Central and Southeast Texas Recreational Use Attainability Analyses Project
Caney Creek Above Tidal (Segment 1305) Comprehensive RUAA

Results Report

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Introduction

Problem Statement

Recreational Use Attainability Analyses (RUAA) are scientific assessments, that are used to determine existing and attainable recreational use for a water body, and if that use might be different than the presumed recreational use as specified in the Clean Water Act. In September, 2009 a Comprehensive RUAA was initiated on Caney Creek Above Tidal, segment 1305. This Comprehensive RUAA Report will provide Texas Commission on Environmental Quality (TCEQ) Standards Group with relevant information needed to determine the appropriate recreation use for Caney Creek Above Tidal. The completion of this comprehensive RUAA consisted of several important interrelated components including 1) reconnaissance and site selection, 2) comprehensive RUAA and 3) public outreach. The objectives of each component are listed below.

Objectives

1. Reconnaissance and Site Selection

The primary objective of this phase is to select survey sites that would be accessible to users and most likely characterize recreational uses in the watershed. This was accomplished primarily with the input of local, state and regional agency staff familiar with the watershed, as well as aerial imagery. An initial stakeholder meeting occurred on November 10, 2009 at the Lower Colorado River Authority (LCRA) Clean Rivers Program (CRP) partners meeting. Reconnaissance surveys were conducted on December 3, 2009 based on input from this meeting.

2. Comprehensive Recreational Use Attainability Analysis

The primary objective of the Caney Creek Above Tidal Comprehensive RUAA was to characterize the recreational use and potential impediments to that use for this stream. Basic

RUAA Field Surveys were conducted as part of the Comprehensive RUAA. The Basic RUAA field surveys were conducted on April 2nd and 3rd and May 14th, 21st, and 22nd 2010, to collect information on the water body and associated uses. During these dates field surveys were conducted at selected sites with the highest probability of detecting recreation use. The objective was to document and characterize observed use, site conditions (hydrology, physical attributes), and weather during the survey. In addition to the field activities previously discussed in the Basic RUAA Survey section, a historical information review and interviews were also conducted for the Comprehensive RUAA. The objective of the historical review and interviews was to supplement the data obtained from the field surveys and increase the probability of detecting and characterizing recreational uses in the watershed.

3. Public Participation

The objective of the public participation phase of the Comprehensive RUAA is to solicit as much information from various watershed stakeholders including agency staff, citizens, recreational user groups and other interested parties on the historical and current recreational uses in the Caney Creek Above Tidal segment. This included sending out email and phone messages to key organizations and staff familiar with the watershed. The stakeholder contact list is provided in Appendix 1. In addition, on November 10th, 2009, at the Lower Colorado River Authority (LCRA) Clean Rivers Program (CRP) partners meeting, a stakeholder meeting was held at the Matagorda Nature Center with 22 stakeholders in attendance to gather information on the watershed including likely recreational access points. A final public meeting was advertised via public notice by TCEQ and held at the Wharton County Library on August 6, 2010, with 5 stakeholders in attendance, to present the findings of this study to date and gather more information on potential observed or known recreational uses within the watershed from the

attending public. Public meeting, agendas, presentations, and sign-in sheets can be found in Appendix 7.

Study Area

Description of Water Body

Caney Creek Above Tidal is located within the Brazos-Colorado Coastal River Basin, in Wharton and Matagorda Counties. Segment 1305 classified by the TCEQ is approximately ninety-eight miles in length. Segment 1305 begins from a point 1.9 km (1.2 miles) upstream of the confluence of Linnville Bayou in Matagorda County to Old Caney Road in Wharton County. The assessment units sampled in this study are: 1) 1305_01 (Lower 18 miles of segment) 18 river miles. 2) 1305_02 (25 miles surrounding SH35) 25 river miles. 3) 1305_3 (Upper 55 miles of segment) 55 river miles (Figure 1).

The dominant land use categories in the watershed are: agriculture, heavy woods (dense understory), light woods (relatively thin, no under story), public, residential, and water. Approximately 80% of the area land use is agricultural, 15% woods, and 5% residential. Common crops in the area are rice, corn, cotton, and grain sorghum (US Army Corps of Engineers, 2006).

Environmental Features and Population Characteristics

The climate in the Caney Creek Above Tidal watershed is classified as having hot, humid summers with temperatures averaging 92°F in July and mild winters with temperatures averaging 41°F in January. The average rainfall for the area is 42.3 inches per year (US Army Corps of Engineers, 2006). The elevation of the area ranges from 50 to 150 feet above mean sea level. Most of the watershed is level to gently sloping causing runoff to move slowly off of the

landscape. The surface geology of the watershed is complex due to cyclic deposition of sediments producing discontinuous beds of sand, silt, clay, and gravel.

Human activities have altered both the land use and vegetation cover of the Caney Creek Above Tidal watershed. These activities include the construction or roads and instream sewer lines, conversion of land for agriculture, and the building of commercial businesses and residential neighborhoods. Agriculture trends in this area are sorghum, cotton, rice and grazing (hay) (USDS, 2007). The flow of water in Caney Creek Above Tidal has been highly modified by the water control structures that have been constructed by residents in the upper portion of the creek. The segment has been blocked causing multiple intermittent pools restricting total net flow of water (expect for high flow, wet weather events) in the upper reaches of Caney Creek Above Tidal.

The population Wharton County in 2000 was estimated to be 37,957 people, with an overall average population density of 34.1 persons per square mile (U.S. Census Bureau, 2000). The population of Matagorda County in 2000 was estimated to be 41,188 people, with an overall average population density of 37.8 persons per square mile (U.S. Census Bureau, 2000).

Watershed Characterization

Through much of Wharton County and especially the city of Wharton, the channel is not well defined, tremendously disturbed, and essentially non-existent. As the city developed, the creek was modified and filled in many areas (Army Corps of Engineers, 2006). Caney Creek Above Tidal is on the state's 303(d) list for exceeding the bacteria criteria associated with primary recreation uses.

Permitted Discharges (Municipal, Industrial, Stormwater)

Caney Creek Above Tidal is affected by domestic wastewater discharges and by storm water runoff from agricultural, industrial, and urban areas (Figure 1). Under the Texas Pollutant Discharge Elimination System (TPDES), the TCEQ has issued permits to discharge treated wastewater to 3 facilities that have direct drainage into segment 1305. The TCEQ permit numbers are: 10663-001, 10843-001, and 11768-001 (TCEQ: outfalls_wastewater_Nov08 GIS layer).

Potential Nonpoint Sources

Sanitary sewer overflows and waste water treatment facilities (WWTF) bypasses are always possible sources of bacteria loadings to receiving waters in urban areas. However, the Caney Creek Above Tidal watershed, is relatively rural with few permitted WWTF. This suggests that there are potentially a high number of on-site sewage facilities (OSSF or septic systems) in use in the watershed. OSSF require routine repairs and maintenance, in general should be replaced every 15 years to avoid failures causing potential leaks or overflows. Poorly maintained OSSF are a potential source of bacteria loadings into Caney Creek Above Tidal.

