



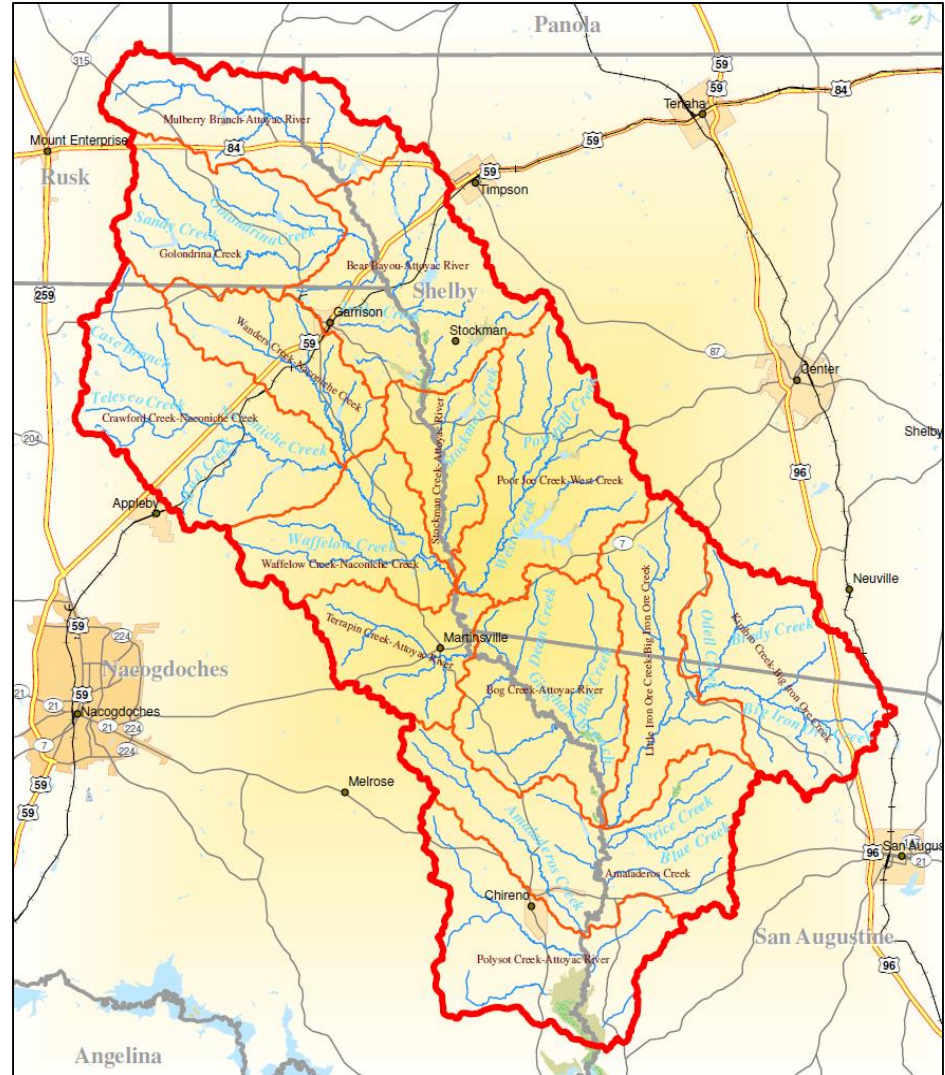
# Attoyac Bayou Watershed Partnership Stakeholder Meeting

Water Quality Update and Plans for  
Future Monitoring Efforts

July 13, 2017

# The Attoyac Bayou

- The Attoyac Bayou is a classified segment in the Neches River Basin
- The Attoyac runs approximately 82 miles through Rusk, Nacogdoches, San Augustine, and Shelby counties before entering into Sam Rayburn Reservoir
- The Attoyac Bayou watershed covers 354,629 acres
- The main land uses in the watershed are agriculture and forestry







# Texas Surface Water Quality Standards (TSWQS)

- TSWQS are state rules adopted by the Texas Commission on Environmental Quality (TCEQ) that are designed to establish numerical and narrative goals for water quality
- The standards include:
  - Designated, beneficial use
  - Specific numerical criteria to maintain its use
- TSWQS are the basis for assessing the status of a water body



Attoyac Bayou at SH 7





# Designated Uses for Attoyac Bayou

- General Use
- Public Water Supply Use
- Primary Contact Recreation 1 Use
- Aquatic Life Use (High)



Attoyac Bayou at SH 21



# Texas Integrated Report of Surface Water Quality

- Every 2 years, on even-numbered years, states must assess water quality and submit a report to EPA detailing the extent to which each water body meets state water quality standards.
- The report summarizes the condition of the state's surface waters, including concerns for public health, fitness for use, and specific pollutants and their possible sources.



Attoyac Bayou at FM 138

<https://www.tceq.texas.gov/waterquality/assessment/14twqi/14txir>



# Impairments in the Attoyac Bayou Watershed

- The Attoyac Bayou is listed as impaired due to elevated bacteria
- The Attoyac Bayou does not meet the applicable water quality standard for its designated use of Primary Contact Recreation 1
- The criteria for Primary Contact Recreation 1 is a geometric mean for *E. coli* of 126 colony forming units per 100 milliliters (CFU/100 mL)

