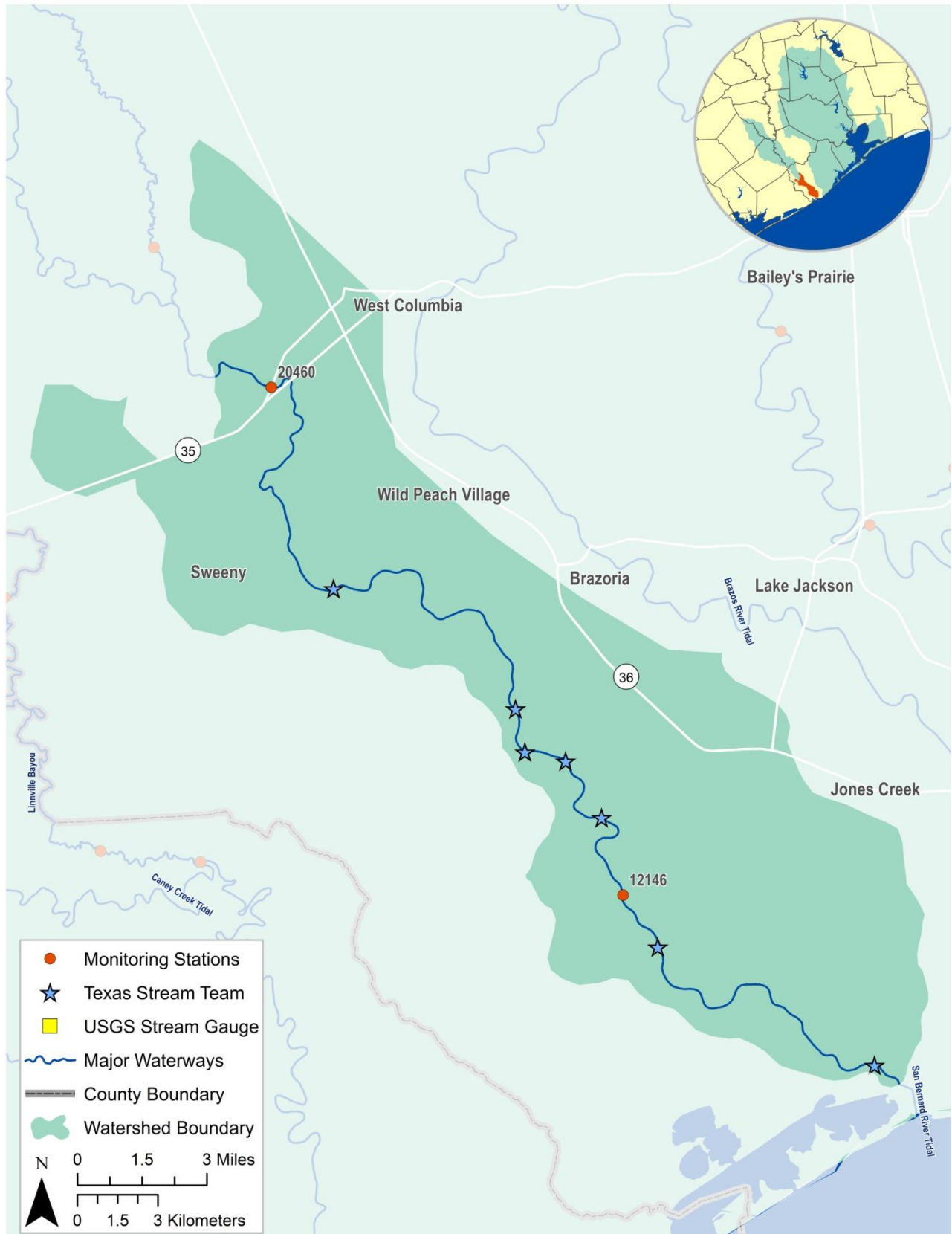