Directly adjacent to Caney Creek Above Tidal there are many agriculture grazing tracts. These tracts at times provide livestock with direct access to the creek. Evidence of direct access was witnessed at reconnaissance sites 7, 12, 14, 21, 23, 24, and 25 where livestock were documented along the river bank. Direct contact with agriculture grazing is known to increase fecal bacteria in waterways. This is another potential source of bacteria loading into the Caney Creek Above Tidal watershed.

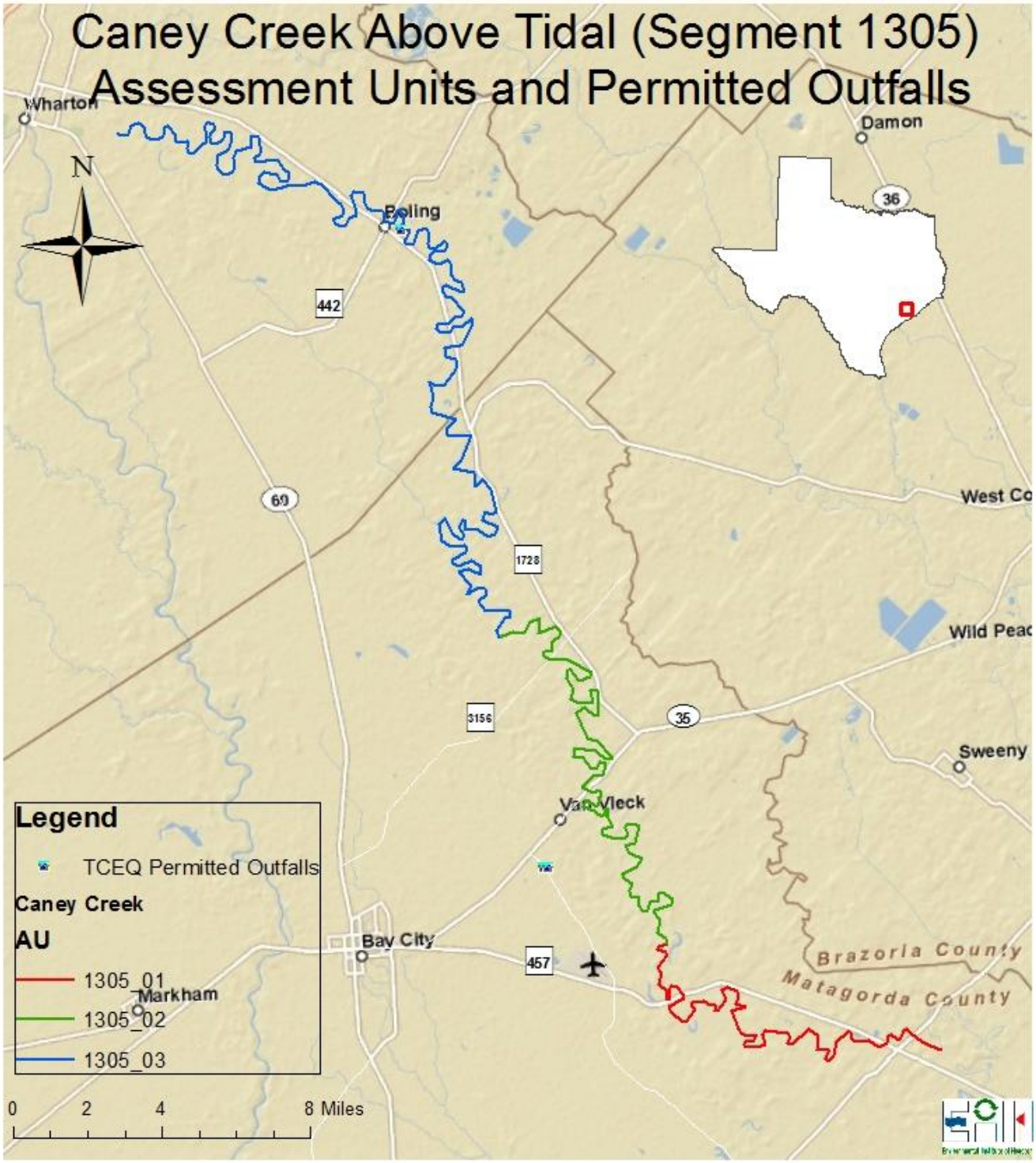


Figure 1. Assessment Units and Permitted Outfalls in Caney Creek Above Tidal (Segment 1305) for Comprehensive Recreational Use Attainability Analysis Survey.

History of Recreational Use in Caney Creek Above Tidal

Historical Summary

Caney Creek, originally named Canebrake Creek after the dense cane growth that banked its sides until white settlement of the area. Several thousand years ago the current Caney Creek channel served as the channel of the Colorado River. Since the early 1900s Caney Creek, which has the wide meanders that characterize an old stream, passes several towns and communities as an intermittent streambed until it enters Matagorda County, where it takes on water from several sloughs and drainage areas to become a flowing stream. Most of the area surrounding the stream is used for the production of rice and other grains as well as cotton and improved pasture for cattle (Handbook of Texas, 2010). Boating on Caney Creek, historically was used as an avenue to transport, sugar and other crops/supplies. Documentation of historical recreational use in the form of boating, fishing, and swimming was not found by UHCL.

Birding

Birding in Central and South Central Texas is a popular recreational pastime, bringing local residence and tourists to the Caney Creek Above Tidal watershed. In Shifra Steins book: Day Trips from Houston, Wharton is a suggested destination for goose an duck hunting, suggesting local guides.

Parks

There are no publicly accessible parks directly adjacent to Caney Creek Above Tidal. The above tidal portion of Caney Creek is dominated by private property, fenced with no trespassing signs. Public access to the waterway is limited to bridge crossings.

Site Reconnaissance Summary

Perspective sites were chosen based on public access and documented uses from the initial public working group meeting on 11/10/2009. Initial reconnaissance surveys were conducted on 12/3/2009. A total of 31 perspective sites were visited, of these 21 were accessible enough to complete the reconnaissance (Table 1, Figure 4). All sites that were not recommended were either not publically accessible, or there was no access to the water due to barbed wire fences running parallel to the river. Public access was lacking due to the posting of numerous no trespassing signs, gated roadways, no parking signs, etc. Site suggestions were submitted to TCEQ as part of the Quality Assurance Project Plan's (QAP) Monitoring Plan which was approved by TCEQ on 12/18/2010.

Methodologies

RUAA Survey Site Selection and Descriptions

The target density of survey sites should be approximately three (3) sites per every five (5) miles of stream (TCEQ 2009). During our study survey sites were established in areas where the water body is accessible to the public and had the highest potential for recreational use (road crossings, public lands/parks located near the water body, and populated areas). A total of twenty one (21) survey sites were established (Table 2 & Figure 5). These sites were chosen based on public access potential and also providing sufficient spatial coverage throughout each assessment unit. Caney Creek Above Tidal is generally a rural area, lined by largely private property which limits public access. Therefore in portions where the recommended three (3) sites per every five (5) miles of stream was not possible, supplementary information was gathered through coordination with local authorities (Appendix 7), conducting

interviews (Appendix 3), and using topographic maps and aerial photos to document potential private access points (reconnaissance sites).