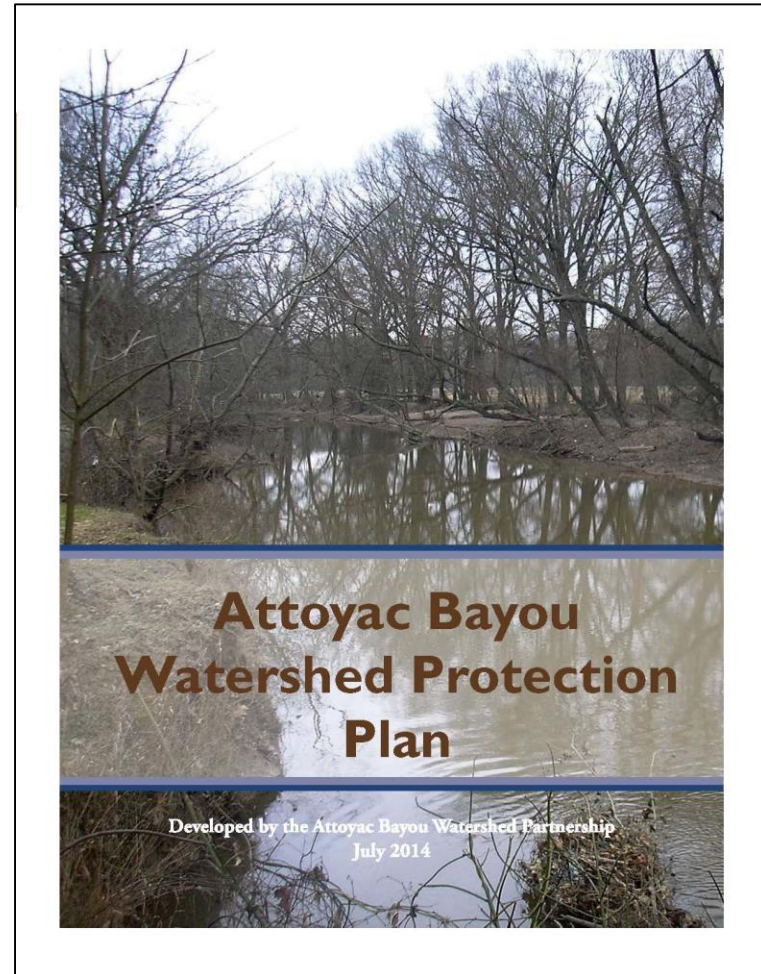


Attoyac Bayou at US 59



## Water Quality Monitoring in the Attoyac Bayou Watershed

- Through the Clean Rivers Program, ANRA has historically monitored water quality on the Attoyac Bayou at 3 monitoring stations (Attoyac at US 59, Attoyac at SH 7, and Attoyac at SH 21)
- From 2010 – 2012, as part of the development of the Attoyac Bayou Watershed Protection Plan (WPP), SFASU collected samples at 10 locations on a biweekly basis, including sites on tributaries







## Water Quality Monitoring in the Attoyac Bayou Watershed

- In 2014, as part of a Clean Water Act Section 319 grant to replace failing septic systems, ANRA added 5 additional monitoring stations (one on the Attoyac Bayou, and 4 on tributaries); These stations were sampled monthly from 2014 – 2015
- In 2017, SFASU began sampling the same sites that ANRA sampled in 2014 – 2015. SFASU will sample these sites monthly for 2 years. Sampling will help determine the effectiveness of implementation activities as part of the Attoyac Bayou WPP