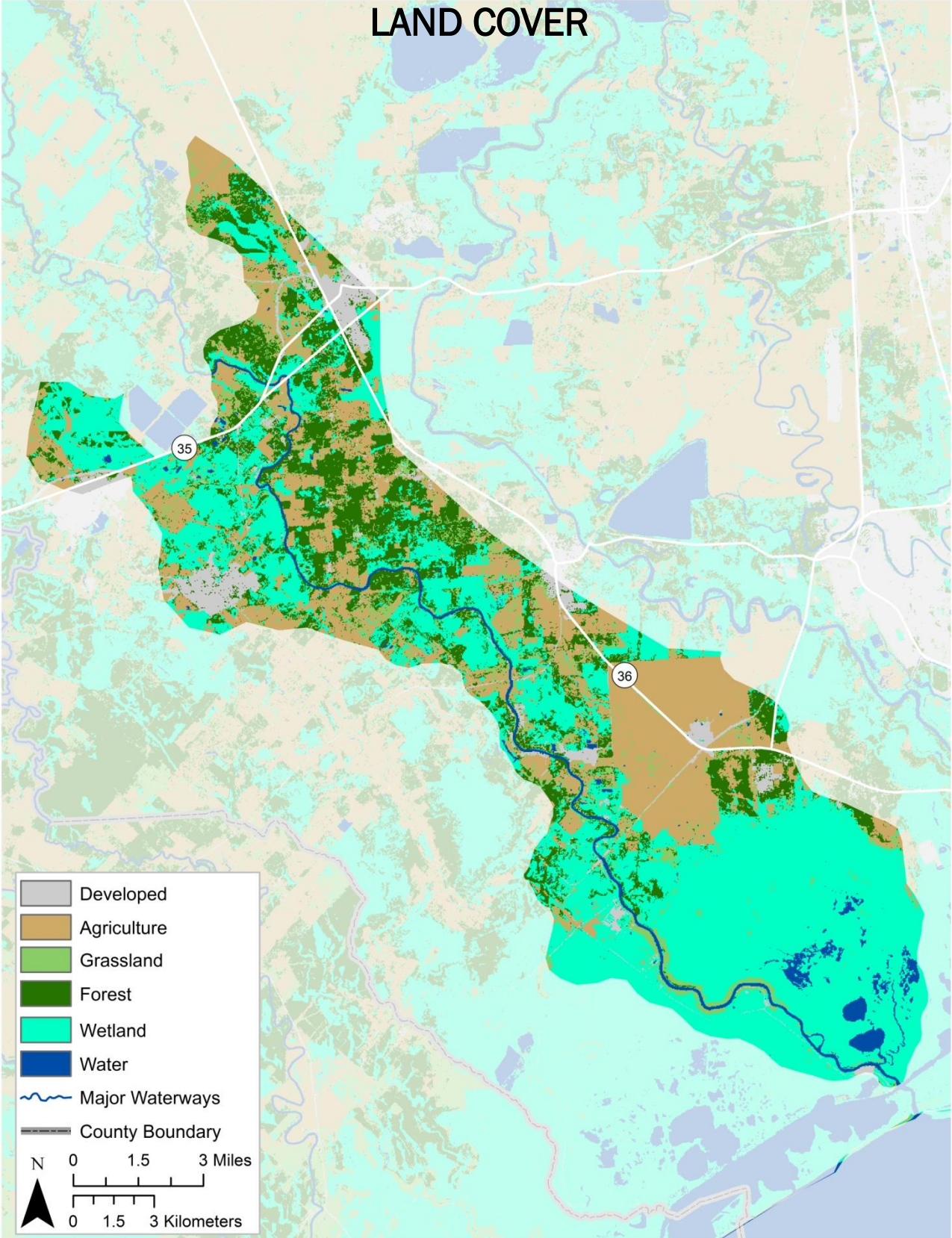


