

The Attoyac Watershed Protection Plan Summary of 2017-2018 Monitoring

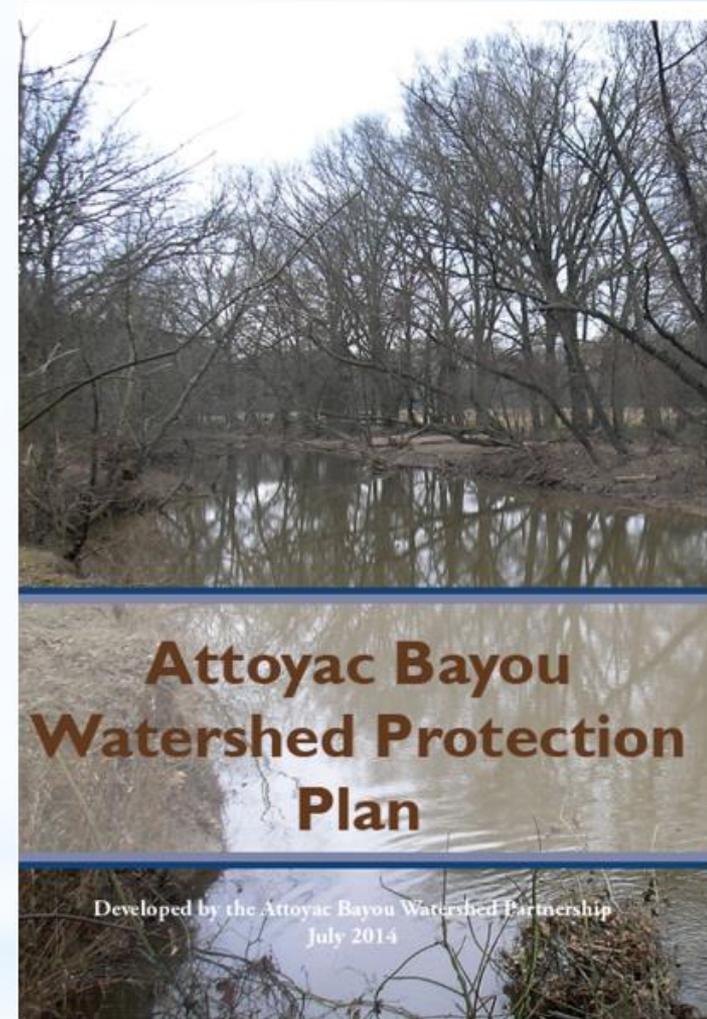


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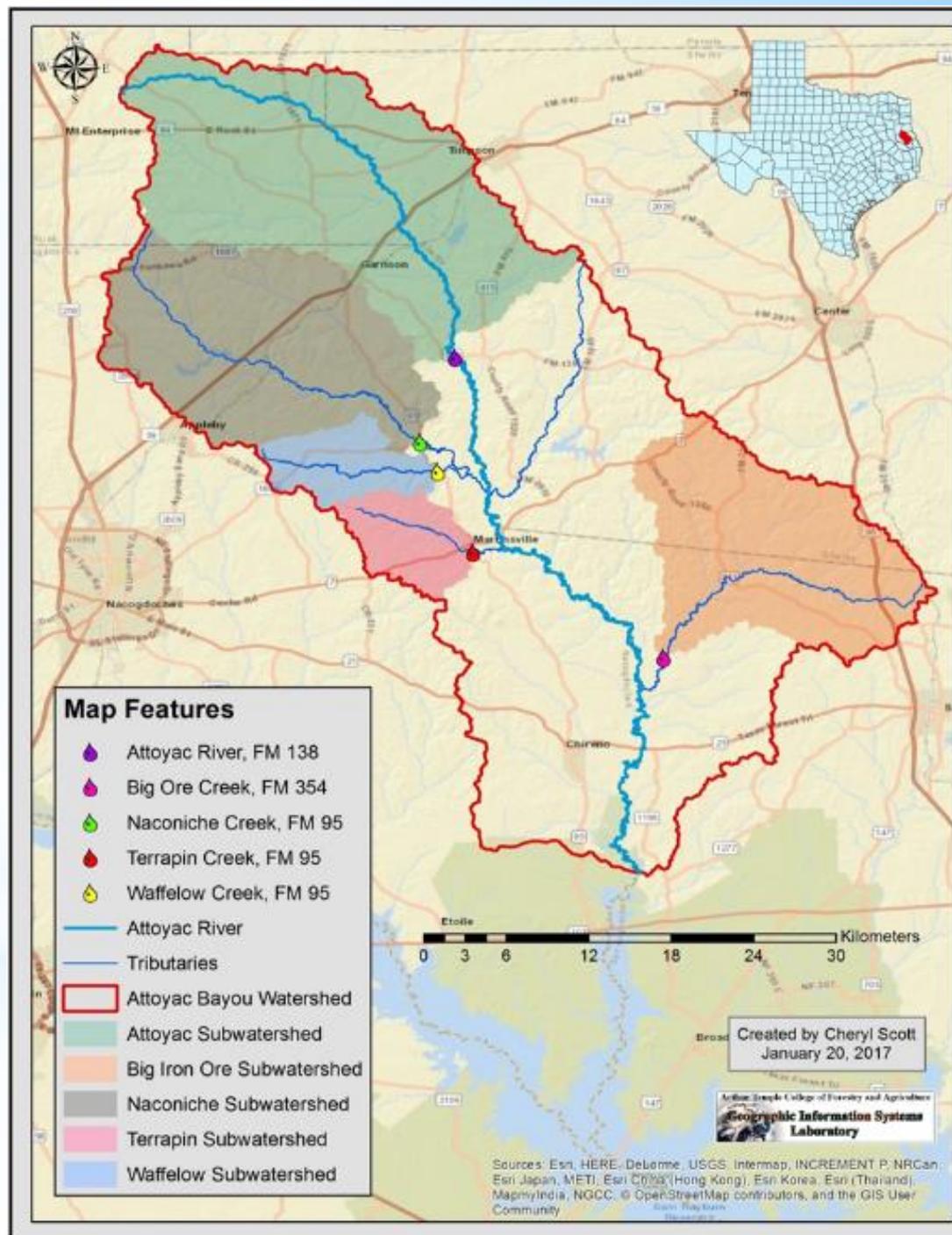
Introduction

- ▶ 2004 – *303(d) List* for elevated bacteria
 - 2008 – Ammonia a concern
- ▶ 2014 – Attoyac Bayou Watershed Protection Plan
- ▶ Best management practices (BMPs) developed for:
 - Livestock and cattle
 - Feral hogs
 - On-site sewage facilities (OSSFs)



Methods

- ▶ Monthly Sampling
 - March 2017 – May 2019
- ▶ Five sample locations:
 - Attoyac Bayou (AB)
 - Naconiche Creek (NC)
 - Waffelow Creek (WC)
 - Terrapin Creek (TC)
 - Big Iron Ore Creek (BIO)



Methods

- ▶ In-situ parameters:
 - Water temperature,
 - Dissolved oxygen,
 - pH,
 - Specific conductivity,
 - Discharge, and
 - Secchi depth