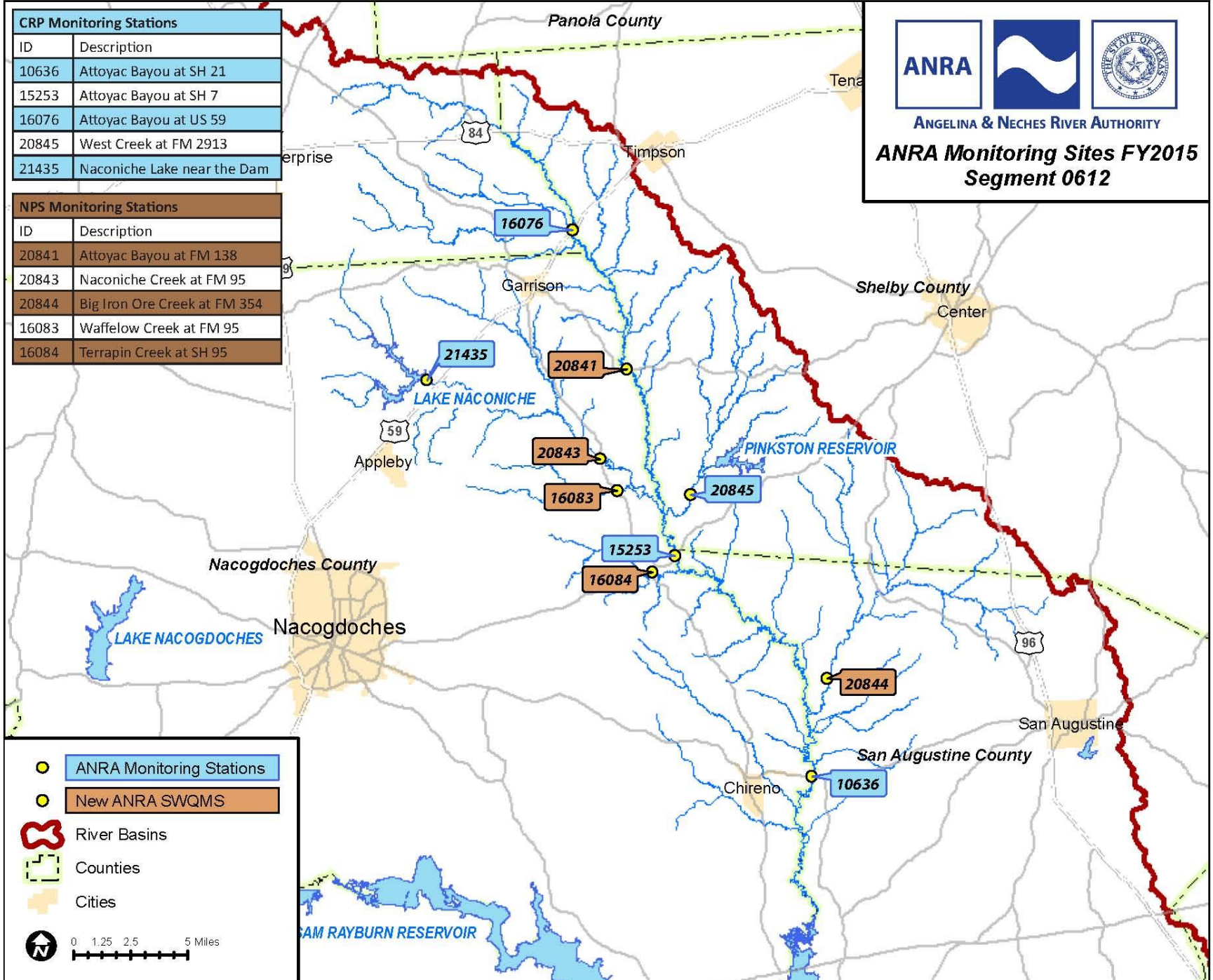




| CRP Monitoring Stations |                            |
|-------------------------|----------------------------|
| ID                      | Description                |
| 10636                   | Attoyac Bayou at SH 21     |
| 15253                   | Attoyac Bayou at SH 7      |
| 16076                   | Attoyac Bayou at US 59     |
| 20845                   | West Creek at FM 2913      |
| 21435                   | Nacouche Lake near the Dam |

| NPS Monitoring Stations |                              |
|-------------------------|------------------------------|
| ID                      | Description                  |
| 20841                   | Attoyac Bayou at FM 138      |
| 20843                   | Nacouche Creek at FM 95      |
| 20844                   | Big Iron Ore Creek at FM 354 |
| 16083                   | Waffelow Creek at FM 95      |
| 16084                   | Terrapin Creek at SH 95      |

**ANRA** ANGELINA & NECHES RIVER AUTHORITY  
**ANRA Monitoring Sites FY2015 Segment 0612**



- ANRA Monitoring Stations
- New ANRA SWQMS
- River Basins
- Counties
- Cities

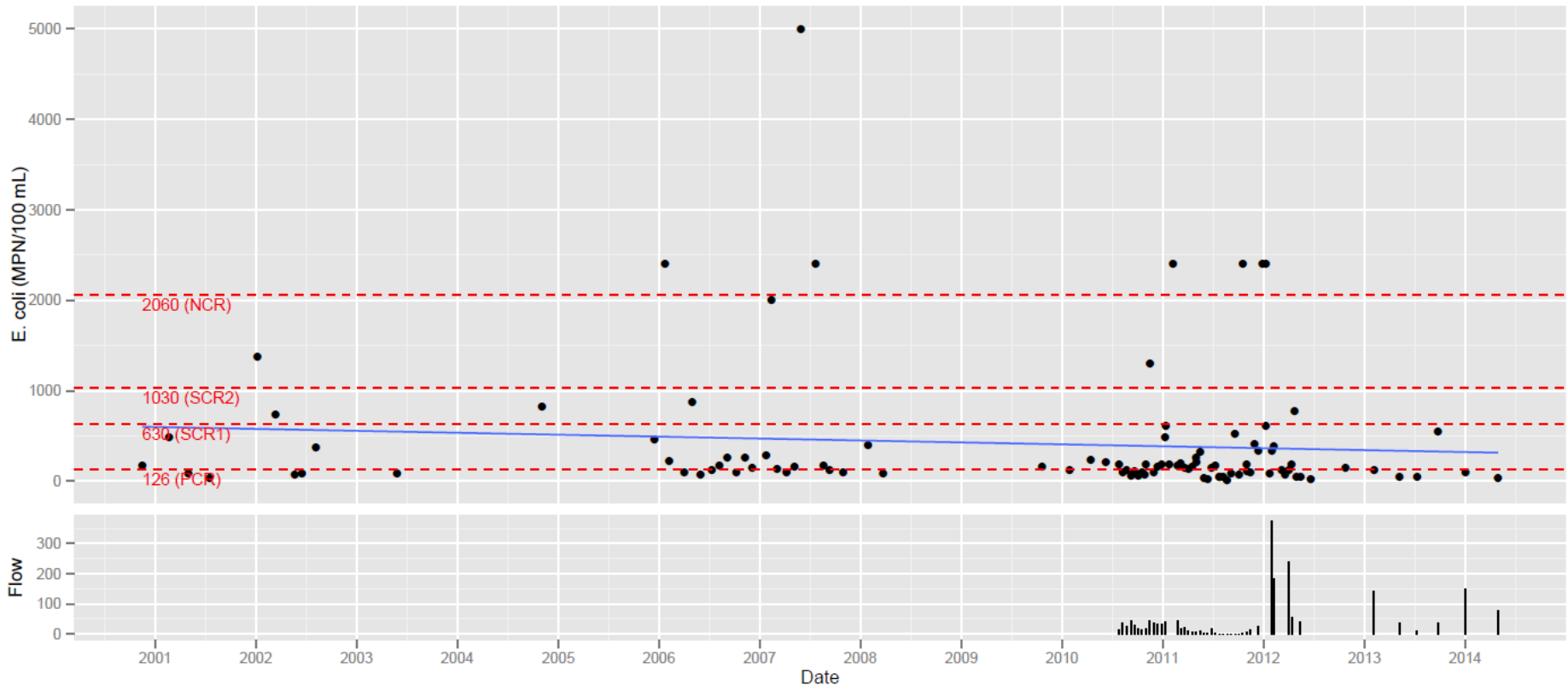
0 1.25 2.5 5 Miles



# Historic Water Quality Monitoring in the Attoyac Bayou Watershed

ATTOYAC BAYOU AT SH 21

#Obs= 102 | p-value= 0.344 | t-stat= 1.416 | R Sq= 0.009 | Adj R Sq= -0.001 |  $y = -6.76e-07 * x + 1260$