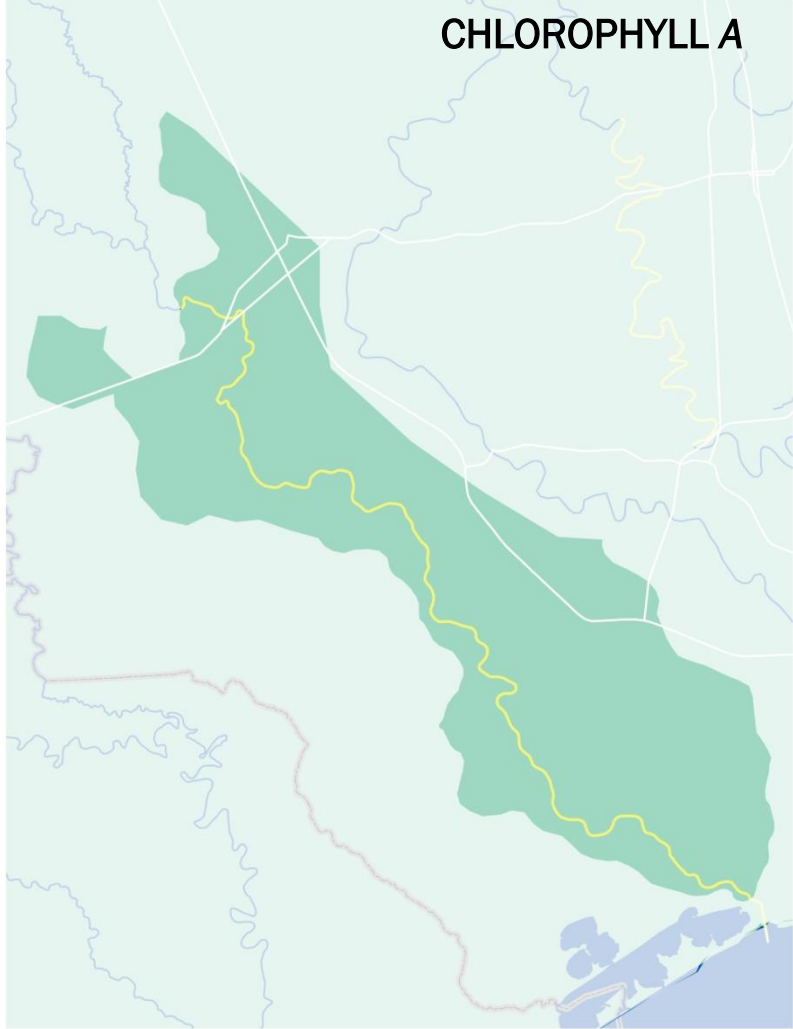
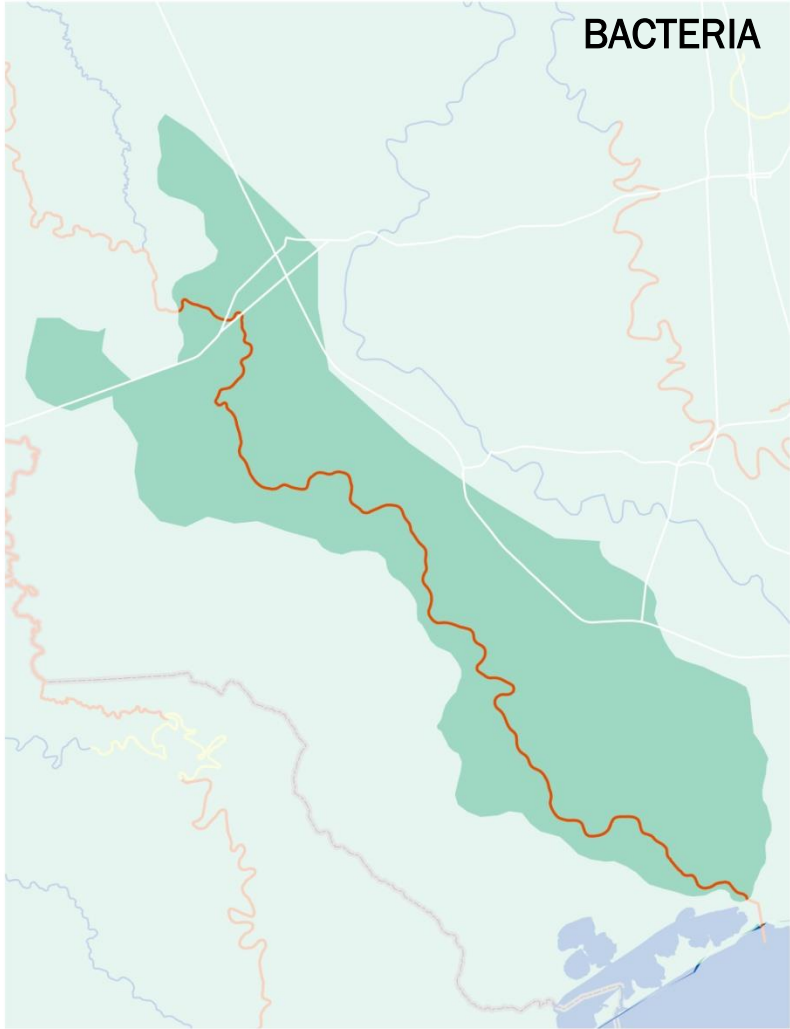
# SAN BERNARD RIVER TIDAL - SEGMENT 1301