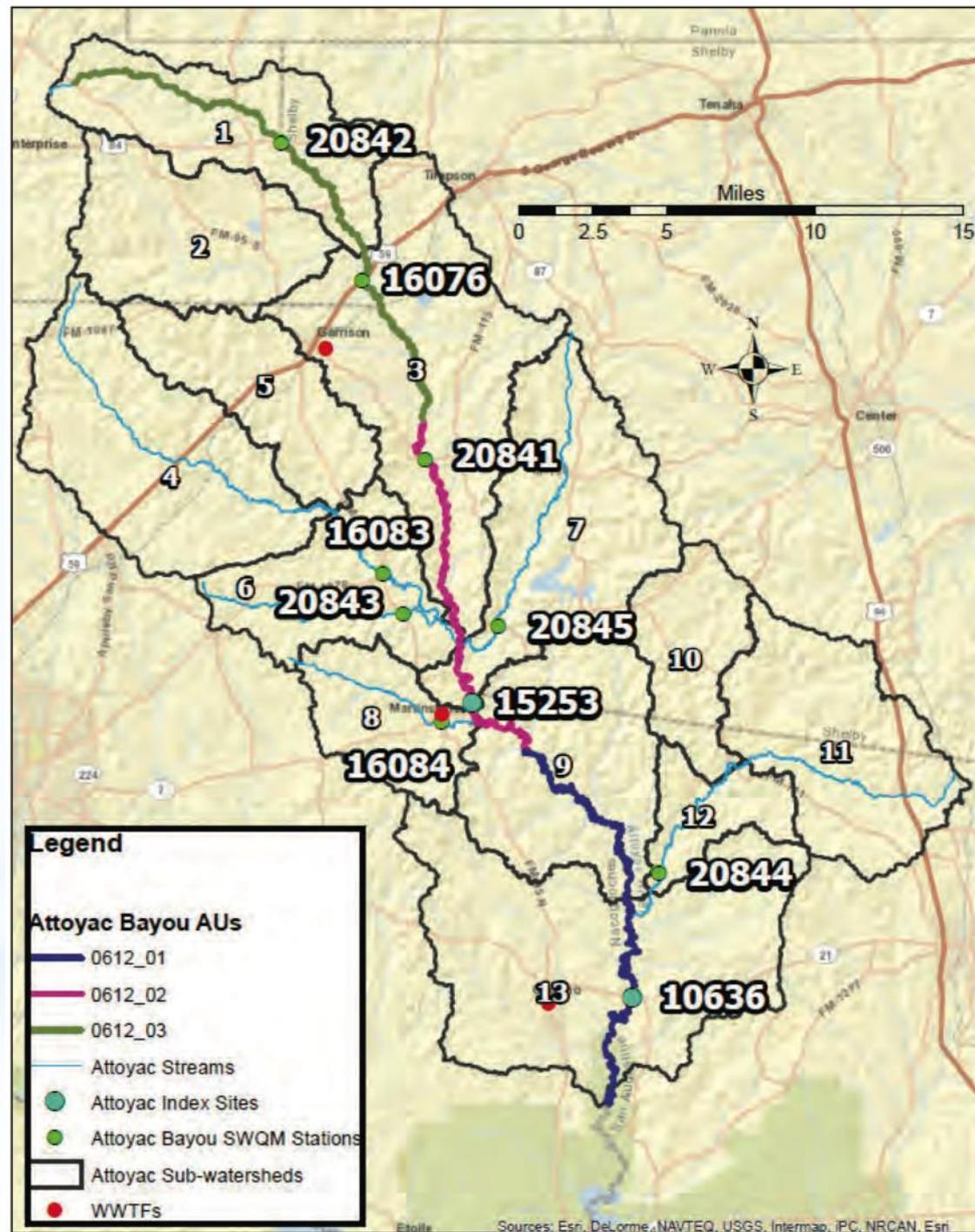
Methods

- ▶ Ex-situ parameters:
 - *E. coli*,
 - Ammonia-N,
 - Nitrate-N,
 - Nitrite-N,
 - Total phosphorus,
 - Total suspended solids,
 - Total dissolved solids,
 - Chloride, and
 - Sulfate



Results Positive Developments

* As per the Draft 2016 Texas Integrated Report, the lower segment of the Attoyac Bayou between Polly Branch to the north and Granberry Branch to the south (segment 0612_01, in blue) was removed from the 303d list for E-coli bacteria because it now meets criteria.