Extensive interviews were collected to help determine what kind of contact recreation occurred along the privately owned potions of the stream. These interviews resulted in additional background information which confirmed that recreation was most likely to occur at sites identified in this study, and also confirmed the many limitations to public access along the stream. Every effort was made for the interviewees to provide recreational use information about the entire length of the segment including areas other than the selected sites in this RUAA. Topographic maps were used to provide the needed geographic information about potential recreational opportunities and potential access points along Caney Creek Above Tidal. The topographic map and aerial imagery review resulted in site selection for the reconnaissance site visits. The reconnaissance site visits confirmed the limited public access along the creek. Caney Creek Above Tidal physical characteristics can be generalized into two categories: AU_1305_03 pool complexes with little to no flow (Figure 2) and AU_1305_01 and AU_1305_02 with more channelized creek (Figure 3). Figure 2 was taken at field survey site 1, and is a good representative of the general site conditions documented in assessment unit 1305_03. Figure 3 was taken at field survey site 16, and is a good representative of the general site conditions documented in assessment units 1305_01 and 1305_02.

Figure 2. Picture of field survey site 1, showing the general representation of the physical conditions seen on the Caney Creek Above Tidal assessment unit 1305_03

Figure 3. Picture of field survey site 16, showing the general representation of the physical conditions seen on the Caney Creek Above Tidal assessment units 1305_01 and 1305_02

Table 1. Site reconnaissance for comprehensive RUAA on Caney Creek Above Tidal (Segment 1305).

Recon Site	Description	Latitude	Longitude	Aprox. River Mile	Public Access	Water Access	Recommended Site
1	Old Caney Road Dirt Road @Caney Creek	29.306280	-96.056898	91.0	Gate across road, no public access	No access, private property	No
2	Knox Drive @ Caney Creek	29.302167	-96.044673	89.9	No access, private property	No access, private property	No
3	Knox & N. Caney Trails @ Caney Creek	29.302110	-96.044620	89.7	Can park on side of road in grass	Barbed wire fence on upstream, right bank; easy access on downstream side	Yes
4	Hubenak Ln @ Caney Creek	29.304730	-96.037080	89.1	Can park on side of road in grass	Easy access downstream	Yes
5	Kriegel Road @ Caney Creek	29.296915	-96.027787	88.0	Fenced on both sides of road, no access	Fenced along on both sides, no water access	No
6	May Rd. and Brod Rd @ Caney Creek	29.303840	-96.011450	85.6	Can park on side of road in grass	Good access, not fenced	Yes
7	Brod Rd. @ Caney Creek	29.296540	-96.014510	85.0	Can easily park in grass on side of road	Fenced along on both sides, no water access	No
8	May Rd #2 @ Caney Creek	29.301400	-96.003106	82.7	No water, not observable	No water, not observable	No
9	May Rd and CR 109 @ Caney Creek	29.300050	-95.999020	82.3	Can park on side of road in grass	Barbed wire fence upstream across water	Yes
10	FM 2817 @ Caney Creek	29.282700	-95.983970	78.2	Can park on side of road	Barbed wire fence across creek downstream of bridge	Yes
11	FM 1301 #2 @ Caney Creek	29.283748	-95.977369	77.8	Private road, no access	No access, private property	No
12	FM 1096 @ Caney Creek	29.275670	-95.965090	76.9	Can park on side of road	Easy bank access at bridge, fenced upstrm, open dwnstrm	Yes
13	Railroad St. @ Caney Creek	29.274940	-95.958760	75.0	Good, can pull off road into grass	Easy, overgrown bank	Yes
14	FM 442 @ Caney Creek	29.266330	-95.942900	73.1	Easy pull off	Barbed-wire fence downstream of bridge across water, easy water access	Yes
15	N. Sinclair Street @ Caney Creek	29.264110	-95.939030	72.0	Can park at back of school	Overgrown banks	Yes
16	New Gulf Rd @ Caney Creek	29.245330	-95.916010	67.6	Can park on side of road	Very overgrown banks, no water access	No
17	New Gulf Rd #2 @ Caney Creek	29.240589	-95.920946	66.3	Can park along road easily	Very overgrown banks, no water access	No
18	FM 1301 #4 @ Caney Creek	29.217490	-95.914860	62.3	Can park on shoulder, busy 65mph road	Barbed wire across water on both sides of bridge	Yes
19	Stubblefield Rd @ Caney Creek	29.183950	-95.920154	58.2	Place to park on the right bank, just before the bridge	Barbed wire right and left banks upstream, small foot path on left bank	Yes
20	CR 105 @ Caney Creek	29.162650	-95.907420	55.5	No place to pull off, just parked on one-lane road or in grass	Easy water access but bank vegetation and debris in water downstream	Yes
21	Old Van Vleck Rd. @ Caney Creek	29.064320	-95.863350	33.5	Parked on side of road in grass, nowhere to pull off and park	Overgrown banks, cement under bridge so can get to water	Yes
22	Allenhurst Rd @ Caney Creek	29.004260	-95.845480	22.0	Paked in grass along road	Fences downstream right bank and upstream left bank	Yes
23	Grisham Rd. @ Caney Creek	28.947560	-95.800860	9.6	Can park in grass along road	Rigth bank fenced up and downstream, left bank no fences but overgrown	Yes
24	Fay Ranch Rd. @ Caney Creek	28.942450	-95.765160	5.5	Dirt road - no parking but able to pull off on grass, cattle guards	Right bank on up and downstream sides overgrown vegetation, left bank mowed to water	Yes
25	Hill Road @ Caney Creek	29.168190	-95.909810	56.0	Small place to park in grass	Fenced along on both sides, no water access	No
26	Runnels-Pierce @ Caney Creek	29.122671	-95.909906	45.8	No access, private property	No access, private property	No
27	FM 3156 @ Caney Creek	29.093440	-95.878630	39.5	No parking, parked in grass alongside road	Overgrown banks	Yes
28	SH 35 @ Caney Creek	29.041860	-95.863550	28.9	No parking, parked in grass alongside road	Cement down to water under bridge only access, no visible fences but overgrown banks	Yes
29	FM 157 @ Caney Creek	29.960620	-95.824060	15.0	Can park on wide shoulder	Barbed-wire fence on right bank, but not on left	Yes
30	FM 457 @ Caney Creek	28.938330	-95.736150	2.1	Parking off CR154 at abandoned building	Overgrown banks, barbed-wire fence into water left bank down and upstream	Yes
31	FM 521 @ Caney Creek	28.941200	-95.722450	0.8	Can possibly pull off on CR160, no real public access	Overgrown banks with barbed wire	Yes