Geomean = 178.5

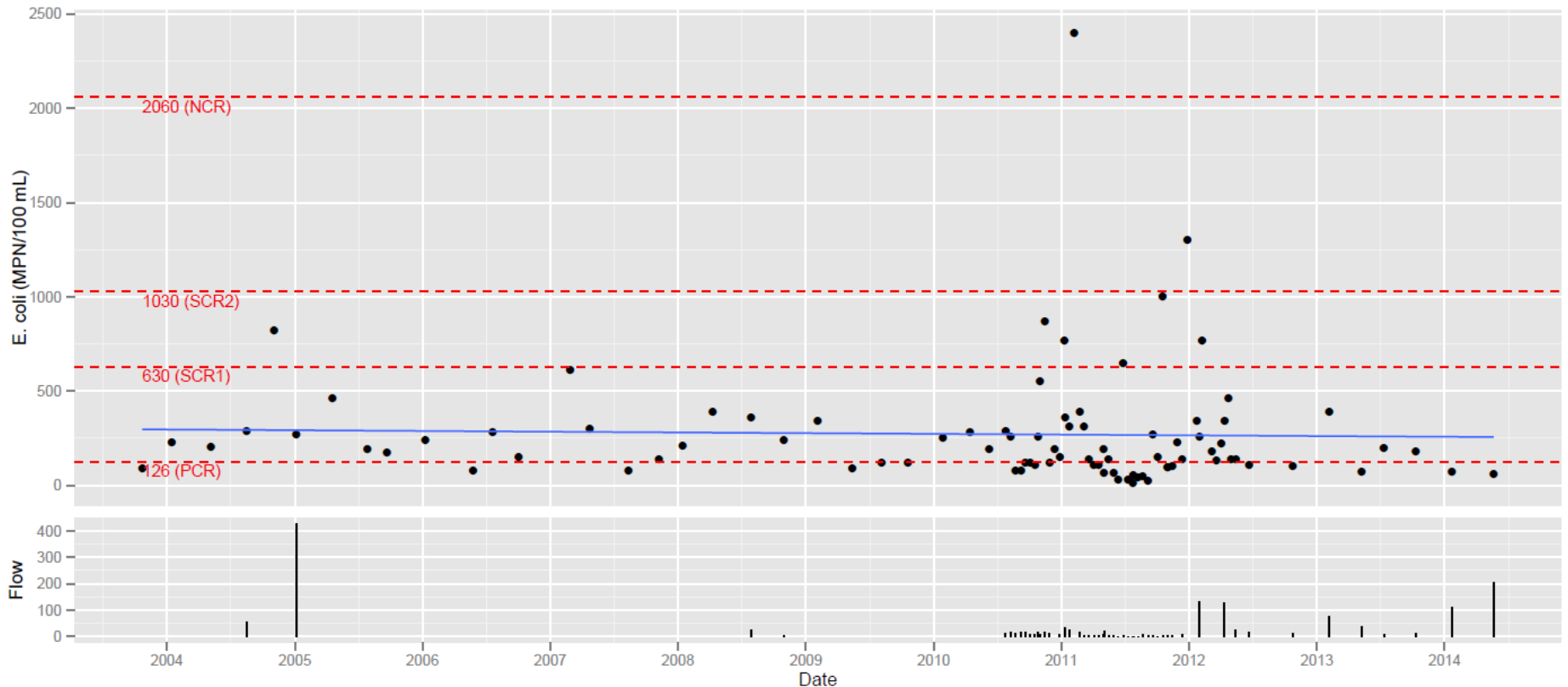




# Historic Water Quality Monitoring in the Attoyac Bayou Watershed

ATTOYAC BAYOU AT SH 7

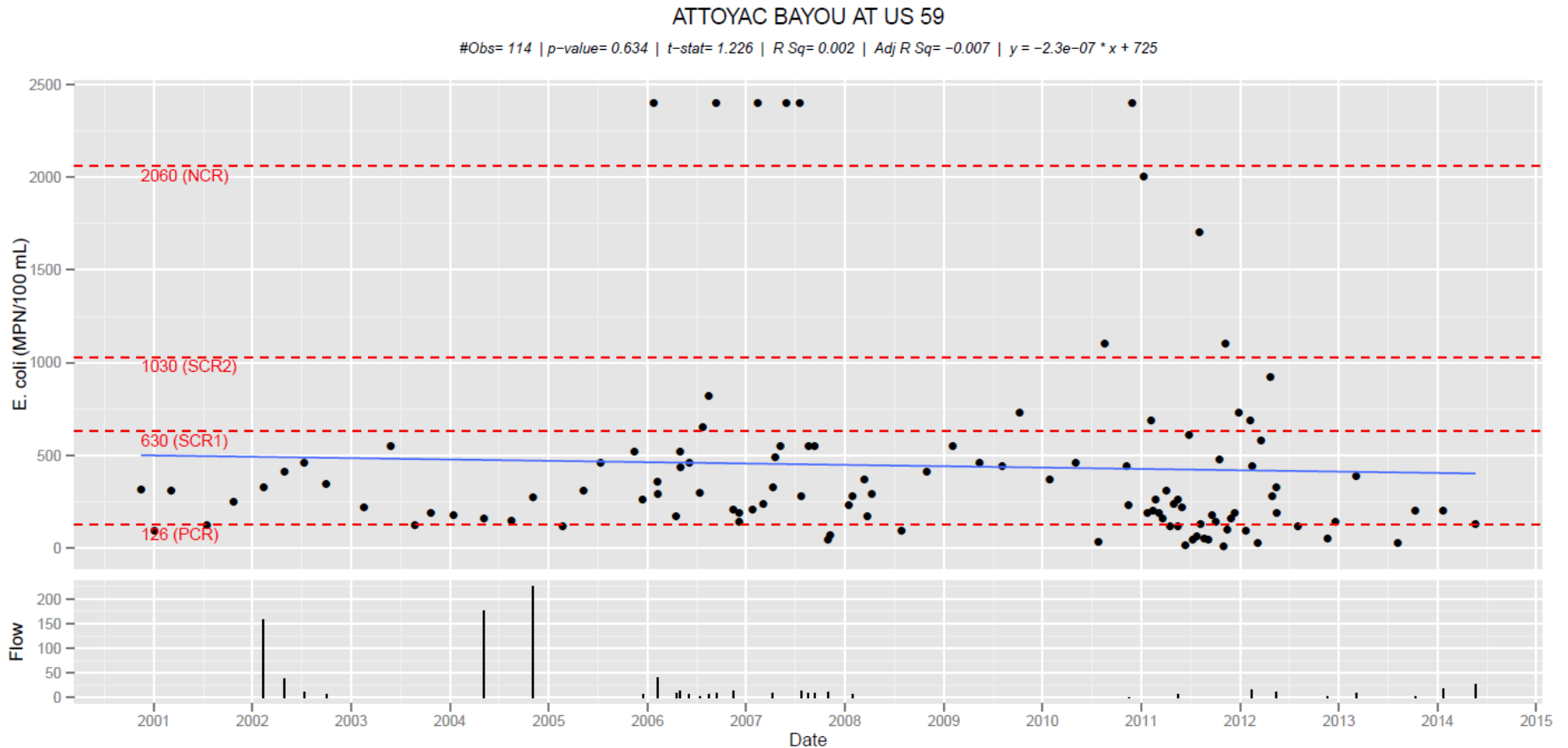
#Obs= 89 | p-value= 0.78 | t-stat= 0.767 | R Sq= 0.001 | Adj R Sq= -0.011 |  $y = -1.22e-07 * x + 427$



