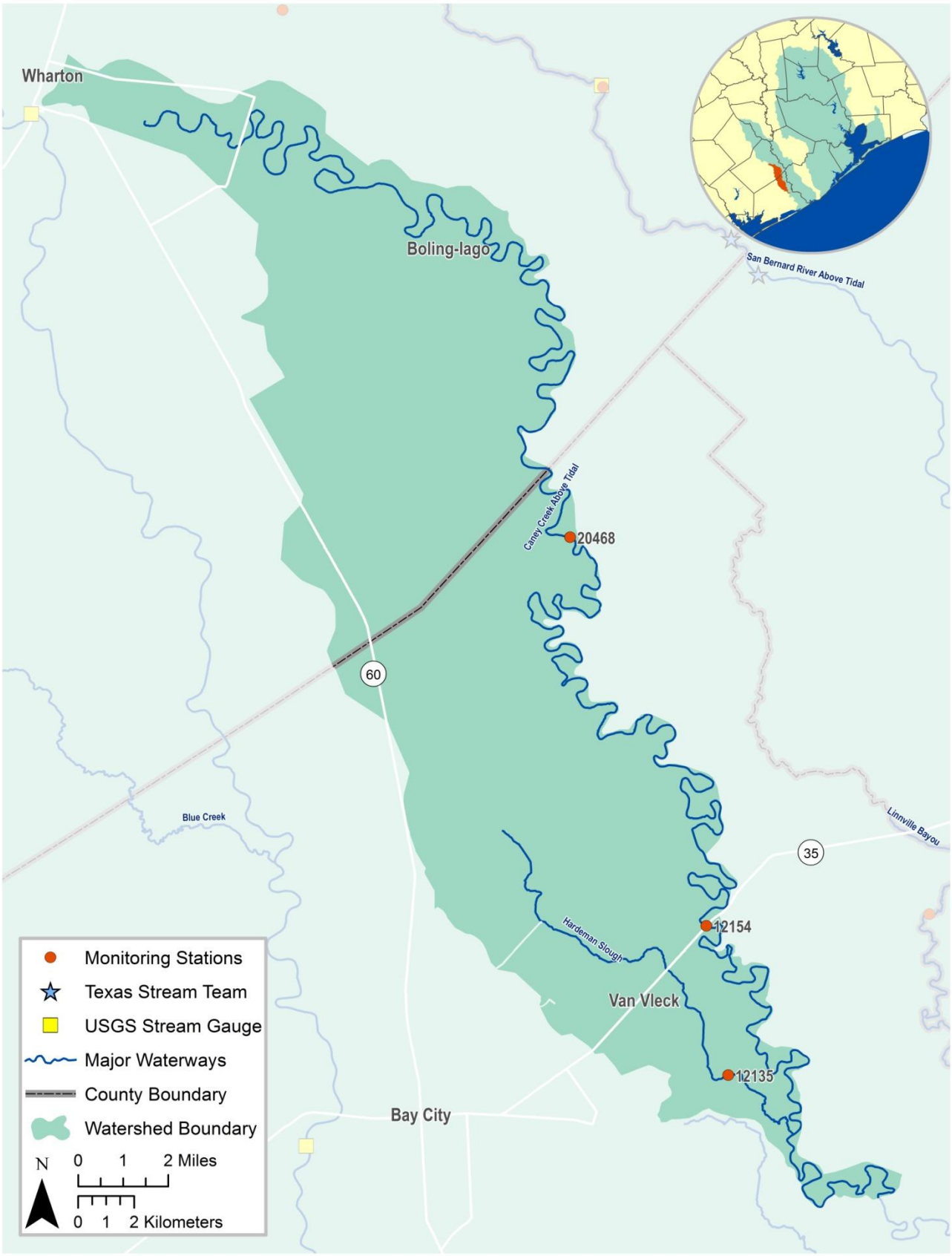
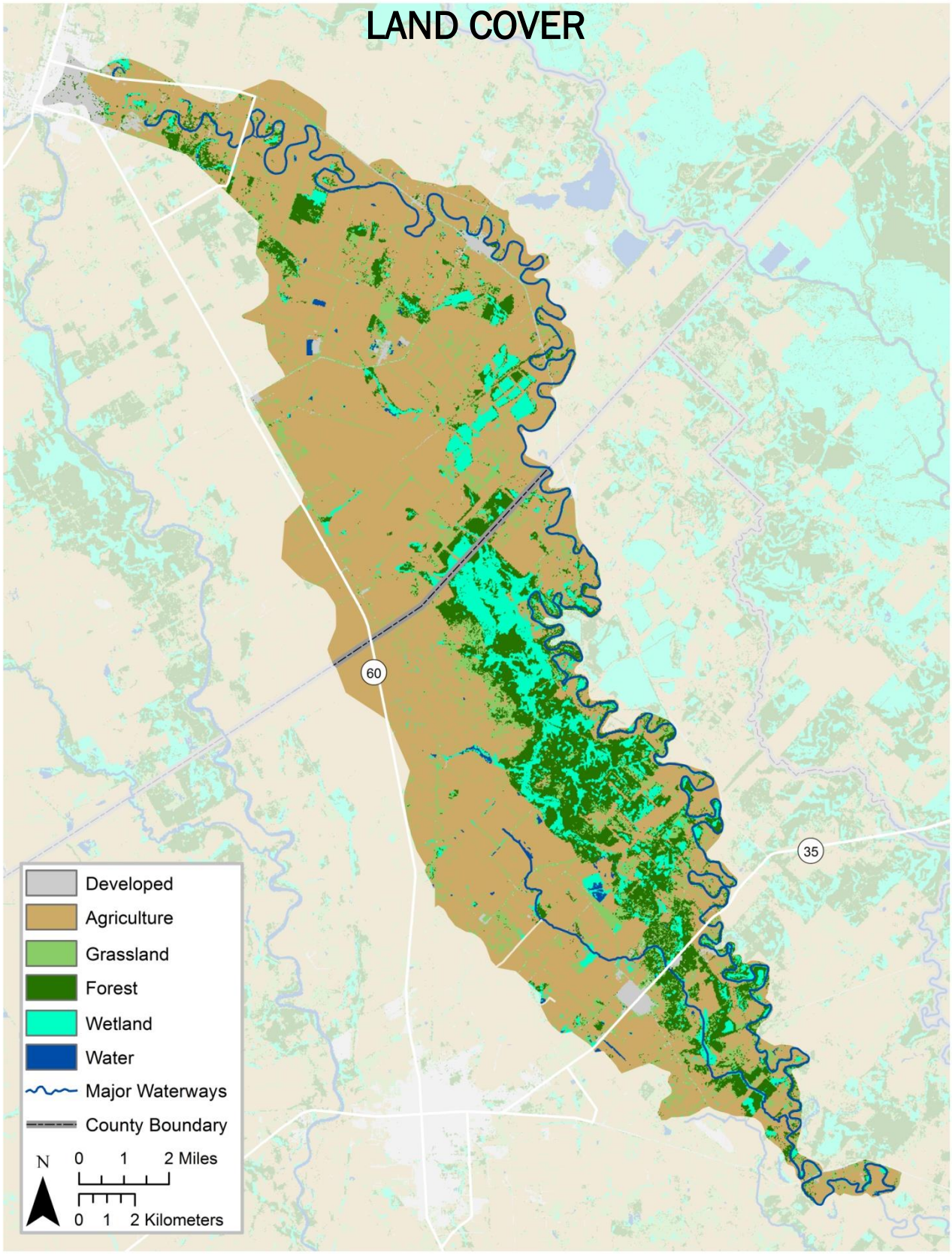
