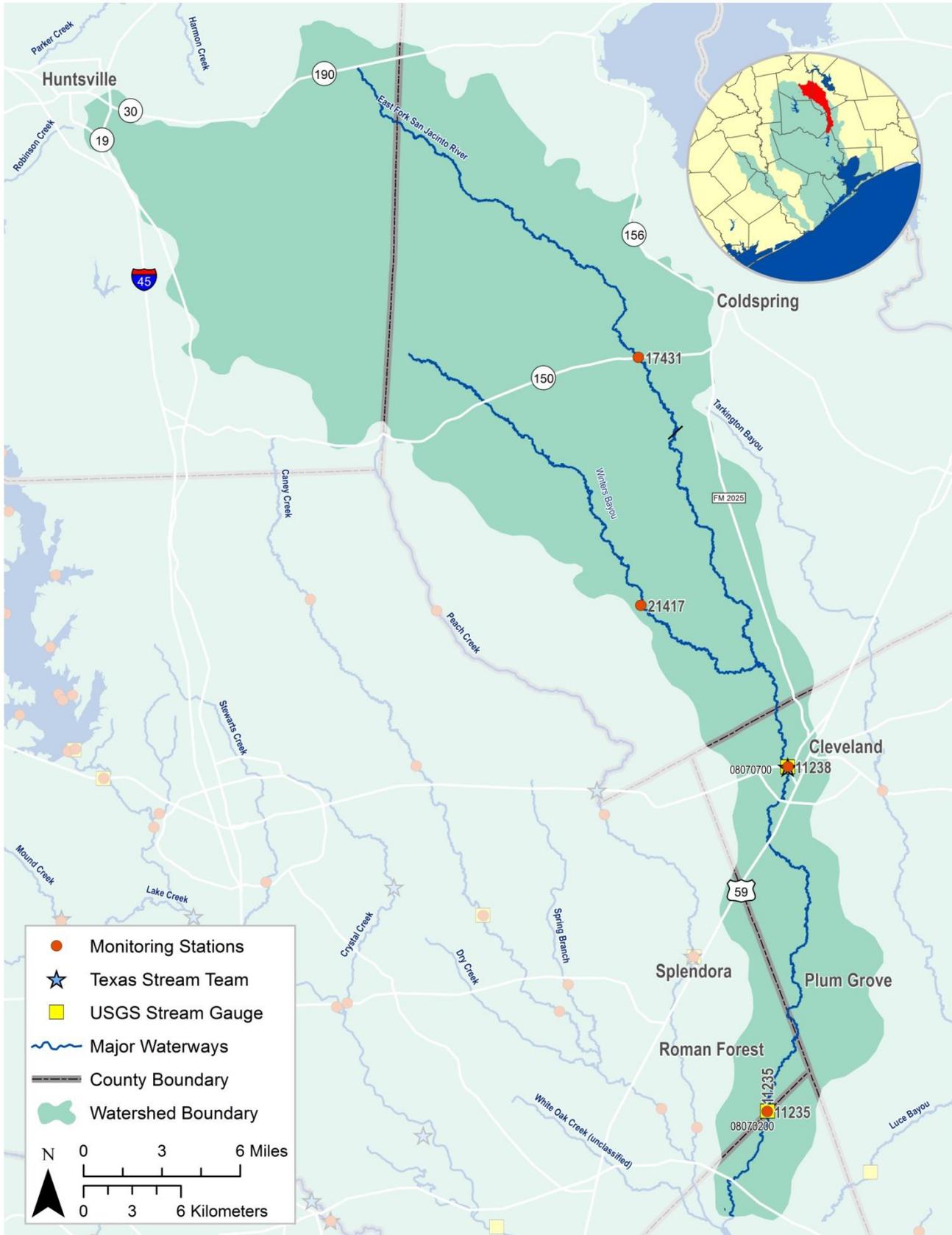
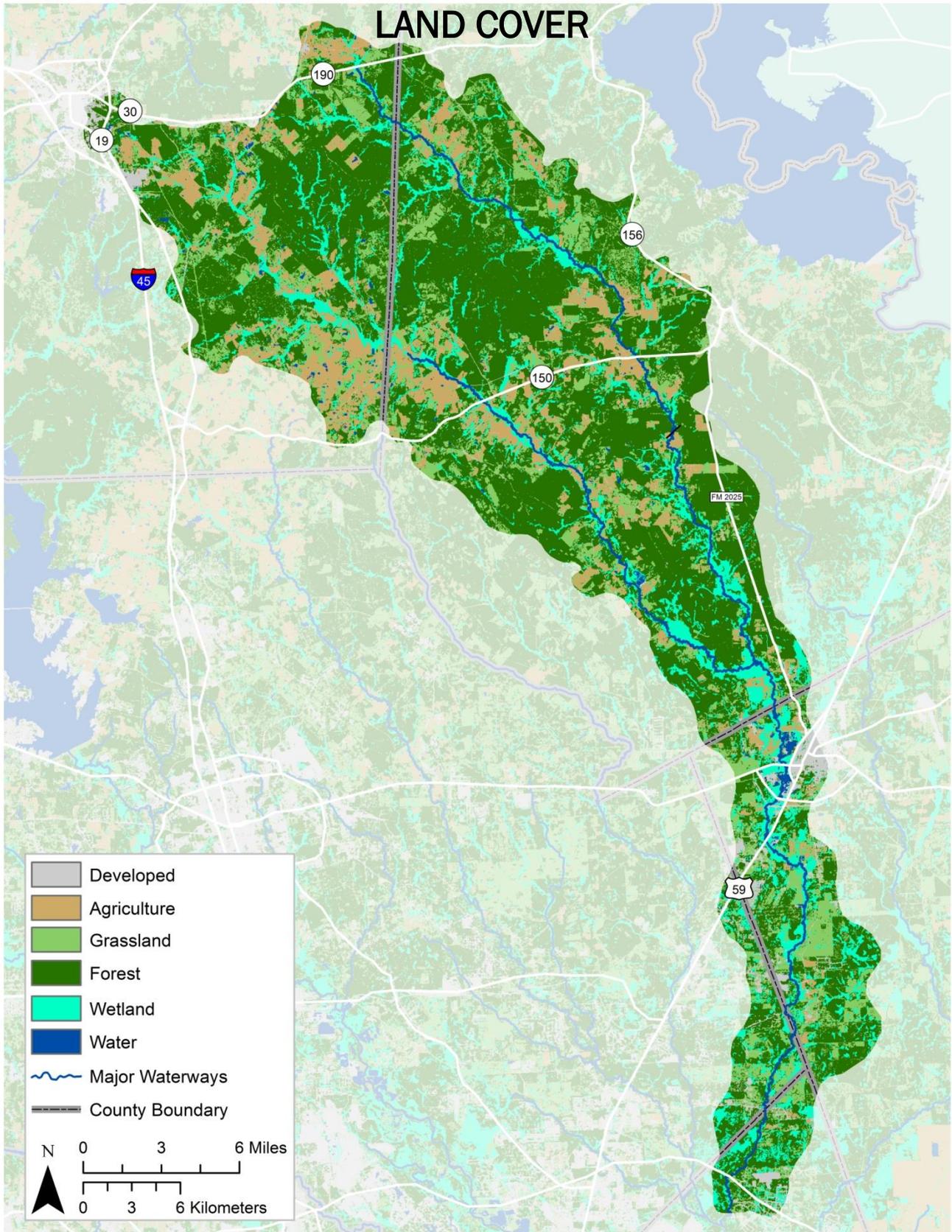


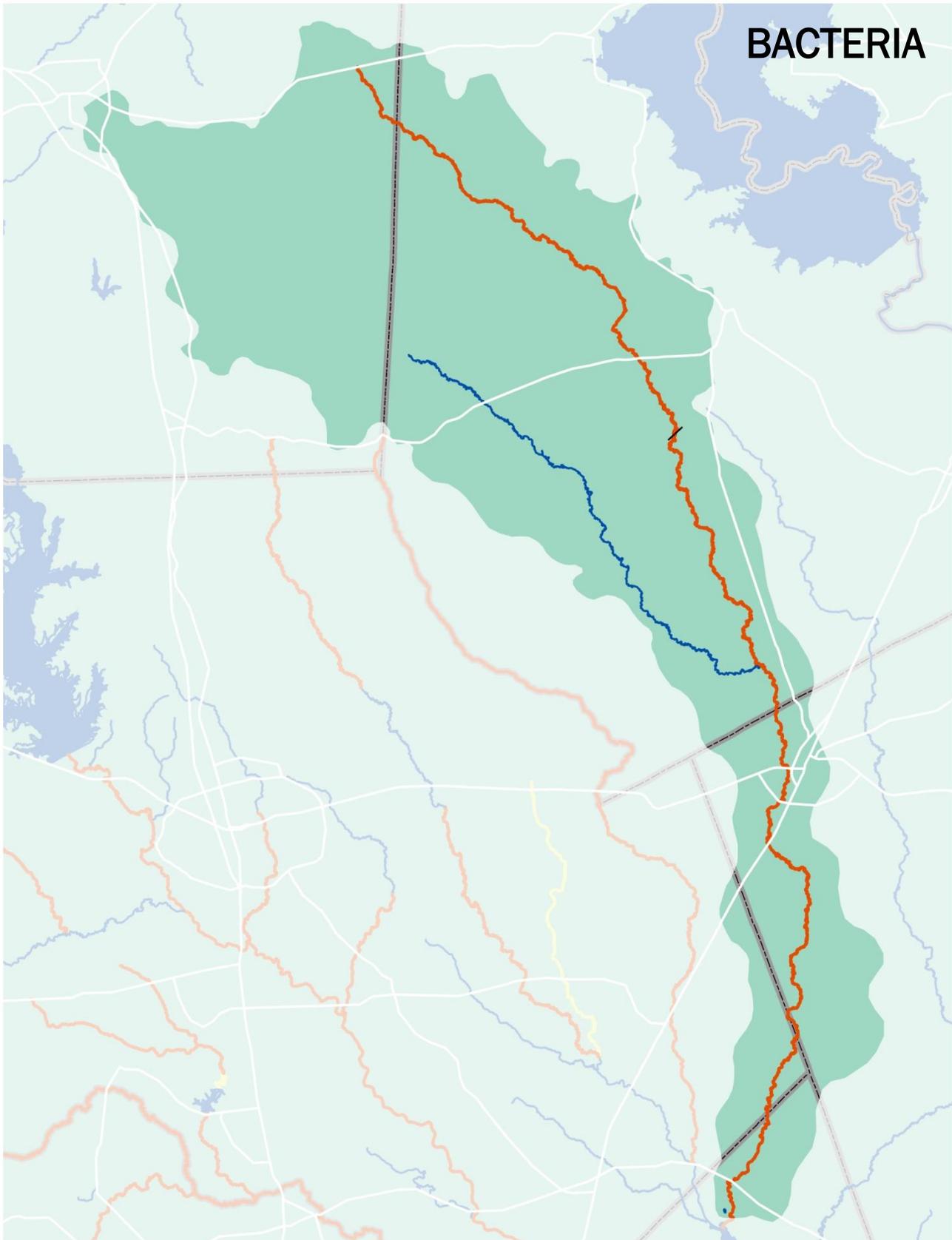
EAST FORK SAN JACINTO RIVER - SEGMENT 1003



EAST FORK SAN JACINTO RIVER - SEGMENT 1003

LAND COVER





BACTERIA

~~~~~ Impairment    ~~~~~ Concern    ~~~~~ No Impairments or Concerns

|                                              |                                                                                                                         |                                          |                  |                            |                                                                          |
|----------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|------------------------------------------|------------------|----------------------------|--------------------------------------------------------------------------|
| <b>Segment Number: 1003</b>                  |                                                                                                                         | <b>Name: East Fork San Jacinto River</b> |                  |                            |                                                                          |
| <b>Length:</b>                               | 81 miles                                                                                                                | <b>Watershed Area:</b>                   | 404 square miles | <b>Designated Uses:</b>    | Primary Contact Recreation 1; High Aquatic Life Use; Public Water Supply |
| <b>Number of Active Monitoring Stations:</b> | 4                                                                                                                       | <b>Texas Stream Team Monitors:</b>       | 1                | <b>Permitted Outfalls:</b> | 5                                                                        |
| <b>Description:</b>                          | Segment 1003 (Perennial Stream): From the confluence of Caney Creek in Harris County to US Highway 190 in Walker County |                                          |                  |                            |                                                                          |