Geomean = 195



# Historic Water Quality Monitoring in the Attoyac Bayou Watershed



Geomean = 147.2

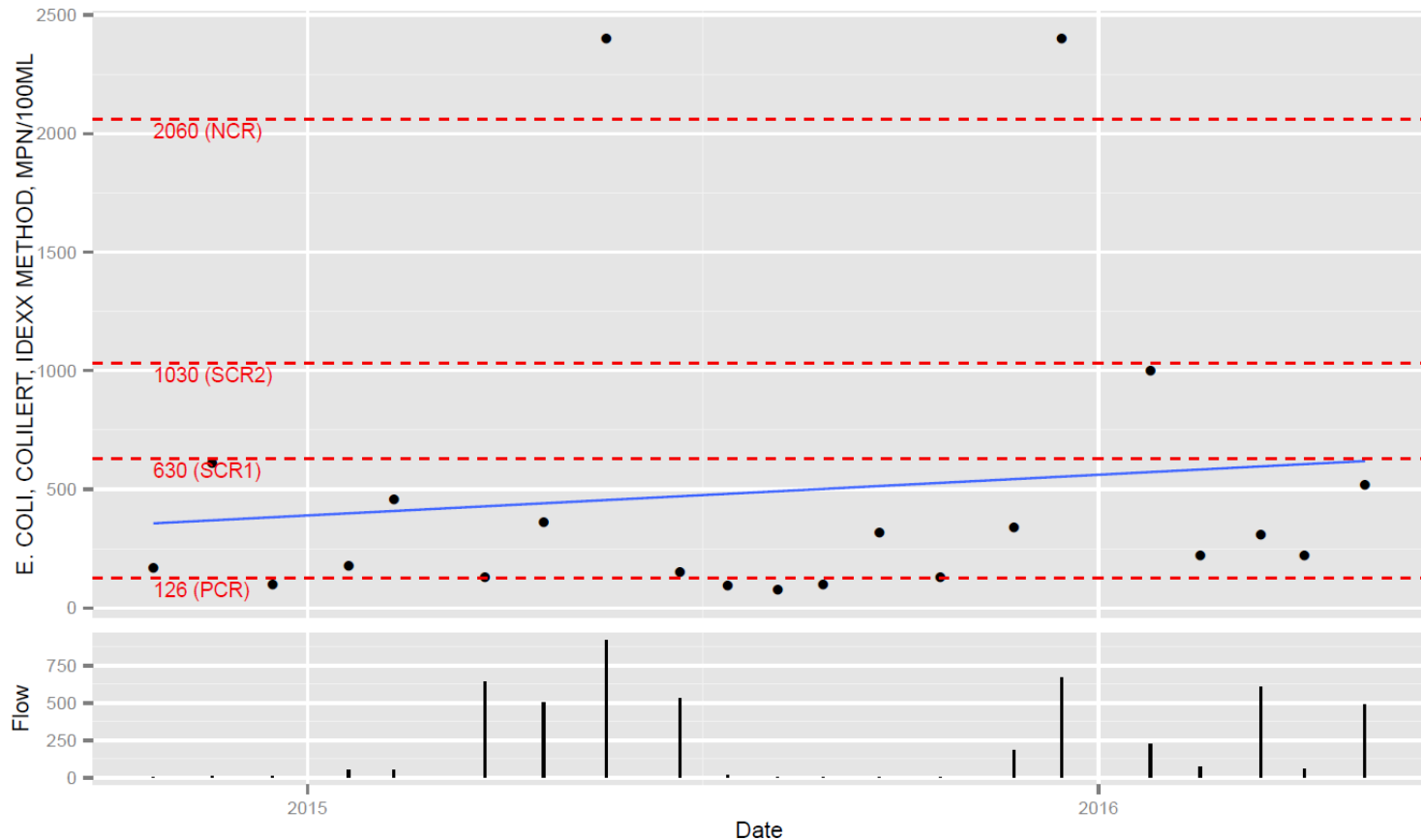




# Recent Water Quality Monitoring in the Attoyac Bayou Watershed

Attoyac at FM 138

#Obs= 21 | p-value= 0.6 | t-stat= -0.499 | R Sq= 0.015 | Adj R Sq= -0.037 |  $y = 5.44e-06 * x + -7337$