Results - *E. coli*

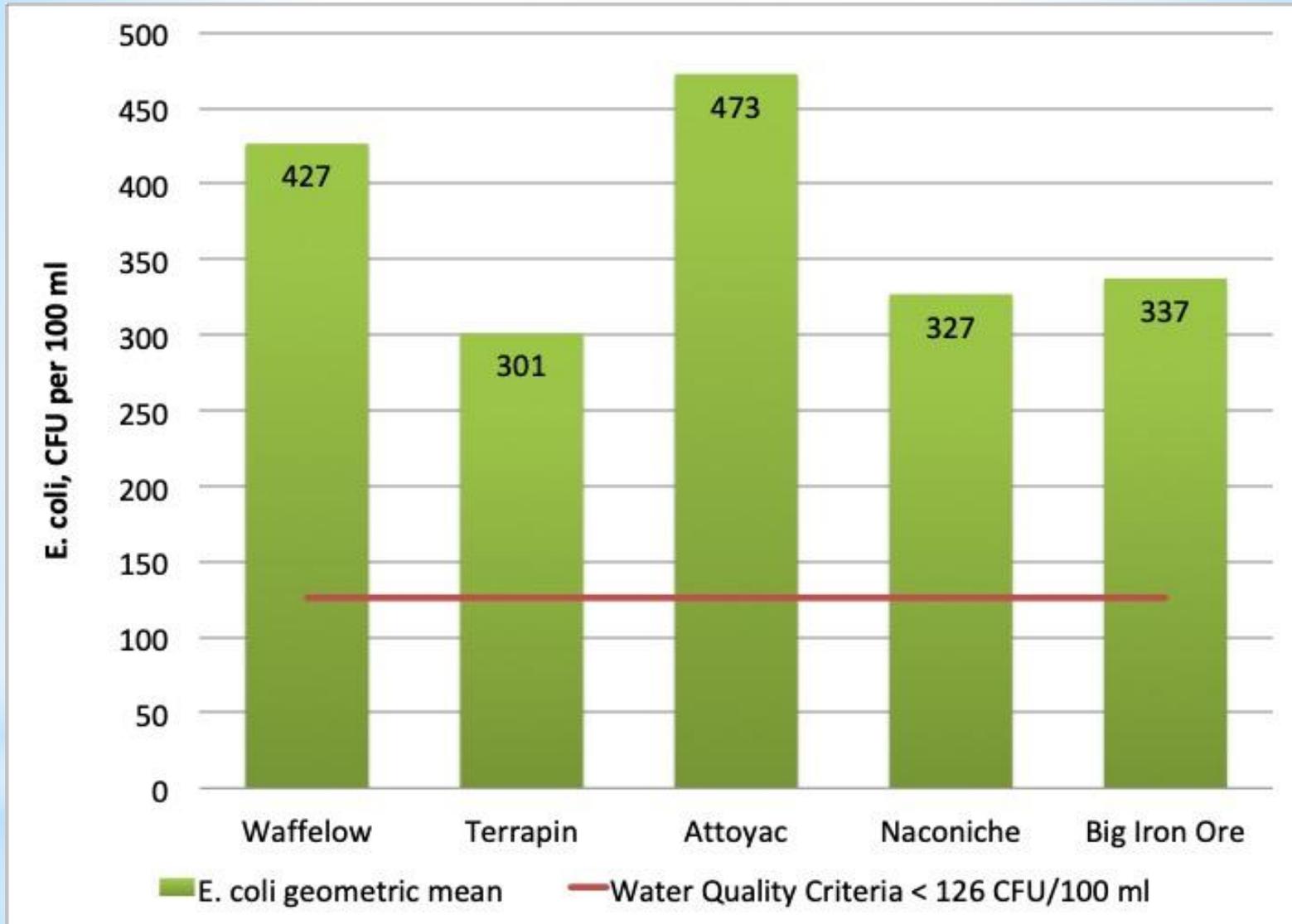


Table 1. Geometric mean grab sample *E. coli* concentrations (CFU/100 ml) collected monthly between March 2017 and April 2019 compared with the water quality criteria of 126 CFU/100 ml at 5 sites in the Attoyac Bayou Watershed. Only 8 out of the 103 samples were below 126 for this period.