| Percent of Stream Impaired or of Concern |             |          |                  |           |               |       |
|------------------------------------------|-------------|----------|------------------|-----------|---------------|-------|
| Segment ID                               | PCBs/Dioxin | Bacteria | Dissolved Oxygen | Nutrients | Chlorophyll a | Other |
| 1003                                     | -           | 100      | -                | -         | -             | -     |

### Segment 1003

| Standards                                     | Perennial Stream | Screening Levels                  | Perennial Stream |
|-----------------------------------------------|------------------|-----------------------------------|------------------|
| Temperature (°C/°F):                          | 33 / 91          | 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):                          | 6.0-8.5          | Total Phosphorus (mg/L):          | 0.69             |
| <i>E. coli</i> (MPN/100 mL) (grab):           | 399              | Chlorophyll-a (µg/L):             | 14.1             |
| <i>E. coli</i> (MPN/100 mL) (geometric mean): | 126              |                                   |                  |
| Chloride (mg/L as Cl):                        | 80               |                                   |                  |
| Sulfate (mg/L as SO <sub>4</sub> ):           | 50               |                                   |                  |
| Total Dissolved Solids (mg/L):                | 400              |                                   |                  |

### FY 2016 Active Monitoring Stations

| Site ID | Site Description                       | Frequency        | Monitoring Entity | Parameter Groups                                                  |
|---------|----------------------------------------|------------------|-------------------|-------------------------------------------------------------------|
| 11235   | East Fork San Jacinto River at FM 1485 | Bimonthly        | COH / WQC         | Field, Conventional, Bacteria                                     |