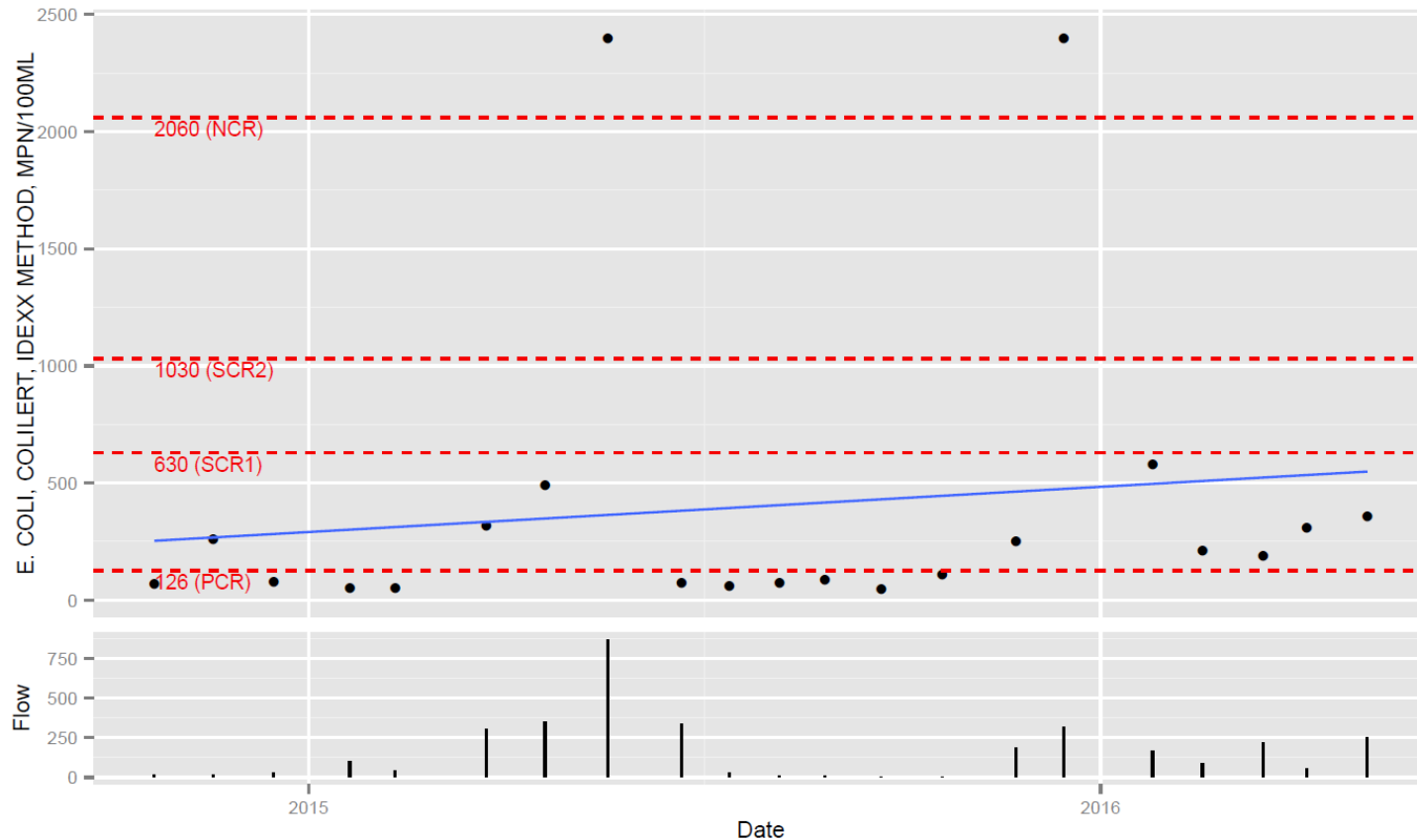
Geomean = 281.3



# Recent Water Quality Monitoring in the Attoyac Bayou Watershed

Naconiche Creek at FM 95

#Obs= 21 | p-value= 0.56 | t-stat= -0.565 | R Sq= 0.018 | Adj R Sq= -0.034 |  $y = 6.12e-06 * x + -8401$