Results - Nitrate

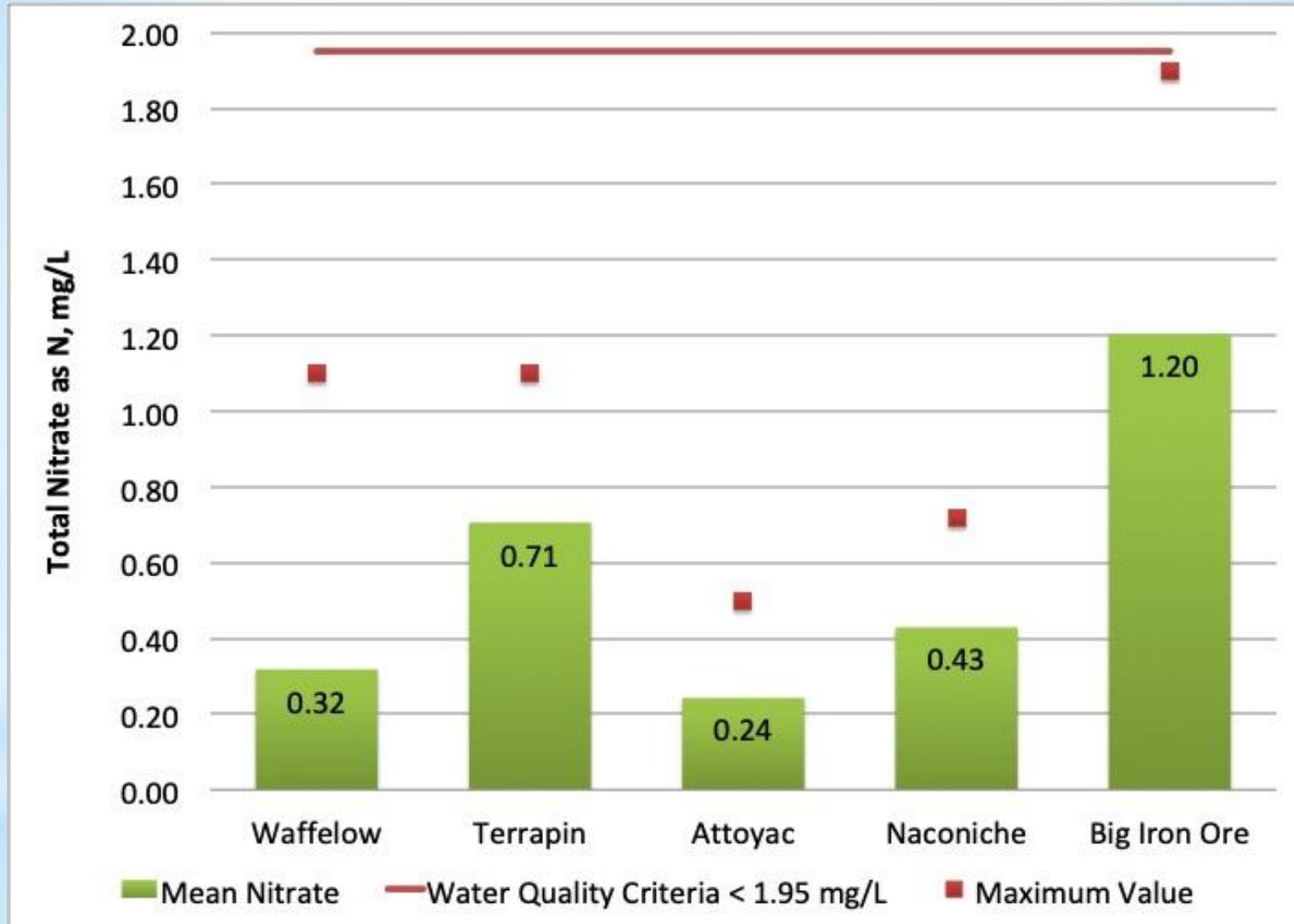


Table 2. Mean grab sample nitrate-nitrogen concentrations (as N) collected monthly between March 2017 and April 2019 compared with the water quality criteria of 1.95 mg/L at 5 sites in the Attoyac Bayou Watershed.