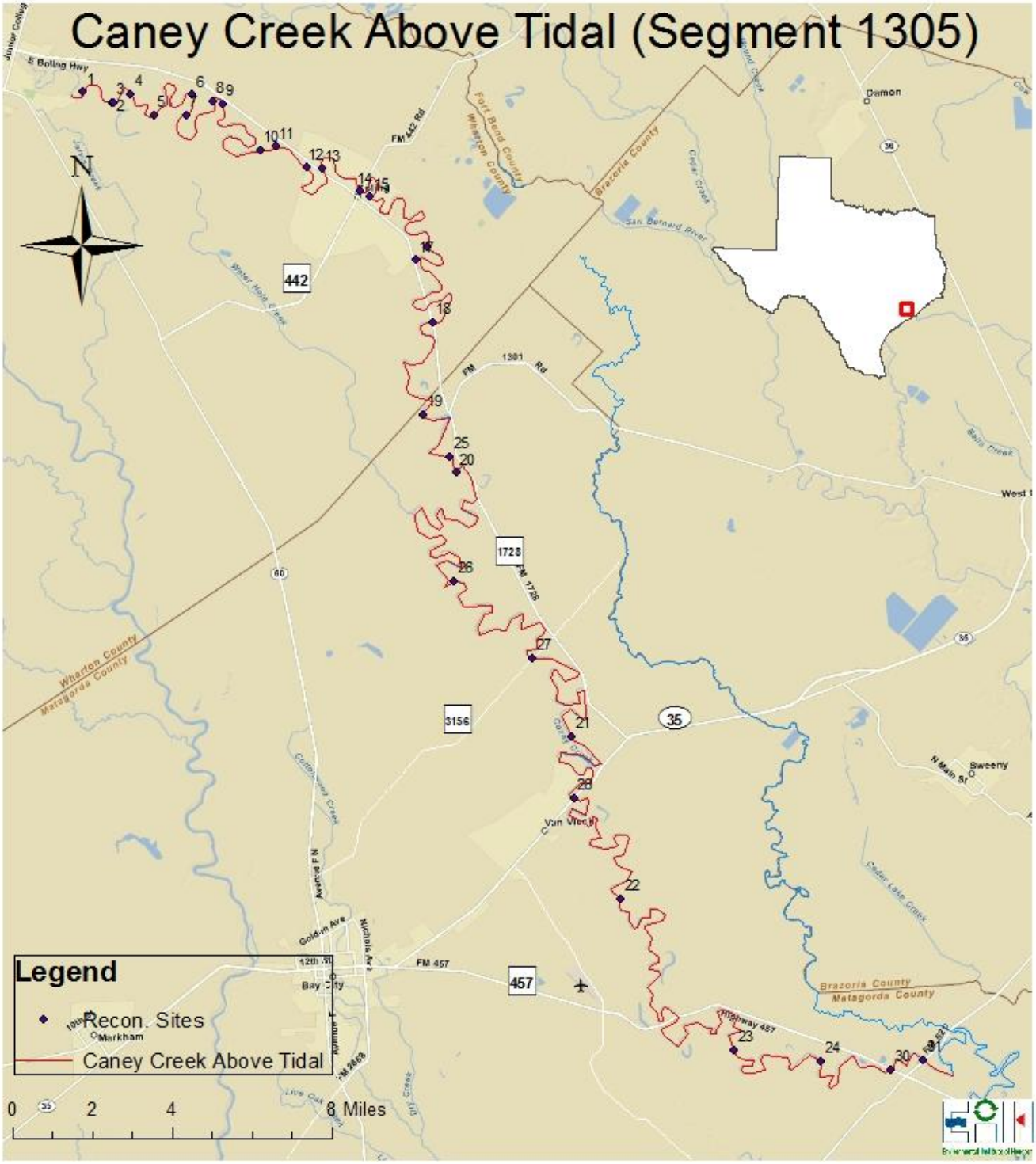
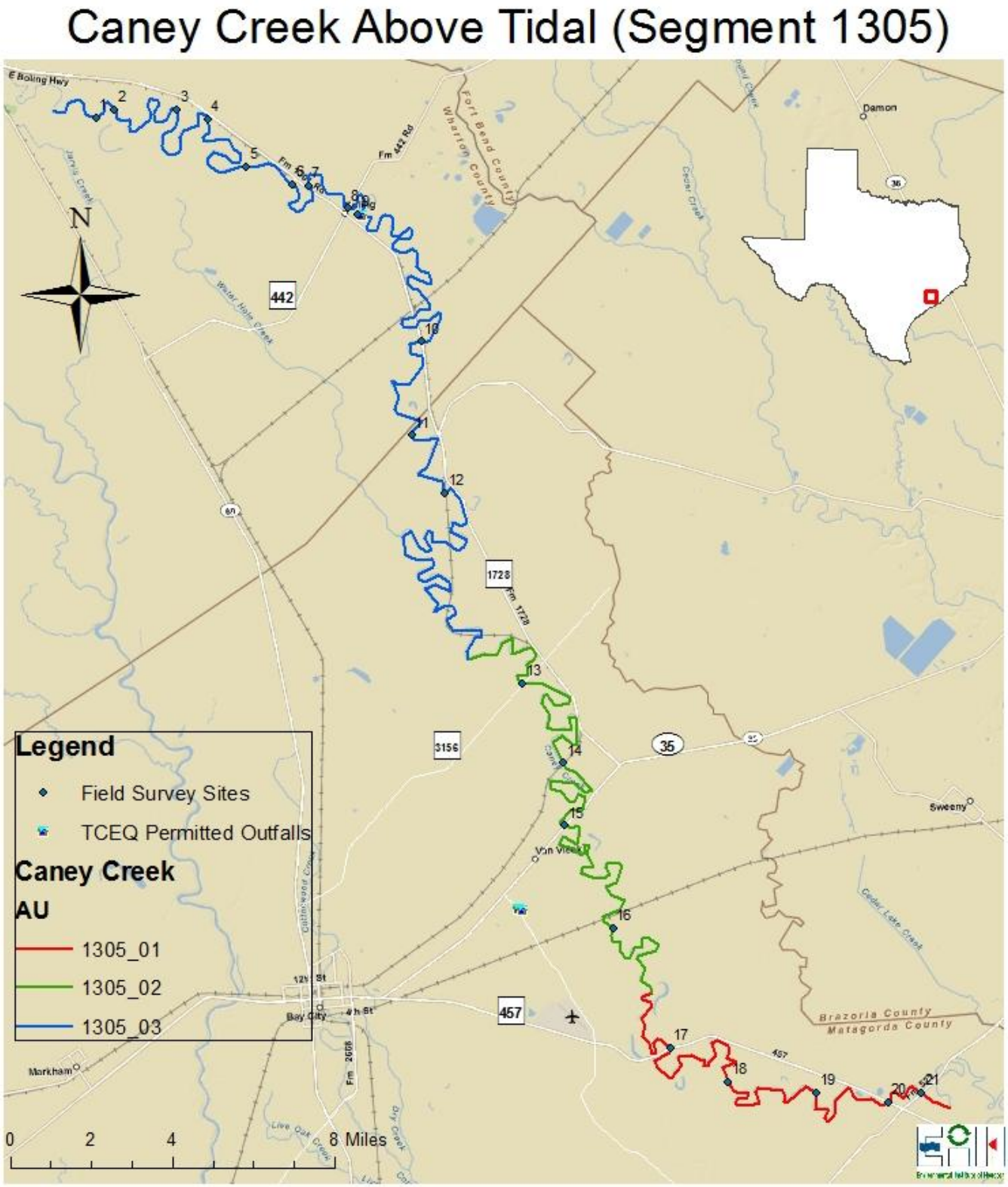


Figure 4. Reconnaissance sites for comprehensive RUAA in Caney Creek Above Tidal (Segment 1305)

Table 2. Survey sites for the Comprehensive RUAA Survey on Caney Creek Above Tidal (Segment 1305) (corresponding to Figure 3).