| 11235   | East Fork San Jacinto River at FM 1485 | Ten Times / year | USGS              | Field, Conventional, Bacteria, Flow, 24-Hour DO, Metals, Organics |
| 11235   | East Fork San Jacinto River at FM 1485 | Daily            | USGS              | Field, Flow, 24-Hour DO                                           |
| 11235   | East Fork San Jacinto River at FM 1485 | Bi-monthly       | USGS              | Field, Conventional, Bacteria, Flow, 24-Hour DO, Metals,          |

## Organics

|       |                                                                                                        |            |           |                                     |
|-------|--------------------------------------------------------------------------------------------------------|------------|-----------|-------------------------------------|
| 11238 | East Fork San Jacinto River bridge on SH 105 west of Cleveland                                         | Bi-monthly | COH / WQC | Field, Conventional, Bacteria, Flow |
| 17431 | East Fork San Jacinto River at SH 150 approx 4.5 km west of intersection of FM 2025 west of Coldspring | Quarterly  | H-GAC     | Field, Conventional, Bacteria, Flow |
| 21417 | Winters Bayou at Tony Tap Rd near Cleveland                                                            | Quarterly  | H-GAC     | Field, Conventional, Bacteria, Flow |

## Water Quality Issues Summary

| Issue                                 | 2014 Assessment<br><i>I – Impaired</i><br><i>C – Of Concern</i> | Possible Causes / Influences / Concerns Voiced by Stakeholders                                                                                                                                                                                                                                                                                                                                                                                                                     | Possible Solutions / Actions To Be Taken                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|---------------------------------------|-----------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Elevated