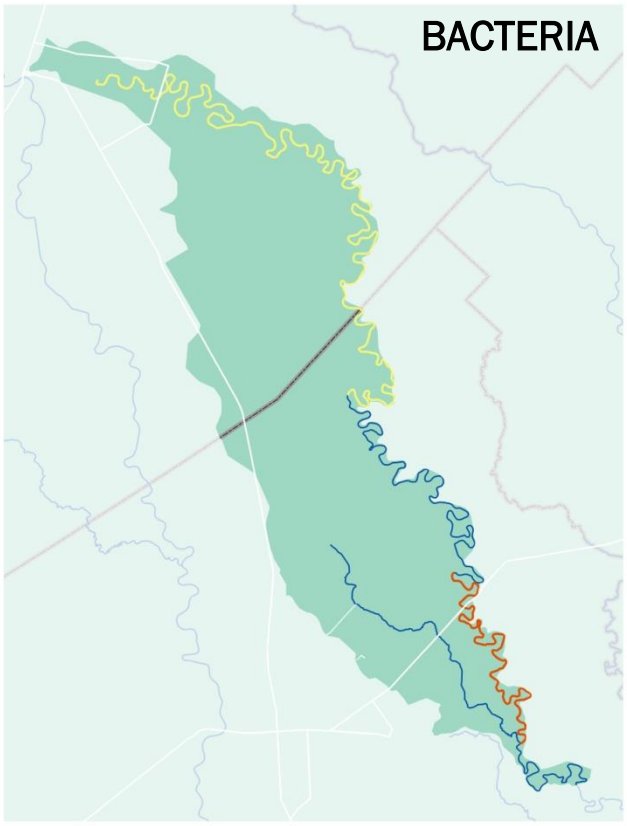
CANEY CREEK ABOVE TIDAL - SEGMENT 1305