Field Survey Site	Description	Latitude	Longitude	Aprox. River Mile	Assessment Unit
1	Knox & N. Caney Trails @ Caney Creek	29.30211	-96.04462	89.7	1305_03
2	Hubenak Ln @ Caney Creek	29.30473	-96.03708	89.1	1305_03
3	May Rd. & Brod Rd @ Caney Creek	29.30384	-96.01145	85.6	1305_03
4	May Rd & CR 109 @ Caney Creek	29.30005	-95.99902	82.3	1305_03
5	FM 2817 @ Caney Creek	29.28270	-95.98397	78.2	1305_03
6	FM 1096 @ Caney Creek	29.27567	-95.96509	76.9	1305_03
7	Railroad St. @ Caney Creek	29.27494	-95.95876	75.0	1305_03
8	FM 442 @ Caney Creek	29.26633	-95.94290	73.1	1305_03
9	N. Sinclair Street @ Caney Creek	29.26411	-95.93903	67.6	1305_03
10	FM 1301 @ Caney Creek	29.21749	-95.91486	62.3	1305_03
11	Stubblefield Rd @ Caney Creek	29.18395	-95.92015	58.2	1305_03
12	CR 105 @ Caney Creek	29.16265	-95.90742	55.5	1305_03
13	FM 3156 @ Caney Creek	29.09344	-95.87863	39.5	1305_02
14	Old Van Vleck Rd @ Caney Creek	29.06432	-95.86335	33.5	1305_02
15	SH 35 @ Caney Creek	29.04186	-95.86355	28.9	1305_02
16	Allenhurst Rd @ Caney Creek	29.00426	-95.84548	22.0	1305_02
17	FM 457 @ Caney Creek	28.96062	-95.82406	15.0	1305_01
18	Grisham Rd @ Caney Creek	28.94756	-95.80086	9.6	1305_01
19	Fay Ranch Rd @ Caney Creek	28.94245	-95.76516	5.5	1305_01
20	FM 457 @ Caney Creek	28.93833	-95.73615	2.1	1305_01
21	FM 521 @ Caney Creek	28.94120	-95.72245	0.8	1305_01

Figure 5. Comprehensive RUAA survey sites on Caney Creek Above Tidal (Segment 1305) selections based on river mile/assessment units, accessibility, and recreational features.



Sampling Methods

RUAAs are used to determine current and attainable recreational use to individual water bodies. Applicable uses and associated criteria are defined in the Texas Surface Water Quality Standards (TSWQS). Until recently, Texas had two recreation use categories in the 2000 TSWQS: contact and noncontact recreation. Until recently, Texas had two recreation use categories in the 2000 TSWQS: contact and noncontact recreation. Recently these recreation use categories were expanded to include more categories: primary contact, and secondary contact recreation (1 &2). Primary contact recreation consists of recreational activities involving a significant risk of ingestion of water including: wading by children, swimming, water skiing, diving, and surfing. Secondary contact recreation 1 is considered water recreation activities not involving a significant risk of water ingestion: including fishing, commercial and recreational boating, and limited body contact incidental to shoreline activity. Secondary contact recreation 2 follows the same definition as secondary contact recreation 1 except that it occurs less frequently due to (1) physical characteristics of the water body and/or (2) limited public access.

According to TCEQ agency guidance, a comprehensive RUAA must be conducted on Caney Creek Above Tidal since it is a classified water body (Segment 1305). RUAA Surveys must be conducted during the normal warm season and periods when people would be most likely use the water body for contact recreational purposes. RUAA surveys must also be conducted during optimal sampling conditions that are representative of the normal flow conditions of the stream and are not storm-influenced. RUAA field surveys for Caney Creek Above Tidal (Segment 1305) were conducted during April 2 and 3 and May 14, 21, and 22, 2010. More specific procedures can be found in *TCEQ's RUAA Procedures Document, May 2009.*

Field Survey Descriptions

A Comprehensive RUAA field survey begins with marking off a 300 meter (m) reach of the waterway, flagging every 30 meters. Sites with public accessibility limitations may not be fully assessed in this way, in instances such as these a laser range finder was used to document the length of the stream reach that could be observed. A flow measurement (where possible) is then taken within the 300m stream reach. If the waterbody is wadeable, a depth measurement is taken every 30m and width measurements are taken at the widest, narrowest, and average width points within the 300m reach. Pictures are taken to document the survey at 30, 150, and 300m facing upstream, right bank, downstream, and left bank. Air temperature and water temperature are also recorded at an easily accessible location. Finally the Comprehensive RUAA datasheets are completed to document any recreational uses, signs of recreational use, impeding conditions, or other field notes taken during the field survey. Depth measurements for sites that were considered non-wadeable were taken from available bridges at the deepest point accessible.

Due to impediments affecting stream access, complete field survey methods were not possible at some locations on Caney Creek Above Tidal. Impediments to stream access, such as steep banks and water depth exceeding 1.5 meters, at times limited the field survey team's ability to survey the complete 300m stretch of stream. In each case where this was a factor, the impediments were documented on the field data sheet and documenting pictures of these conditions were taken. Specific impediments causing access constraints for each site can be found in Appendix 2 and 5.

Interviews

When possible, interviews were conducted on field survey visits (Appendix 3). Targets for in person interviews were selected because of proximity to the waterbody and in some cases

adjacent land/homeowners were solicited. Other stakeholders were interviewed via telephone (Appendix 3). The Environmental Institute of Houston's Interview Protocol Guideline is attached as Appendix 4.

Results

The 98 miles of the Caney Creek Above Tidal was evaluated using a total of 21 survey sites each surveyed twice. Roadside surveys were conducted when access was not permitted or possible. Two field survey visits were completed between April and May, 2010. The initial field surveys took place over the span of two days (4/2/2010 and 4/3/2010). The second site visits took place on 5/14/2010, 5/21/2010, and 5/22/2010. The second site visits could not be completed the weekend of the 14th due to rain, thus was completed the next fair weather weekend. All field data sheets are attached (Appendix 2).

Physical Evaluation and Flow

During the RUAA surveys the average air temperature (28.76 °C) and water temperature (25.80 °C) fell well within the range of acceptable temperatures for sampling described in the TCEQ procedures manual (Table 3, Appendix 6). The average thalweg depth of Caney Creek Above Tidal is 0.6m and the average width is 10.2m. The average secchi tube reading taken at the field survey sites was 0.36m (Table 3).