Levels of Indicator Bacteria | 1003 I                                                          | <ul style="list-style-type: none"> <li>▪ Rapid urbanization and increased impervious cover</li> <li>▪ Constructed stormwater controls failing</li> <li>▪ Developments with malfunctioning OSSFs</li> <li>▪ Direct and dry weather discharges</li> <li>▪ Small, privately-run WWTF</li> <li>▪ Waste haulers illegal discharges/improper disposal</li> <li>▪ WWTF non-compliance, overflows, and collection system by-passes</li> <li>▪ Improper or no pet waste disposal</li> </ul> | <ul style="list-style-type: none"> <li>▪ Improve compliance and enforcement of existing stormwater quality permits</li> <li>▪ Improve construction oversight to minimize TSS discharges to waterways</li> <li>▪ Improve stormwater controls in new developments by adding bacteria reduction measures</li> <li>▪ More public education regarding OSSF operation and maintenance</li> <li>▪ Ensure proper citing of new or replacement OSSFs</li> <li>▪ Increase monitoring requirements for self-reporting</li> <li>▪ Regionalize chronically non-compliant WWTFs</li> <li>▪ Require all systems to develop and implement a utility asset management program and protect against power outages at lift stations</li> <li>▪ Impose new or stricter bacteria limits than currently designated by TCEQ</li> <li>▪ More public education on pet waste disposal</li> </ul> |

## Segment Discussion

**Watershed Characteristics:** This segment is predominately forested but recently underwent widespread changes via clear cutting as ranchettes and hobby farms were built across the watershed. Grass, hay, and pasture land supporting cattle operations are the dominant agricultural activity. In the southern portion of the watershed are the communities of Cleveland, Splendora, Plum Grove, and Roman Forest. The eastern portion of the City of Huntsville is located at the northwestern edge of the watershed with storm water draining through Winters Bayou, the largest tributary to the East Fork San Jacinto River. On-site sewage facilities (OSSF) serve as the primary means of waste disposal for residential and commercial properties throughout the watershed. Timber is also harvested from the Sam Houston National Forest located in the upper two-thirds of the watershed.