Geomean = 183.4

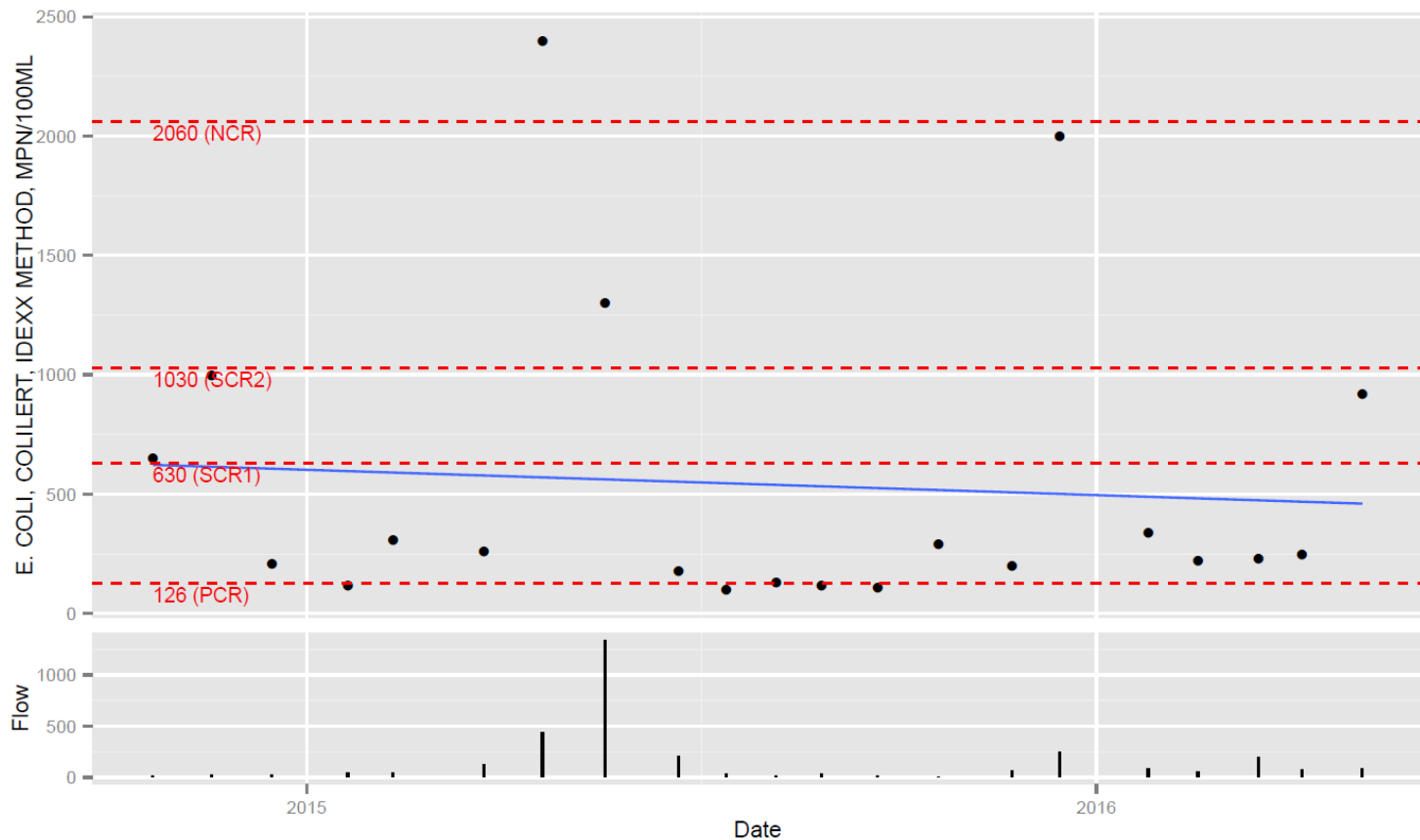




# Recent Water Quality Monitoring in the Attoyac Bayou Watershed

Big Iron Ore Creek at FM 354

#Obs= 21 | p-value= 0.736 | t-stat= 0.38 | R Sq= 0.006 | Adj R Sq= -0.046 |  $y = -3.36e-06 * x + 5378$



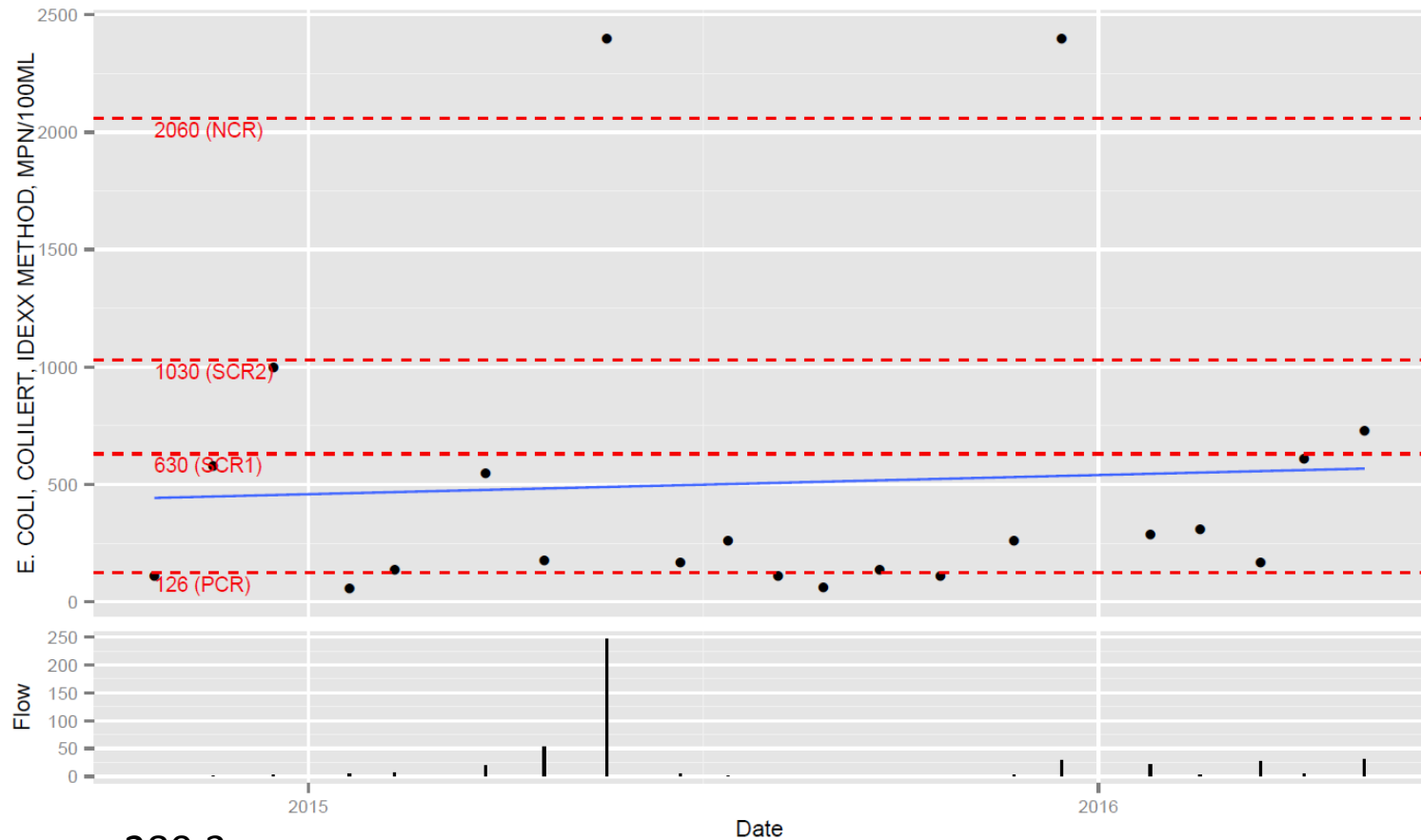
Geomean = 325.6



# Recent Water Quality Monitoring in the Attoyac Bayou Watershed

Waffelow Creek at FM 95

#Obs= 21 | p-value= 0.805 | t-stat= -0.216 | R Sq= 0.003 | Adj R Sq= -0.049 |  $y = 2.59e-06 * x + -3214$