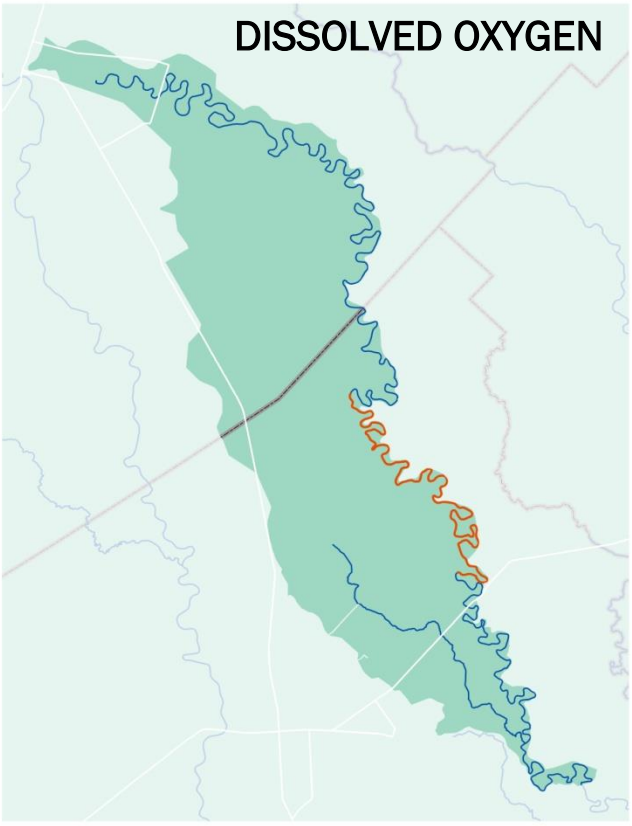


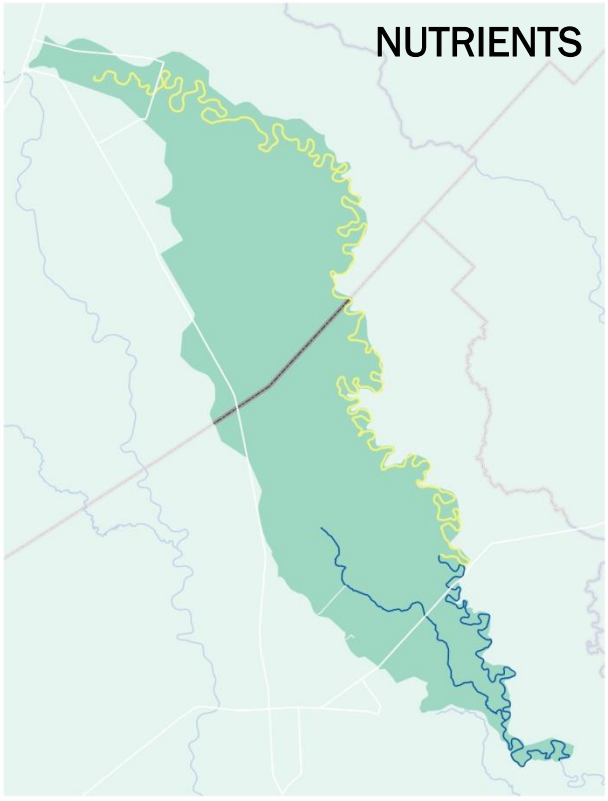
CANEY CREEK ABOVE TIDAL - SEGMENT 1305

LAND COVER





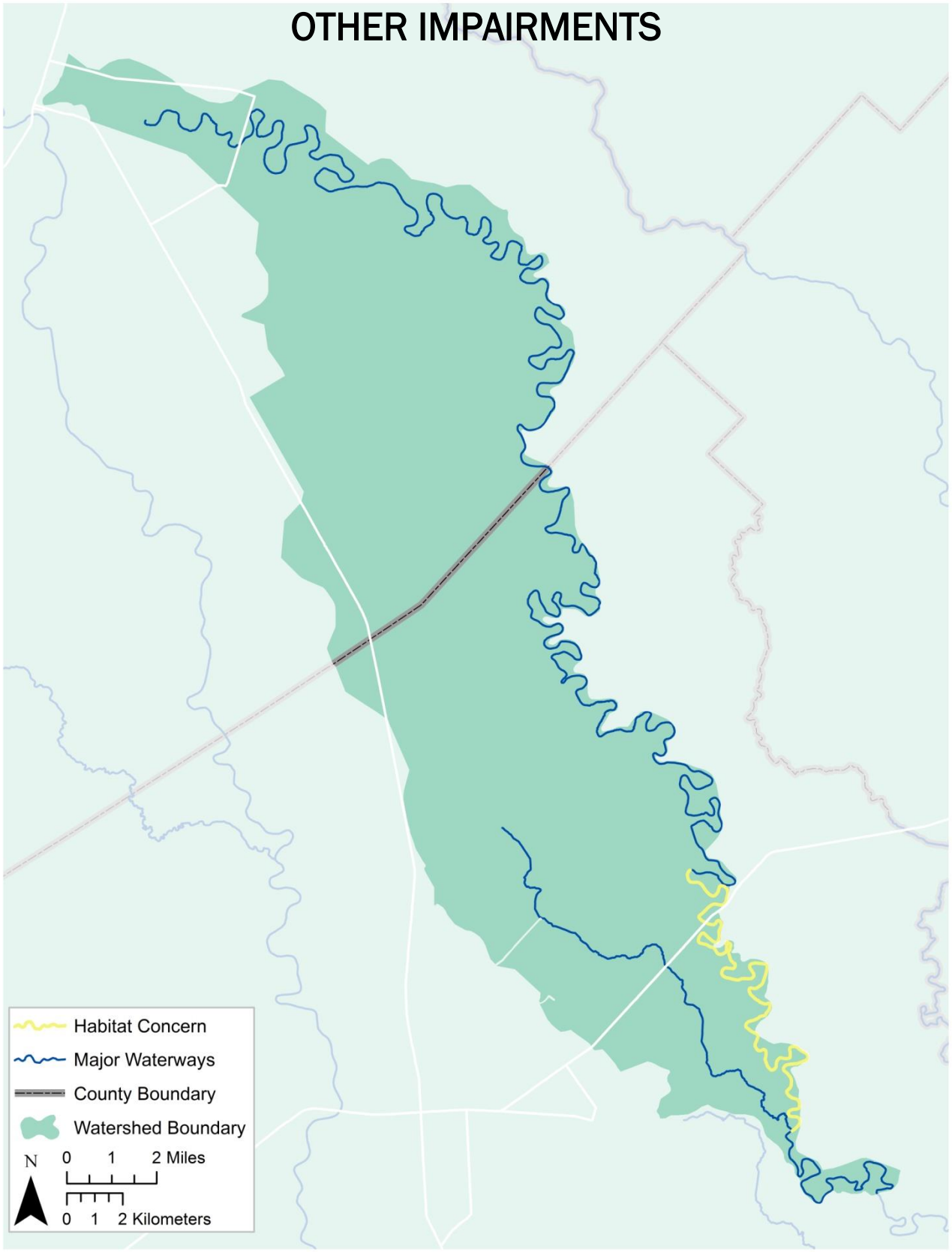




Impairment Concern No Impairments or Concerns

CANEY CREEK ABOVE TIDAL - SEGMENT 1305

OTHER IMPAIRMENTS



Segment Number:	1305	Name:	Caney Creek Above Tidal
Length:	94 miles	**Watershed Area:**	135 square miles
Designated Uses:	Primary Contact Recreation 1; High Aquatic Life		
Number of Active Monitoring Stations:	2	**Texas Stream Team Monitors:**	0
Permitted Outfalls:	3		

Description:

Segment 1305 (Perennial Stream w/ high ALU): From a point 1.9 km (1.2 mi) upstream of the confluence of Linnville Bayou in Matagorda County to the confluence of Water Hole Creek in Matagorda County