Caney Creek Above Tidal is described as an intermittent water body in assessment unit (AU) 1305_03, with no flow after long periods of no rain, while AU 1305_01 and AU 1305_02 can described as having perennial flow. There was no notable flow recorded for sites 1-12 (AU 1305_03). The average flow for sites 12-21 (AU 1305_01 and AU 1305_02) was 9.32cfs in dry weather conditions (Table 3). The total average flow for all sites in dry weather conditions was

4.97cfs. Three sites (14-16) were sampled after a moderate rain based on the data we estimated stream flow to be 59.7cfs.

Caney Creek Above Tidal riparian zone can generally be broken down into three segments, the upstream extent is mowed/maintained corridor, the middle section is forest and pasture, and the downstream extent is a shrub dominated corridor (Table 4). The dominant substrate along Caney Creek Above Tidal (Segment 1305) was generally composed of Mud/Clay, which made it difficult to navigate at times. Investigators would often sink past their ankles while attempting to wade across the waterway.

Surrounding Conditions that Impede Recreation and Channel Obstructions

Impediments to stream recreation and channel obstructions on Caney Creek Above Tidal were recorded at the field survey site visits and include: private property, steep slopes, fences, log jams, culverts, thick vegetation, and debris. The most frequently observed impediment to recreational use was fences. Caney Creek Above Tidal has limited public access in areas due to the large amount of privately owned land surrounding the creek. A complete listing of the documented stream recreational use impediments and their locations can be found in Table 6, and Appendix 8.

Recreational Uses

One person was observed carrying out primary contact recreation activities on Caney Creek Above Tidal (Table 5). The one instance of observing a child-wading occurred when two young boys walked their canoe over a shallow water sand bar in a substantial pool. This activity occurred at field survey site #1. Uses observed from all combined site visits include: children-wading, canoeing, and fishing (Table 5). Various non-contact activities were recorded (Table 5). Indications of human use were recorded on Caney Creek Above Tidal and included evidence

such as children's toys, fishing tackle, and foot paths/prints (Table 6, Appendix 8). Based on observations made in the field, no public parks were found adjacent to the creek.

Interviews

A total of 121 individuals were contacted for an interview throughout the Comprehensive RUAA on Caney Creek Above Tidal (TCEQ Segment 1305) a total of 81 of those individuals agreed to participate in the interview. Of the 81 total, 13 were interviewed in person and 68 by phone. A total of 44 out of the 81 interviewed answered yes to the question "Are you familiar with Caney Creek Above Tidal?" Of those, 26 had personally used the stream for recreation, 33 had observed recreation activities, and 19 had heard about recreation on Caney Creek Above Tidal. The total numbers of years that interviewees were familiar with the Caney Creek Above Tidal Watershed were over 1,300 man-years.

The types of recreational uses documented by interviews included a number of primary contact recreations such as: swimming, snorkeling, water skiing, and wading-children (Figure 6, Table 5). The local TSSWCB staff member present at the stakeholder meeting reiterated the fact that he has personally swam in the waterway. Secondary contact uses documented by interviews included: tubing, jet skiing, boating, kayaking, canoeing, and fishing. Non contact uses included: trapping, hunting and walking/hiking, RV/ATV, and playing on shoreline. Figure 6 does not include all recorded uses, and the locations are approximate. Please see Appendix 8, an electronic supplement for the complete depiction of the observed uses, evidence of uses, interviewed uses in the form of personal uses, witnessed use, and hear-say use, and impediments.

Table 3.Average physical parameters from the two comprehensive recreational use attainability analysis field surveys conducted on August 7, 8 and 14, 2009, at Caney Creek Above Tidal (Segment 1305) * = Unable to take flow due to physical parameters.

Field Survey Site	Site Description	Average Depth (m)	Average Width (m)	Air Temp (°C)	Water Temp (°C)	Secchi Tube (m)	Average Flow
1	Knox & N. Caney Trails @ Caney Creek	1.1	22.2	28.25	26.50	0.90	2.31
2	Hubenak Ln @ Caney Creek	1.0	10.8	28.00	25.50	0.82	0.50
3	May Rd and Brod Rd @ Caney Creek	0.3	11.4	29.00	26.50	0.47	-0.02
4	May Rd and CR 109 @ Caney Creek	0.5	4.8	27.50	24.50	0.66	0.00
5	FM 2817 @ Caney Creek	0.1	7.3	26.50	24.00	0.54	*
6	FM 1096 @ Caney Creek	0.3	8.8	27.00	24.50	0.47	-0.32
7	Railroad St @ Caney Creek	0.8	20.2	27.75	21.00	1.10	-0.29
8	FM 442 @ Caney Creek	0.2	0.7	31.00	27.00	0.58	*
9	N. Sinclair St @ Caney Creek	0.5	8.1	32.75	25.25	0.22	-0.56
10	FM 1301 @ Caney Creek	0.2	5.3	32.50	26.00	0.84	0.21
11	Stubblefield Rd @ Caney Creek	0.6	14.0	31.50	30.75	0.27	-0.57
12	CR 105 @ Caney Creek	1.2	5.6	32.50	30.00	0.52	0.18
13	FM 3156 @ Caney Creek	0.3	6.8	25.50	25.50	0.56	0.25
14	Old Van Vleck Rd @ Caney Creek	0.3	9.4	29.50	26.00	0.16	1.00
15	SH 35 @ Caney Creek	0.3	6.4	25.50	25.25	0.54	1.65
16	Allenhurst Rd @ Caney Creek	0.4	7.7	29.50	25.25	0.53	3.14
17	FM 157 @ Caney Creek	0.7	5.5	27.00	26.50	0.36	6.51
18	Grisham Rd @ Caney Creek	1.5	21.4	28.50	27.00	0.58	36.66
19	Fay Ranch Rd @ Caney Creek	1.5	23.6	28.00	26.50	0.47	36.66
20	FM 457 @ Caney Creek	0.7	7.9	29.00	24.50	0.68	3.69
21	FM 521 @ Caney Creek	0.8	9.7	27.25	23.75	0.75	3.48
	Total Average	**0.64**	**10.37**	**28.76**	**25.80**	**0.57**	**4.97**

Table 4.Physical Characteristics of Riparian Zone and Dominant substrate of the field survey sites sampled on August 7, 8 and 14, 2009, during the Comprehensive Recreational Use Attainability Analysis on Caney Creek Above Tidal (Segment 1305)

