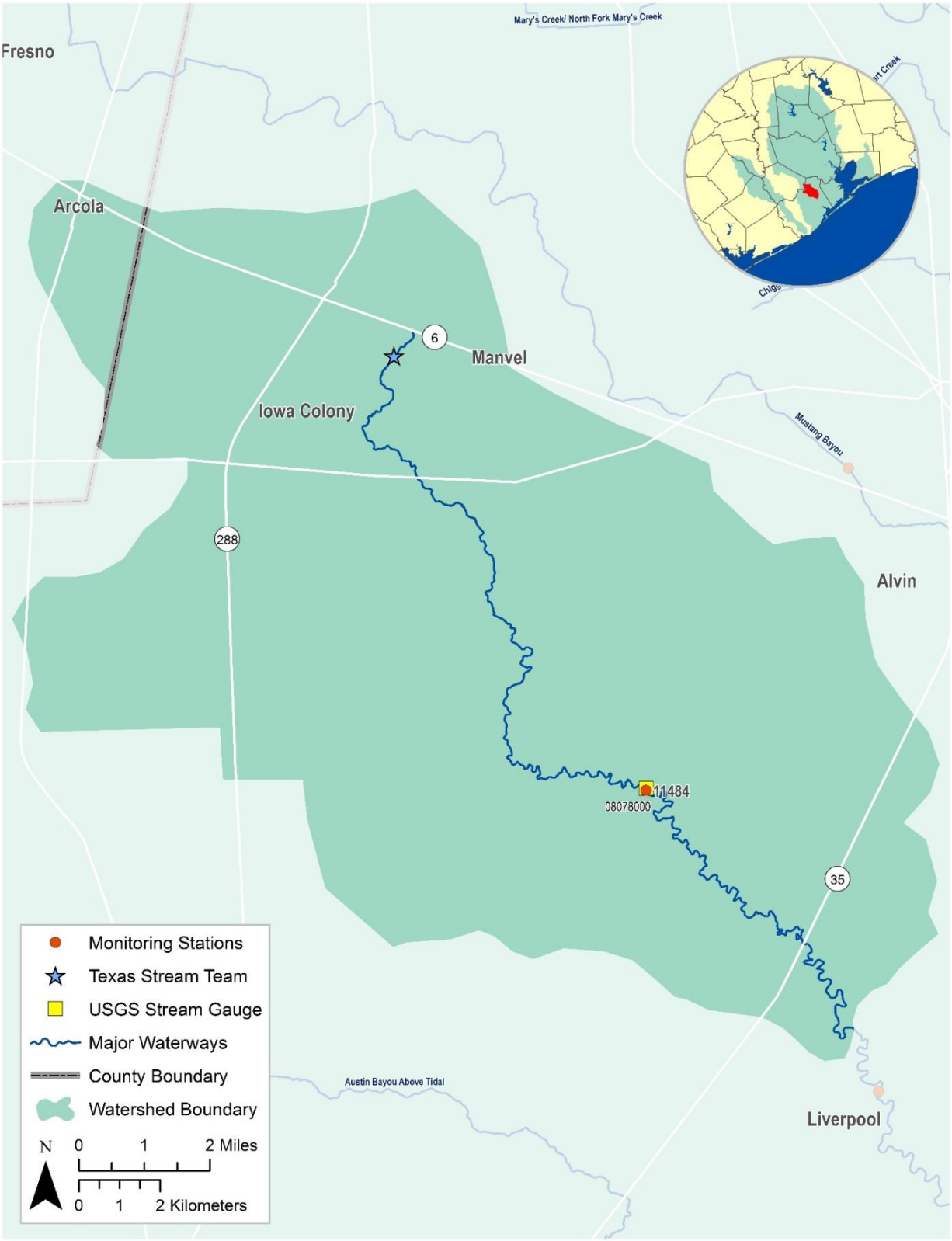
CHOCOLATE BAYOU ABOVE TIDAL – SEGMENT 1108