**Water Quality Issues:** Recreation use in this segment is not supported. All three assessment units (AU) in this segment are impaired for *E. coli*, and the geomean for the segment as a whole was 210 MPN/100 mL for the seven-year period ending 5/31/15, and 25 percent of samples collected exceeded the grab standard of 399 MPN/100 mL. The geomean in AU 1003\_03 nearly doubled from 197 in 2001-2008 to 393 during 2008-2015; 54 percent of samples exceeded 399 MPN/100 mL. A [plot of rolling geometric means](#) for the segment as a whole illustrates how bacteria levels have changed over time. General, aquatic life, and public water supply uses are fully supported.

**Special Studies/Projects:** No special Clean Rivers Program or Texas Commission on Environmental Quality projects have been conducted on this segment.

**Trends:** Regression analysis of watershed level data revealed two statistically significant parameter trends for the East Fork San Jacinto River – decreasing nitrate and increasing total phosphorous (TP). The only impairment listed for this segment is for *E. coli*. Regression analysis detected no significant change in *E. coli* concentrations during the period of record. *E. coli* geometric means for the East Fork San Jacinto River have remained above the 126 MPN/100 mL standard during the period of record. High bacteria levels in this watershed are likely related to the high density of OSSFs present in the area. Malfunctioning OSSF systems pose the risk of bacteria running off into waterways after a rain event, or potentially leaking into groundwater resources and discharging into surface waters during baseflow conditions.

## Recommendations

Address concerns found in this segment summary through stakeholder participation.

Continue collecting water quality data to support actions associated with any future watershed protection plan development and possible modeling.

Pursue a new local partner to Clean Rivers Program to collect additional data that would help better isolate problem areas.