Results - Ammonia

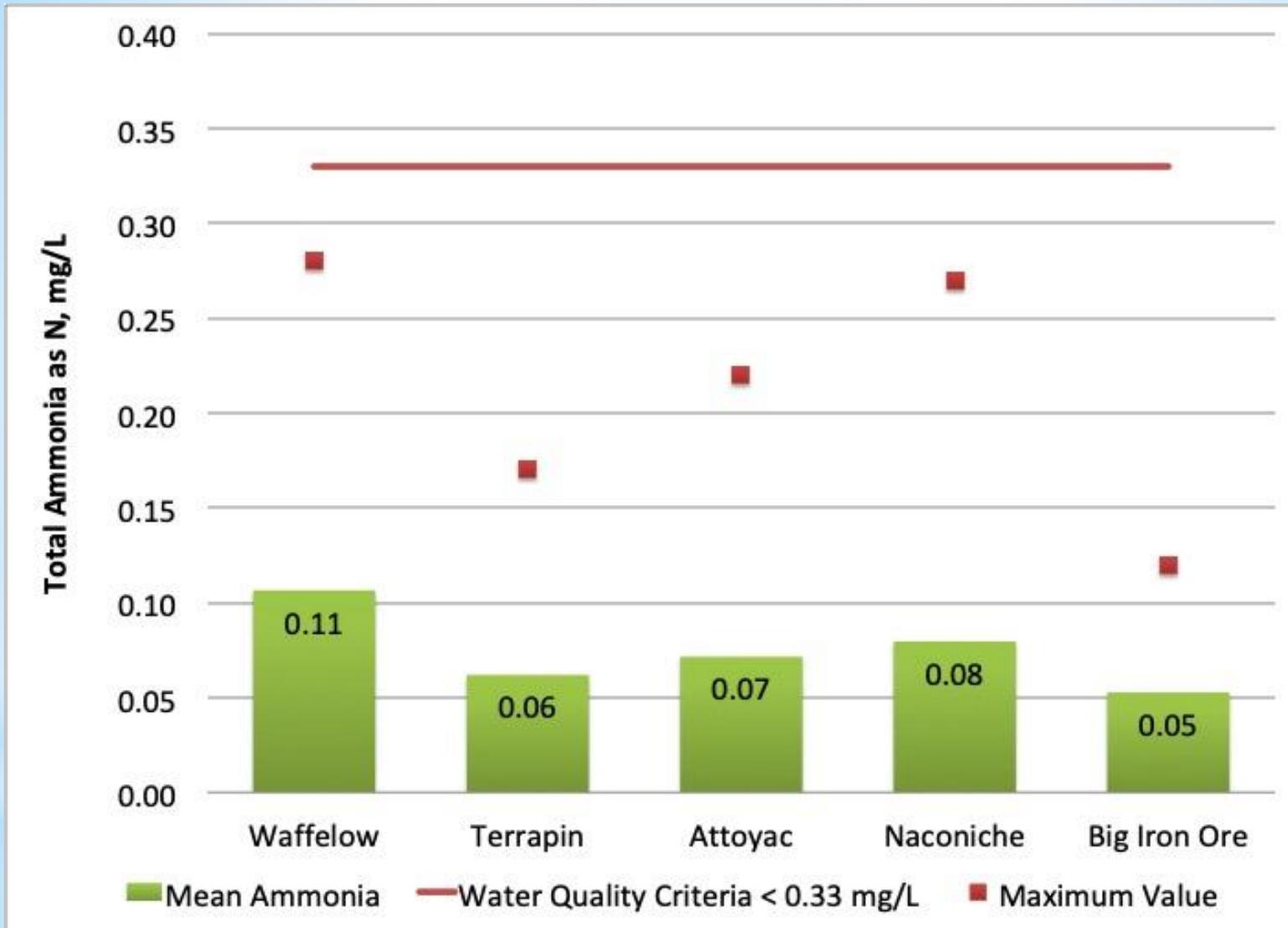


Table 3. Mean grab sample ammonia-nitrogen concentrations (as N) collected monthly between March 2017 and April 2019 compared with the water quality criteria of 0.33 mg/L at 5 sites in the Attoyac Bayou Watershed. About 70% of samples were below the 0.1 mg/L detection limit.