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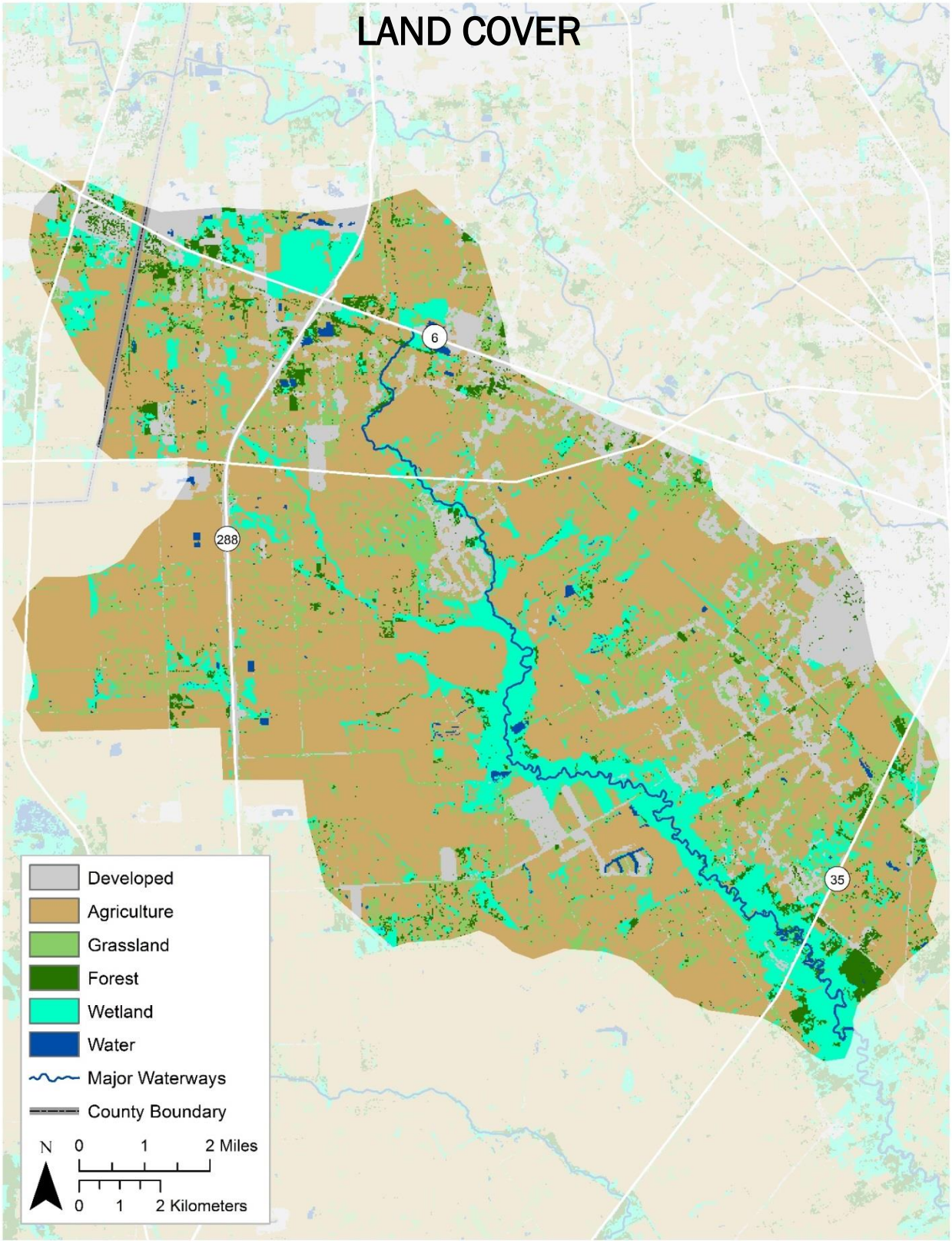
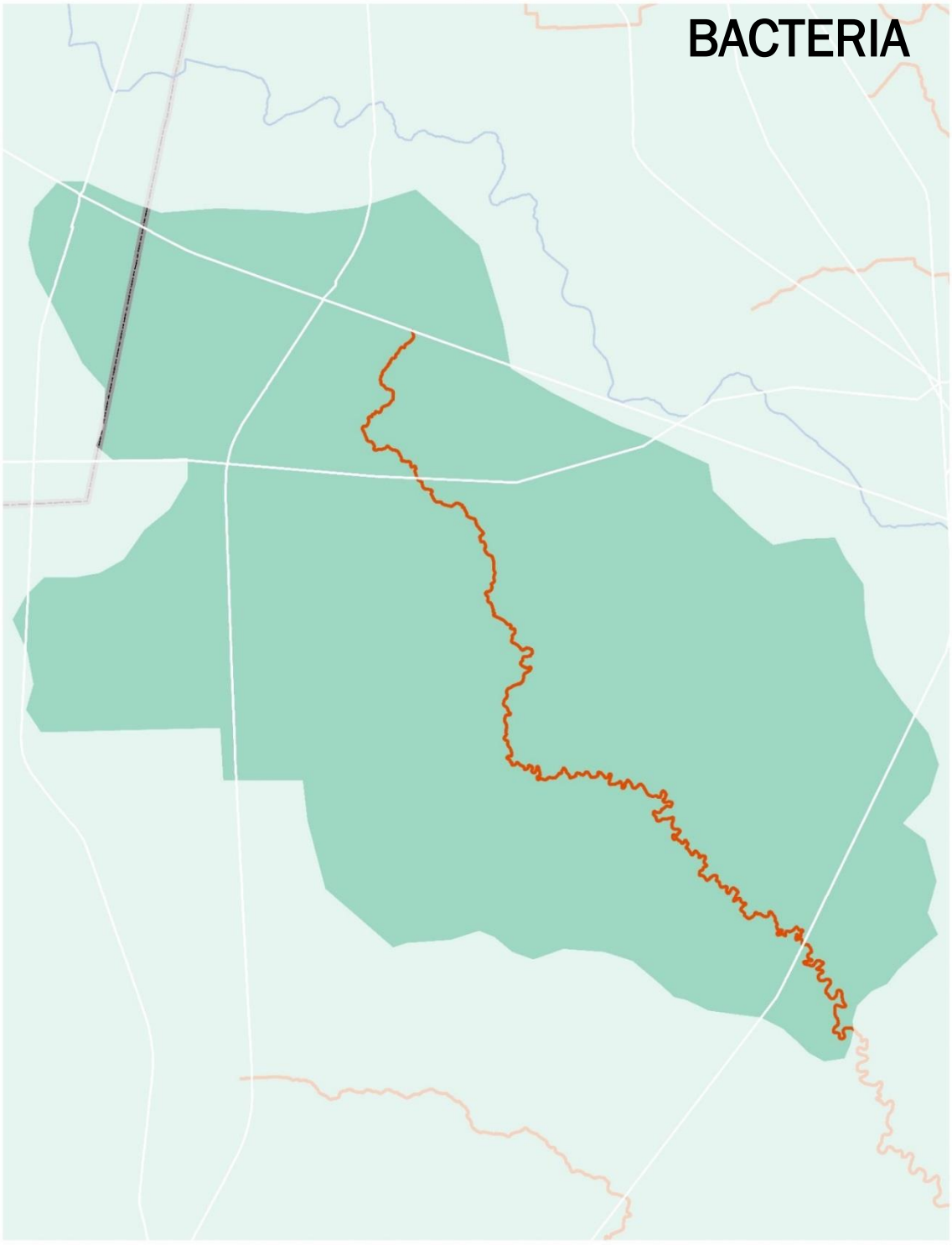
LAND COVER