Field Survey Site	Site Description	Left Bank Riparian Zone	Right Bank Riparian Zone	Ease of Bank Access to Water	Dominant Primary Substrate
1	Knox & N. Caney Trails @ Caney Creek	Mowed/maintained corridor	Mowed/maintained corridor	Easy	Mud/Clay
2	Hubenak Ln @ Caney Creek	Mowed/maintained corridor	Mowed/maintained corridor	Easy	Mud/Clay
3	May Rd and Brod Rd @ Caney Creek	Mowed/maintained corridor	Mowed/maintained corridor	Easy	Silt
4	May Rd and CR 109 @ Caney Creek	Shrub dominated corridor	Shrub dominated corridor	Easy	Mud/Clay
5	FM 2817 @ Caney Creek	Mowed/maintained corridor	Mowed/maintained corridor	Easy	Mud/Clay
6	FM 1096 @ Caney Creek	Mowed/maintained corridor	Mowed/maintained corridor	Easy	Mud/Clay
7	Railroad St @ Caney Creek	Shrub dominated corridor	Shrub dominated corridor	Moderatly Easy	Silt
8	FM 442 @ Caney Creek	Mowed/maintained corridor	Mowed/maintained corridor	Easy	Mud/Clay
9	N. Sinclair St @ Caney Creek	Mowed/maintained corridor	Mowed/maintained corridor	Easy	Mud/Clay
10	FM 1301 @ Caney Creek	Pasture	Pasture	Moderatly Easy	Mud/Clay
11	Stubblefield Rd @ Caney Creek	Pasture	Pasture	Moderatly Difficult	Silt
12	CR 105 @ Caney Creek	Forest	Forest	Moderatly Difficult	Mud/Clay
13	FM 3156 @ Caney Creek	Forest	Forest	Easy	Silt
14	Old Van Vleck Rd @ Caney Creek	Forest	Forest	Moderatly Easy	Mud/Clay
15	SH 35 @ Caney Creek	Forest	Forest	Moderatly Difficult	Mud/Clay
16	Allenhurst Rd @ Caney Creek	Forest	Shrub dominated corridor	Moderatly Difficult	Mud/Clay
17	FM 157 @ Caney Creek	Mowed/maintained corridor	Shrub dominated corridor	Moderatly Difficult	Mud/Clay
18	Grisham Rd @ Caney Creek	Pasture	Pasture	Moderatly Difficult	Mud/Clay
19	Fay Ranch Rd @ Caney Creek	Mowed/maintained corridor	Mowed/maintained corridor	Easy	Sand
20	FM 457 @ Caney Creek	Denuded/eroded bank	Denuded/eroded bank	Easy	Mud/Clay
21	FM 521 @ Caney Creek	Shrub dominated corridor	Shrub dominated corridor	Moderately Easy	Mud/Clay

Table 5. Recreational uses observed and documented on Caney Creek Above Tidal (Segment 1305) for the Comprehensive Recreational Use Attainability Analysis..

	Types of Recreation	Field Survey Observations	Interviews			Total
			Personal Use	Witnessed	Hearsay	
1°	Swimming		11	8	4	**23**
	Baptisims		1			**1**
	Water skiing		4	2		**6**
	Wading -Children	1	6	5	2	**14**
2°	Wading -Adults		4	4	2	**10**
	Boating		10	12	4	**26**
	Kayaking		5	2	4	**11**
	Canoeing	1	8	6	1	**16**
	Fishing	1	21	30	13	**65**
non	Hunting		6	3	3	**12**
	Trapping	1				**1**
	Walking/Hiking	11	2	1	1	**15**
	Camping			1		**1**
	Bicycling					**0**
	Playing on shoreline	1				**1**
	Motorcycle/ATV	2				**2**
	Wildlife watching		1	1		**2**

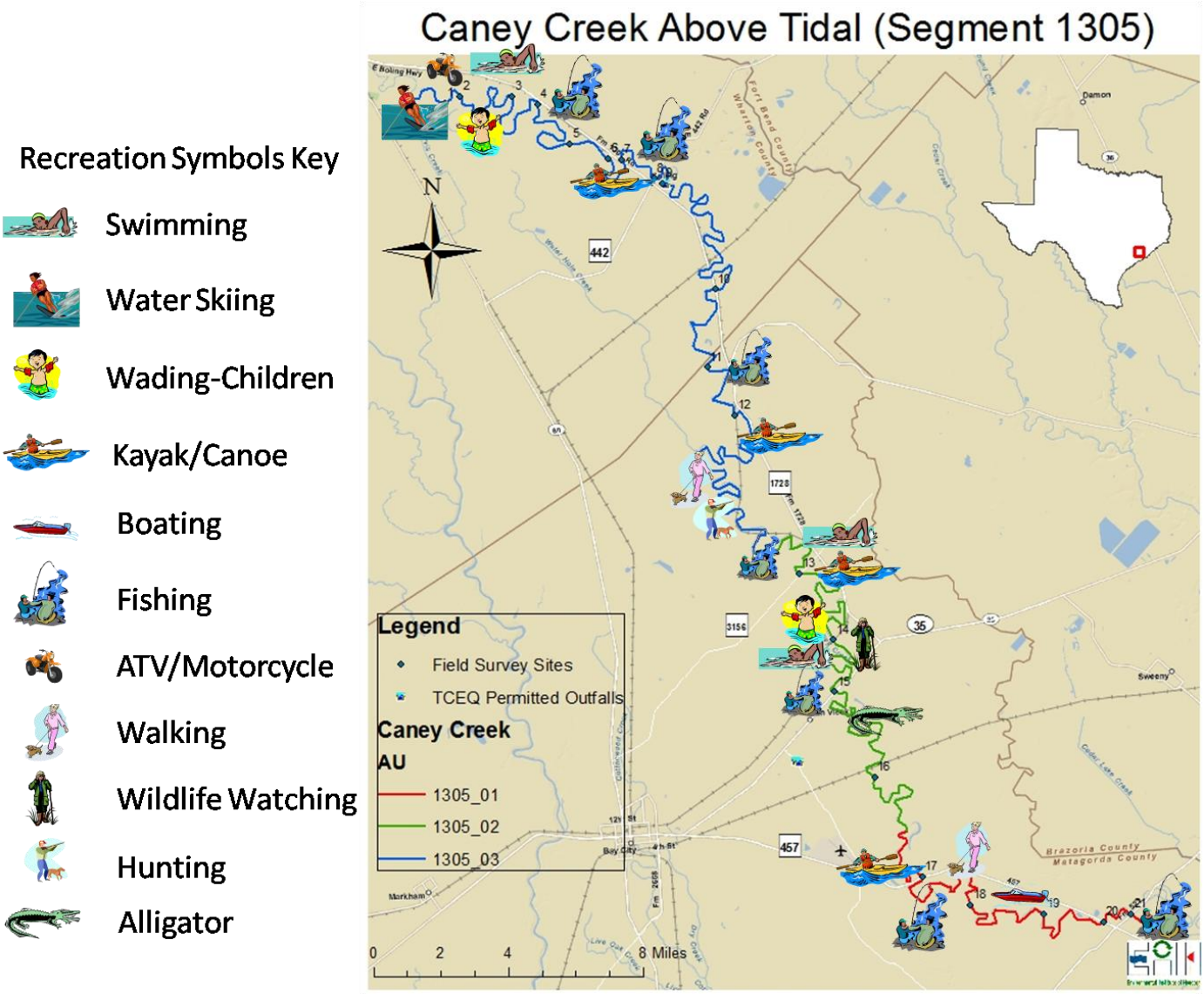


Figure 6. Comprehensive RUAA survey sites on Caney Creek Above Tidal (Segment 1305) selections based on river mile/assessment units, accessibility, and recreational features. (constructed from observations, interviews, and evidence) This map does not include all recorded uses and locations and locations are approximate. See Appendix 8 for more exact locations.

