54 | 29 | 30 | 30 | 30 | 10 | 10 | 10 | 14 | 7 | 20 | 0 | |
| 11 | 89 | 83 | 77 | 70 | 66 | 64 | 76 | 64 | 44 | 30 | 30 | 30 | 10 | 10 | 10 | 16 | 7 | 24 | 0 | |
| 12 | 94 | 81 | 68 | 69 | 64 | 60 | 91 | 62 | 36 | 30 | 30 | 30 | 10 | 10 | 10 | 10 | 1 | - | 0 | |
| 13 | 94 | 80 | 65 | 66 | 58 | 57 | 88 | 61 | 36 | 30 | 30 | 30 | 10 | 10 | 10 | 12 | 3 | 17 | 0 | |
| 14 | 94 | 82 | 71 | 70 | 62 | 62 | 83 | 63 | 40 | 30 | 30 | 30 | 10 | 10 | 10 | 15 | 7 | 17 | 0 | |
| 15 | 99 | 88 | 76 | 69 | 69 | 59 | 76 | 51 | 26 | 30 | 30 | 30 | 10 | 10 | 10 | 17 | 6 | 24 | 0 | |
| 16 | 99 | 88 | 78 | 70 | 62 | 59 | 72 | 54 | 31 | 30 | 30 | 30 | 10 | 10 | 7 | 17 | 8 | 22 | 0 | |

| 2009 | Temp. (°F) | | | Dew Point (°F) | | | Humidity (%) | | | Sea Level Pressure (inch) | | | Visibility (mile) | | | Wind (mph) | | Gust (mph) | Precip (inch) | Events |
|------|------------|----|----|----------------|----|----|--------------|----|----|---------------------------|----|----|-------------------|----|----|------------|----|------------|---------------|--------------------|
| | | | | | | | | | | | | | | | | | | | | |
| 17 | 100 | 88 | 77 | 70 | 65 | 59 | 76 | 49 | 25 | 30 | 30 | 30 | 10 | 10 | 10 | 13 | 7 | 20 | 0 | |
| 18 | 95 | 84 | 74 | 70 | 67 | 62 | 83 | 62 | 34 | 30 | 30 | 30 | 10 | 10 | 10 | 12 | 8 | 18 | 0 | |
| 19 | 101 | 87 | 73 | 71 | 69 | 57 | 87 | 52 | 24 | 30 | 30 | 30 | 10 | 10 | 10 | 17 | 8 | 23 | 0 | |
| 20 | 100 | 90 | 80 | 69 | 63 | 59 | 65 | 50 | 26 | 30 | 30 | 30 | 10 | 10 | 10 | 14 | 11 | 18 | 0 | |
| 21 | 97 | 82 | 68 | 69 | 64 | 52 | 91 | 53 | 25 | 30 | 30 | 30 | 10 | 10 | 7 | 13 | 8 | 23 | 0.03 | Rain, Thunderstorm |
| 22 | 96 | 79 | 62 | 66 | 60 | 59 | 90 | 58 | 32 | 30 | 30 | 30 | 10 | 10 | 10 | 13 | 2 | 21 | 0 | |
| 23 | 99 | 84 | 68 | 68 | 62 | 62 | 84 | 58 | 33 | 30 | 30 | 30 | 10 | 10 | 10 | 12 | 3 | - | 0 | |
| 24 | 104 | 87 | 70 | 69 | 69 | 53 | 88 | 50 | 18 | 30 | 30 | 30 | 10 | 10 | 10 | 12 | 6 | 18 | 0 | |
| 25 | 105 | 88 | 71 | 69 | 66 | 52 | 85 | 48 | 17 | 30 | 30 | 30 | 10 | 10 | 10 | 8 | 6 | - | 0 | |
| 26 | 104 | 87 | 70 | 67 | 63 | 53 | 80 | 49 | 18 | 30 | 30 | 30 | 10 | 10 | 10 | 14 | 3 | 20 | 0.03 | Thunderstorm |
| 27 | 92 | 82 | 71 | 71 | 65 | 61 | 92 | 64 | 40 | 30 | 30 | 30 | 10 | 9 | 4 | 16 | 4 | 26 | 0.93 | Rain, Thunderstorm |
| 28 | 89 | 80 | 70 | 70 | 70 | 46 | 91 | 61 | 24 | 30 | 30 | 30 | 10 | 10 | 10 | 13 | 0 | 20 | 0 | |
| 29 | 89 | 75 | 61 | 63 | 59 | 55 | 90 | 58 | 32 | 30 | 30 | 30 | 10 | 10 | 10 | 15 | 0 | 22 | 0 | |
| 30 | 85 | 74 | 63 | 62 | 62 | 50 | 85 | 55 | 30 | 30 | 30 | 30 | 10 | 10 | 10 | 14 | 4 | 20 | 0 | |
| 31 | 85 | 74 | 62 | 61 | 60 | 54 | 88 | 60 | 35 | 30 | 30 | 30 | 10 | 10 | 5 | 9 | 0 | 16 | 0 | |

<http://www.wunderground.com/history/airport/KXBP/2009/8/15/MonthlyHistory.html#calendar>