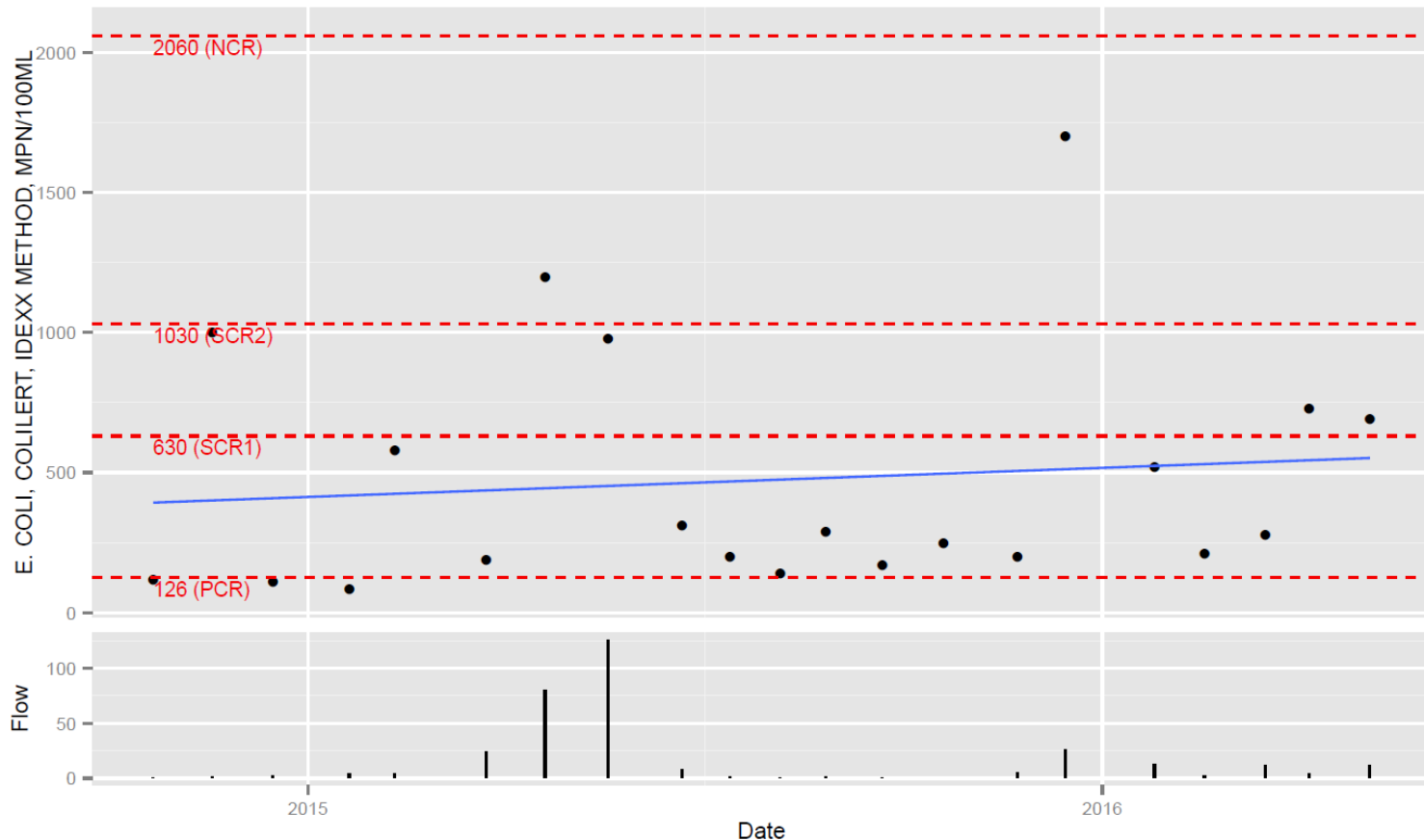
Geomean = 280.3



# Recent Water Quality Monitoring in the Attoyac Bayou Watershed

Terrapin Creek at FM 95

#Obs= 21 | p-value= 0.623 | t-stat= -0.45 | R Sq= 0.013 | Adj R Sq= -0.039 |  $y = 3.3e-06 * x + -4268$



Geomean = 330.6





## Water Quality Monitoring Discussion

- Historically, *E. coli* levels in the Attoyac Bayou have exceeded the water quality standard for Primary Contact Recreation (126 CFU/100mL), but has been below the standard for Secondary Contact Recreation 1 (630 CFU/100mL)
- A Recreation Use Attainability Analysis (RUAA) was conducted to determine if Primary Contact Recreation was the most appropriate use category for the Attoyac Bayou
  - TCEQ determined that the designation of Primary Contact Recreation was appropriate
- Steps have been taken to implement recommendations contained in the Attoyac Bayou Watershed Protection Plan in order to improve water quality in the watershed
  - ANRA was able to install 23 aerobic on-site sewage facilities in the watershed to replace failing and/or non-existent systems
  - Pineywoods Resource Conservation & Development (RC&D) will be able to replace additional on-site sewage facilities in the upcoming year
- ANRA and SFASU will continue water quality monitoring efforts to determine the effect of these activities on water quality within the watershed



QUESTIONS?



## Contact Information



**Please direct questions and comments to:**

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