Segment 1305A (Perennial Stream w/ intermediate ALU): Hardeman Slough (unclassified water body) – From the confluence with Caney Creek to 0.3 km upstream of Matagorda County Rd 110

Segment 1305B (Perennial Stream w/ intermediate ALU): Caney Creek Above Water Hole Creek (unclassified water body) – From the confluence with Water Hole Creek in Matagorda County (at the upper end of Segment 1305) to the headwaters approximately 43 mi at Old Caney Rd in Wharton County

Percent of Stream Impaired or of Concern

Segment ID	PCBs/Dioxin	Bacteria	Dissolved Oxygen	Nutrients	Chlorophyll *a*	Other
1305	-	16	65.7	65.7	-	15.8

Segment 1305

Standards	Perennial Stream	Screening Levels	Perennial Stream
Temperature (°C/°F):	32 / 90	Ammonia (mg/L):	0.33
Dissolved Oxygen *(24-Hr Average)* (mg/L):	5.0 / 4.0	Nitrate-N (mg/L):	1.95
Dissolved Oxygen *(Absolute Minima)* (mg/L):	3.0 / 3.0	Orthophosphate Phosphorus (mg/L):	0.37
pH (standard units):	6.5-9.0	Total Phosphorus (mg/L):	0.69
E. coli (MPN/100 mL) (grab):	399	Chlorophyll *a* (µg/L):	14.1
E. coli (MPN/100 mL) (geometric mean):	126		
Chloride (mg/L as Cl):	200		
Sulfate (mg/L as SO_4):	75		
Total Dissolved Solids (mg/L):	1,000		

FY 2016 Active Monitoring Stations				
Site ID	**Site Description**	**Frequency**	**Monitoring Entity**	**Parameter Groups**
12135	Hardeman Slough downstream of Allenhurst Rd.	Quarterly	EIH	Field, Conventional, Bacteria
12154	Caney Creek at SH 35 NE of Van Vleck	Quarterly	TCEQ	Field, Conventional, Bacteria, Chlorophyll *a*

Water Quality Issues Summary			
Issue	**2014 Assessment** *I – Impaired C – Of Concern*	**Possible Causes / Influences / Concerns Voiced by Stakeholders**	**Possible Solutions / Actions To Be Taken**
Elevated Levels of Indicator Bacteria	1305 I I	▪ Animal waste from agricultural production, hobby farms, and riding stables ▪ Constructed stormwater controls failing ▪ Developments with malfunctioning OSSFs ▪ Improper or no pet waste disposal ▪ Direct and dry weather discharges ▪ Waste haulers illegal discharges/improper disposal ▪ Poorly operated or undersized WWTFs ▪ WWTF non-compliance, overflows, and collection system by-passes	▪ Implement stream fencing or alternative water supplies to keep livestock out of or away from waterways ▪ Create and implement Water Quality Management Plans for individual agricultural properties ▪ Install and/or conserve vegetative buffer areas along all waterways ▪ Improve compliance and enforcement of existing stormwater quality permits ▪ Improve construction oversight to minimize TSS discharges to waterways ▪ Add water quality features to stormwater systems ▪ More public education regarding OSSF operation and maintenance ▪ Ensure proper citing of new or replacement OSSFs ▪ More public education on pet waste disposal ▪ Regionalize chronically non-compliant WWTFs ▪ Increase monitoring requirements for self-reporting ▪ Impose new or stricter bacteria limits than currently designated by TCEQ ▪ Require all systems to develop and implement a utility asset management program and protect against power outages at lift stations
Dissolved Oxygen Concentrations	1305 I	▪ Excessive nutrients and organic matter from agricultural production, and related activities ▪ Excessive nutrients and organic matter from	▪ Create and implement Water Quality Management Plans for individual agricultural properties ▪ Install and/or conserve riparian buffer areas along