BACTERIA
Impairment
Concern
No Impairments or Concerns

Segment Number:	1108	Name:	Chocolate Bayou Above Tidal		
Length:	22 miles	**Watershed Area:**	110 square miles	**Designated Uses:**	Primary Contact Recreation 1; High Aquatic Life Use
Number of Active Monitoring Stations:	1	**Texas Stream Team Monitors:**	1	**Permitted Outfalls:**	19
Description:	From a point 4.2 km (2.6 mi) downstream of SH 35 in Brazoria County to SH 6 in Brazoria County.				

Percent of Stream Impaired or of Concern

Segment ID	Dissolved Oxygen	Bacteria	Nutrients	PCBs/Dioxin	Chlorophyll *a*	Other
1108	-	100	-	-	-	-

Segment 1108

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	Nitrate-N (mg/L):	1.95
Dissolved Oxygen *(Absolute Minima)* (mg/L):	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):	100		
Total Dissolved Solids (mg/L):	900		

FY 2016 Active Monitoring Stations

Site ID	Site Description	Frequency	Monitoring Entity	Parameter Groups
11484	Chocolate Bayou at FM 1462	Quarterly	TCEQ	Field, Conventional, Bacteria, Chlorophyll-*a*, Flow

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	1108 I	▪ Animal waste from agricultural production, hobby farms, and riding stables ▪ Rapid urbanization and increased impervious cover ▪ 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 ▪ 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 ▪ Require all systems to develop and implement a utility asset management program and protect against power outages at lift stations ▪ Impose new or stricter bacteria limits than currently designated by TCEQ ▪ Increase monitoring requirements for self-reporting

Segment Discussion:

Watershed Characteristics: This watershed is largely undeveloped with the exception of a few small population centers at Arcola, Manvel, Iowa Colony, and part of Alvin. More growth has occurred as development has spread south down Texas Highway 288 in recent years. The major land use is agriculture, and there are many farms in the area. There are also a number of irrigation canals that run through the watershed.

Water Quality Issues: The 2014 Integrated Report designates this segment for the first time as impaired for contact recreation due to elevated levels of *E. coli* bacteria. This segment fully supports the aquatic life use designation.

Special Studies/Projects: H-GAC has been tasked by the TCEQ to implement a basin-wide approach for addressing bacterial impairments for the San Jacinto-Brazos Coastal Basin which includes Chocolate Bayou. Development for the basin-wide TMDL began in September of 2015 and will result in a final Basin 11 Summary Report in September of 2016 that will summarize basin characteristics, water quality impairments, potential bacteria sources, and recommendations for bacterial reduction.

Trends: Currently, there is only one monitoring station in this watershed and regression analysis of the available data revealed three statistically-significant decreasing trends for sulfate, chlorophyll *a*, and pH. A bacteria impairment is present for the segment, but regression analysis revealed no significant change in *E. coli* concentrations over the past 15 years. Moving seven year bacteria geometric mean plots show that *E. coli* geomeans have been hovering around the 126 MPN/100 mL standard with fluctuations frequently exceeding the standard criteria since late 2010.

Recommendations

Continue collecting water quality and discharge monitoring report (DMR) data to support actions associated with TMDL development and possible modeling.
Pursue a new local partner to Clean Rivers Program to collect additional data that would help better isolate problem areas.