# SAN BERNARD RIVER TIDAL - SEGMENT 1301

## LAND COVER





 Impairment     Concern     No Impairments or Concerns

<b>Segment Number:</b> 1301		<b>Name:</b> San Bernard River Tidal			
<b>Length:</b> 34 miles	<b>Watershed Area:</b> 131 square miles	<b>Designated Uses:</b> Primary Contact Recreation 1; High Aquatic Life			
<b>Number of Active Monitoring Stations:</b> 2	<b>Texas Stream Team Monitors:</b> 7	<b>Permitted Outfalls:</b> 6			
<b>Description:</b>	Segment 1301 (Tidal Stream w/ high ALU): From the confluence with the Intracoastal Waterway in Brazoria County to a point 3.2 km (2.0 mi) upstream of SH 35 in Brazoria County				

Percent of Stream Impaired or of Concern						
Segment ID	PCBs/Dioxin	Bacteria	Dissolved Oxygen	Nutrients	Chlorophyll a	Other
1301	-	100	-	-	100	-

### Segment 1301

Standards	Tidal Stream	Screening Levels	Tidal Stream
Temperature (°C/°F):	35 / 95	Ammonia-N (mg/L):	0.46
Dissolved Oxygen (24-Hr Average) (mg/L):	4.0	Nitrate-N (mg/L):	1.10
Dissolved Oxygen (Absolute Minima) (mg/L):	3.0	Orthophosphate Phosphorus (mg/L):	0.46
pH (standard units):	6.5-9.0	Total Phosphorus-P (mg/L):	0.66
Enterococci (MPN/100mL) (grab):	104	Chlorophyll a (µg/L):	21
Enterococci (MPN/100mL) (geometric mean):	35		

FY 2016 Active Monitoring Stations				
Site ID	Site Description	Frequency	Monitoring Entity	Parameter Groups
12146	San Bernard River at FM 2611	Quarterly	TCEQ	Field, Conventional, Bacteria, Chlorophyll a
20460	San Bernard River Tidal at SH 35	Quarterly	EIH	Field, Conventional, Bacteria