		WWTF effluent, SSOs, malfunctioning OSSFs, illegal disposal of grease trap waste, and biodegradable solid waste (e.g., grass clippings and pet waste) ▪ Vegetative canopy removed	all waterways ▪ Improve compliance and enforcement of existing stormwater quality permits ▪ More public education on pet waste disposal ▪ More public education regarding OSSF operation and maintenance ▪ More public education regarding disposal of household fats, oils, and grease ▪ Improve operation and maintenance of existing WWTF and collection systems ▪ Regionalize chronically non-compliant WWTFs ▪ Work with drainage districts and agencies to change practices of clear cutting and channelizing waterways to protect from solar heating
Elevated Nutrients	1305 C	▪ Agricultural runoff from row crops, fallow fields, and animal operations ▪ Fertilizer runoff from urbanized properties, such as landscaped areas, residential lawns, and sport fields ▪ WWTF effluent, sanitary sewer overflows, and malfunctioning OSSFs	▪ Create and implement Water Quality Management Plans for individual agricultural properties ▪ Implement YardWise and Watersmart landscape practices ▪ Install and/or conserve riparian buffer areas along all waterways ▪ Monitor phosphorus levels at WWTFs to determine if controls are needed
Impaired Habitat	1305 C	▪ Loss of habitat due to channelization of waterway ▪ Ongoing maintenance of modified channel ▪ Bank erosion and erosion at construction sites	▪ Re-connect oxbows and lost channels to augment water storage and retention ▪ Work with drainage districts to install/construct habitat that doesn't interfere with water movement ▪ Strategically plant vegetation to enhance tree canopy and slow bank erosion to create more habitat

Segment Discussion:

Watershed Characteristics: The watershed is primarily rural with the majority of land used for agricultural purposes. The cities of Wharton, Boling-lago, and Van Vleck represent the only small developed portions of the watershed. A large area of undeveloped forested land and wetland is present in the south-central part of the watershed with other small plots scattered throughout the area.

Water Quality Issues: The 2014 Texas Integrated Report lists the classified assessment unit 1305_02 as impaired for contact recreation use due to elevated levels of *E. coli.* Hardeman Slough (1305B_01) was not assessed in 2014. Sampling began in 2013, and the E. coli data collected suggests that this water body is also impaired for recreational use. The TCEQ assessment data and H-GAC analysis are summarized in the below table.

	TCEQ Assessment (2005-2012)	HGAC Analysis 2001-2008	HGAC Analysis 2008-2015
Assessment Unit	Geomean (MPN/100 mL) / % Grab Exceedance	Geomean (MPN/100 mL) / % Grab Exceedance	Geomean (MPN/100 mL) / % Grab Exceedance
1305_02	137/ NA	168 / 55.6%	148 / 59.3%
1305B_01	1367.4/ NA	Not Assessed	1136 / 100.0%

1305_03 is impaired for dissolved oxygen. The TCEQ assessment found that one third of the DO samples collected period were below the 24-hour minimum standard. This classified assessment unit also has a nutrient concern. Approximately 30% of samples collected for Orthophosphate and 15% of samples for Total Phosphorus exceeded the screening criteria levels.

1305B_01 also has a nutrient concern. The TCEQ assessment found that 60% of samples exceeded the 0.69 mg/L screening criteria level for Total Phosphorus.

Special Studies/Projects: H-GAC has been tasked by the TCEQ to implement a basin-wide approach for addressing bacterial impairments for the Brazos-Colorado Coastal Basin which includes the Caney Creek watersheds. Development for the basin-wide TMDL began in September of 2015 and will result in a final Basin 13 Summary Report in September of 2016 that will summarize basin characteristics, water quality impairments, potential bacteria sources, and recommendations for bacterial reduction.

Trends: Regression analysis of water quality data revealed only three statistically significant parameter trends for the Caney Creek Above Tidal segment including increasing instantaneous flow and decreasing chloride and total suspended solids (TSS). Portions of the Caney Creek Above Tidal segment are currently impaired for bacteria and dissolved oxygen (DO) and are listed as having a concern for nutrients and impaired habitat. Regression analysis of *E. coli* data did not reveal a statistically significant trend over time, but the majority of samples collected during the period of record continue to exceed the 126 MPN/100 mL standard. The moving seven-year bacteria geometric mean plot for the main segment show mean *E. coli* concentrations fluctuating near the standard reference line, but has primarily exceeded the standard since 2005.

Trend analysis of DO levels over time show the majority of samples within compliance; however, concentrations have dipped below the 3.0 mg/L minimum standard more frequently since 2010. Regression analysis plots for nitrate and total phosphorous (TP) also show a stable trend since 2000. Overall, TP seems to be of greater concern than nitrate due to more frequent exceedances during the period of record.

Recommendations
Address concerns found in this segment summary through stakeholder participation and by completing the basin-wide TMDL.
Continue collecting water quality data to support actions associated with any future special projects and modeling efforts.