Table 6. Impediments, evidence of recreational uses, observed recreational uses, and interviewed documented uses by site on Caney Creek Above Tidal (Segment 1305) for the Comprehensive Recreational Use Attainability Analysis by location. Corresponds to Appendix 8: Google Earth Interactive Map.

Field Survey Site	Site Description	Impediments	Evidence	Observed	Personal Use	Witnessed Use	Hear-say Use
1	Knox & N. Caney Trails @ Caney Creek	Culverts, Private property	Motorcycle/ATV, Children's Toys, Dock/Platform, Fishing tackle, Paddle boats on bank	Motorcycle/ATV, Canoeing, Fishing, Standing, Wading-children, Walking, Playing on shoreline	Boating, Canoeing, Fishing, Swimming, Water Skiing,	Boating, Canoeing, Fishing, Swimming	Canoeing, Fishing, Boating, Swimming
2	Hubenak Ln @ Caney Creek	Log jams, Culverts, Fence, Private property, Wildlife	Children's Toys, Fire pit/ring, Foot paths/prints, Remnant's of kid's play	Standing, Walking	Boating, Canoeing, Fishing	Boating, Canoeing, Fishing	
3	May Rd and Brod Rd @ Caney Creek	Culverts, Private property	Tire swing on bank	Walking, Standing	Boating, Fishing, Hunting, Kayaking, Remote controlled boats, Swimming	Crawfishing	Kayaking, Paddle boating
4	May Rd and CR 109 @ Caney Creek	Culverts, Fence, Private property, Thick vegetation					
5	FM 2817 @ Caney Creek	Culverts, Fence, Private property, Log jams, Thick vegetation		Standing	Boating, Canoeing, Fishing, Kayaking, Swimming, Wading-adults, Wading-children	Kayaking, Swimming	
6	FM 1096 @ Caney Creek	Culverts, Log jams, Thick vegetation, Fence, Private property, Low bridges					
7	Railroad St @ Caney Creek	Culverts, Log jams, Thick vegetation, Debris, Low bridges					
8	FM 442 @ Caney Creek	Private property, Bridge, Fence		Walking, Standing	Canoeing, Fishing, Hunting, Swimming, Wading-children	Wading-children, Fishing	
9	N. Sinclair St @ Caney Creek	Log jams, Thick vegetation, Fences, Private property	Children's Toys	Walking, Standing			
10	FM 1301 @ Caney Creek	Fence, Thick vegetation, Private property					
11	Stubberfield Rd @ Caney Creek	Culverts, Fence, Private property		Walking			
12	CR 105 @ Caney Creek	Fence, Private property, Steep slopes					
13	FM 3156 @ Caney Creek	Steep slopes, Private property, Log jams, Fence			Boating, Fishing	Camping, Fishing	Fishing
14	Old Van Vleck Rd @ Caney Creek	Log jams, Steep slopes, Debris, Fence		Standing			
15	SH 35 @ Caney Creek	Log jams, Fence, Steep slopes	Graffiti				Fishing
16	Allenhurst Rd @ Caney Creek	Log jams, Debris, Private property, Steep slopes, Fence					
17	FM 457 @ Caney Creek	Steep slopes, Fence, Private property	Canoe in yard, Children's toys, Remnant's of kid's play	Walking, Standing		Fishing	Kayaking
18	Grisham Rd @ Caney Creek	Steep slopes, Fence	Fishing tackle, PFD on bank				
19	Fay Ranch Rd @ Caney Creek					Boating, Canoeing, Fishing	
20	FM 457 @ Caney Creek	Fence, Thick vegetation, Debris, Steep slopes	Fishing tackle, Foot paths/prints			Fishing	
21	FM 521 @ Caney Creek	Rip rap, Fence, Steep slopes	Fishing tackle, Foot paths/prints				

Summary

Two (2) field surveys on the Caney Creek Above Tidal in the Brazos-Colorado River Basin were completed in this RUAA to evaluate whether the existing and/or attainable recreational uses of the Caney Creek Above Tidal might be different than the presumed recreational uses. Important data collected in this RUAA included general stream characteristics, observations and evidence of recreational use and surrounding conditions that promote recreation, and surrounding conditions that impede recreation including channel obstructions.

While the Caney Creek Above Tidal had several features that could limit recreation such as fences, log jams, and culverts however, the results of the RUAA documented a variety of recreation activities. The most common recreation activity was fishing. This was cited by interviewees and evidence of fishing was encountered at several survey sites. Children-wading was observed at field survey site 1 and 11 interviewees reported personally swimming in the waterbody. A total of 22 interviewees reported personally using the creek for some type of primary contact recreation. The average depth at the thalweg was 0.64m. The average flow value for all of the survey sites was 4.97cfs. No public recreation areas were found as part of this RUAA. RUAA summary analysis indicates that primary contact, secondary contact (1 & 2), and non-contact recreation activities occur on Caney Creek, Segment 1305.

Literature Cited

US Army Corps of Engineers. 2006. Lower Colorado River Basin Interim Feasibility Report and Phase I, Texas Integrated Environmental Assessment, Appendix F-Recreation

Handbook of Texas Online. 2010. Texas State Historical Association (TSHA) web resource: http://www/tshaonline.org

Texas Commission on Environmental Quality (TCEQ). 2008. Texas 303(d) list (March 19, 2008). TCEQ, Austin, Texas.

Texas Commission on Environmental Quality (TCEQ). 2009. Recreational Use-Attainability Analyses (RUAAs) Procedures for a Comprehensive RUAA and a Basic RUAA Survey. TCEQ, Austin, Texas.

RUAA Summary Form

RUAA Summary

This form should be filled out after RUAA data collection is completed. Use the Contact Information Form, Field Data Sheets from all sites, Historical Information Review, and other relevant information to answer the following questions on the water body.

Name of water body: *Caney Creek Above Tidal*
Segment No. or Nearest Downstream Segment No.: *1305*
Classified?: *Yes*
County: *Wharton and Matagorda*

1. Observations on Use
   a. Do primary contact recreation activities occur on the water body?
      ☐ frequently ☐ seldom ☐ not observed or reported ☐ unknown

   b. Do secondary contact recreation 1 activities occur on the water body?
      ☐ frequently ☐ seldom ☐ not observed or reported ☐ unknown

   c. Do secondary contact recreation 2 activities occur on the water body?
      ☐ frequently ☐ seldom ☐ not observed or reported ☐ unknown

   d. Do noncontact recreation activities occur on the water body?
      ☐ frequently ☐ seldom ☐ not observed or reported ☐ unknown

2. Physical Characteristics of Water Body
   a. What is the average thalweg depth? *0.6* meters

   b. Are there substantial pools deeper than 1 meter? ☐ yes ☐ no N/A

   c. What is the general level of public access?
      ☐ easy ☐ moderate ☐ very limited

3. Hydrological Conditions (Based on Palmer Drought Severity Index)
☐ Mild-Extreme Drought ☐ Incipient dry spell ☐ Near Normal ☐ Incipient wet spell ☐ Mild-Extreme Wet