## Water Quality Issues Summary

Issue	2014 Assessment <i>I - Impaired C - Of Concern</i>	Possible Causes / Influences / Concerns Voiced by Stakeholders	Possible Solutions / Actions To Be Taken
<b>Elevated Levels of Indicator Bacteria</b>	1301 I	<ul style="list-style-type: none"> <li>▪ Animal waste from agricultural production, hobby farms, and riding stables</li> <li>▪ Constructed stormwater controls failing</li> <li>▪ Developments with malfunctioning OSSFs</li> <li>▪ Improper or no pet waste disposal</li> <li>▪ Direct and dry weather discharges</li> <li>▪ Poorly operated or undersized WWTFs</li> <li>▪ Waste haulers illegal discharges/improper disposal</li> <li>▪ WWTF non-compliance, overflows, and collection system by-passes</li> </ul>	<ul style="list-style-type: none"> <li>▪ Implement stream fencing or alternative water supplies to keep livestock out of or away from waterways</li> <li>▪ Create and implement Water Quality Management Plans for individual agricultural properties</li> <li>▪ Install and/or conserve vegetative buffer areas along all waterways</li> <li>▪ Improve compliance and enforcement of existing stormwater quality permits</li> <li>▪ Improve construction oversight to minimize TSS discharges to waterways</li> <li>▪ Add water quality features to stormwater systems</li> <li>▪ More public education regarding OSSF operation and maintenance</li> <li>▪ Ensure proper citing of new or replacement OSSFs</li> <li>▪ More public education on pet waste disposal</li> <li>▪ Impose new or stricter bacteria limits than currently designated by TCEQ</li> <li>▪ Increase monitoring requirements for self-reporting</li> <li>▪ Require all systems to develop and implement a utility asset management program and protect against power outages at lift stations</li> </ul>
<b>Elevated Chlorophyll a Concentrations</b>	1301 C	<ul style="list-style-type: none"> <li>▪ Fertilizer runoff from surrounding watershed promote algal growth in waterways</li> <li>▪ Nutrient loading from WWTF effluent, sanitary sewer overflows, and malfunctioning OSSFs promotes algal growth</li> </ul>	<ul style="list-style-type: none"> <li>▪ Reduce or manage fertilizer runoff from agricultural areas</li> <li>▪ Improve compliance and enforcement of existing stormwater quality permits</li> <li>▪ Improve stormwater controls in new developments</li> <li>▪ More public education regarding nutrients</li> </ul>

## Segment Discussion:

**Watershed Characteristics:** The watershed is predominantly undeveloped with the exception of a few small towns including West Columbia, Wild Peach Village, Sweeny, Brazoria, and Jones Creek. Although there has not been a lot of development in the watershed, land that was previously grassland is now cultivated land, and some areas that were previously classified as forested land are now classified as woody wetlands. A large portion of the lower watershed by the mouth of the river is wetlands.

**Water Quality Issues:** While aquatic life use is fully supported, contact recreation use is impaired by elevated levels of bacteria. The TCEQ Assessment geometric mean for enterococci in AU 1301\_01 is 50.5, which is significantly higher than the standard of 35 MPN/ 100ml. The H-GAC 2008 – 2015 analysis calculated a geometric mean of 60, with 62% of the samples having a grab exceedance over the standard. Also 1301\_01 has a concern for water quality screening criteria levels for Chlorophyll *a*. Between 2008 and 2015, approximately 20 percent of grab samples exceeded the 21.0 micrograms per liter criterion. Although a concern is still present, there is improvement. Between 2001 and 2008, 32 percent of grabs samples exceeded the screening criteria level.

**Special Studies/Projects:** A Watershed Protection Plan (WPP) was recently completed for this segment, and is currently being reviewed by TCEQ. For more information, please refer to the detailed discussion in the Public Involvement and Outreach section. Currently, 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 San Bernard River 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 watershed data revealed statistically significant trends for five water quality parameters. Increases in ammonia, chloride, salinity, and total phosphorous (TP) are present throughout the segment while chlorophyll *a* levels are decreasing. Other than occasional spikes, the majority of ammonia and TP concentrations fall below the screening criteria. These occasional spikes in ammonia and TP are likely related to rain events when collection systems overflow, WWTFs and OSSFs malfunction, and pet waste, livestock fields and enclosures lead to higher bacteria levels in stormwater. Concerns for [ammonia](#) and [TP](#) are imminent if current trends continue. [Chlorophyll \*a\*](#) concentrations have been improving since before 2007 with concentrations gradually falling well below the 21 µg/L screening level. [Enterococci](#) concentrations remain stable throughout the watershed with the majority of samples exceeding the 35 MPN/100 mL standard.

## Recommendations

Add sites, at least temporarily, to gather the data necessary to complete the modeling and complete the watershed protection plan

Address concerns found in this segment summary through stakeholder participation and by completing the watershed protection plan.

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.

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