Results – Total Phosphorus

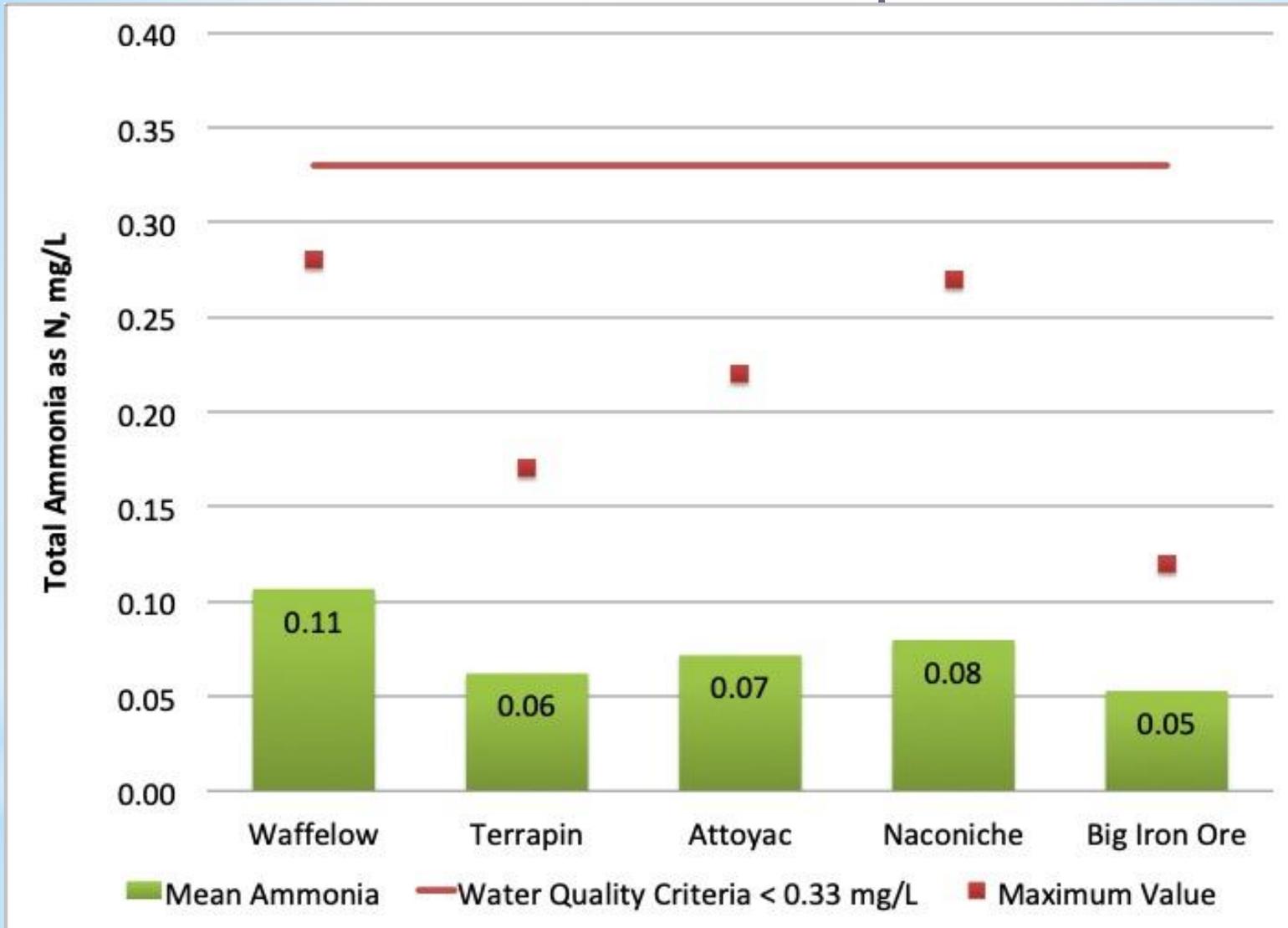


Table 4. Mean grab sample total phosphorus concentrations (as P) collected monthly between March 2017 and April 2019 compared with the water quality criteria of 0.69 mg/L at 5 sites in the Attoyac Bayou Watershed.

Results – Dissolved Oxygen

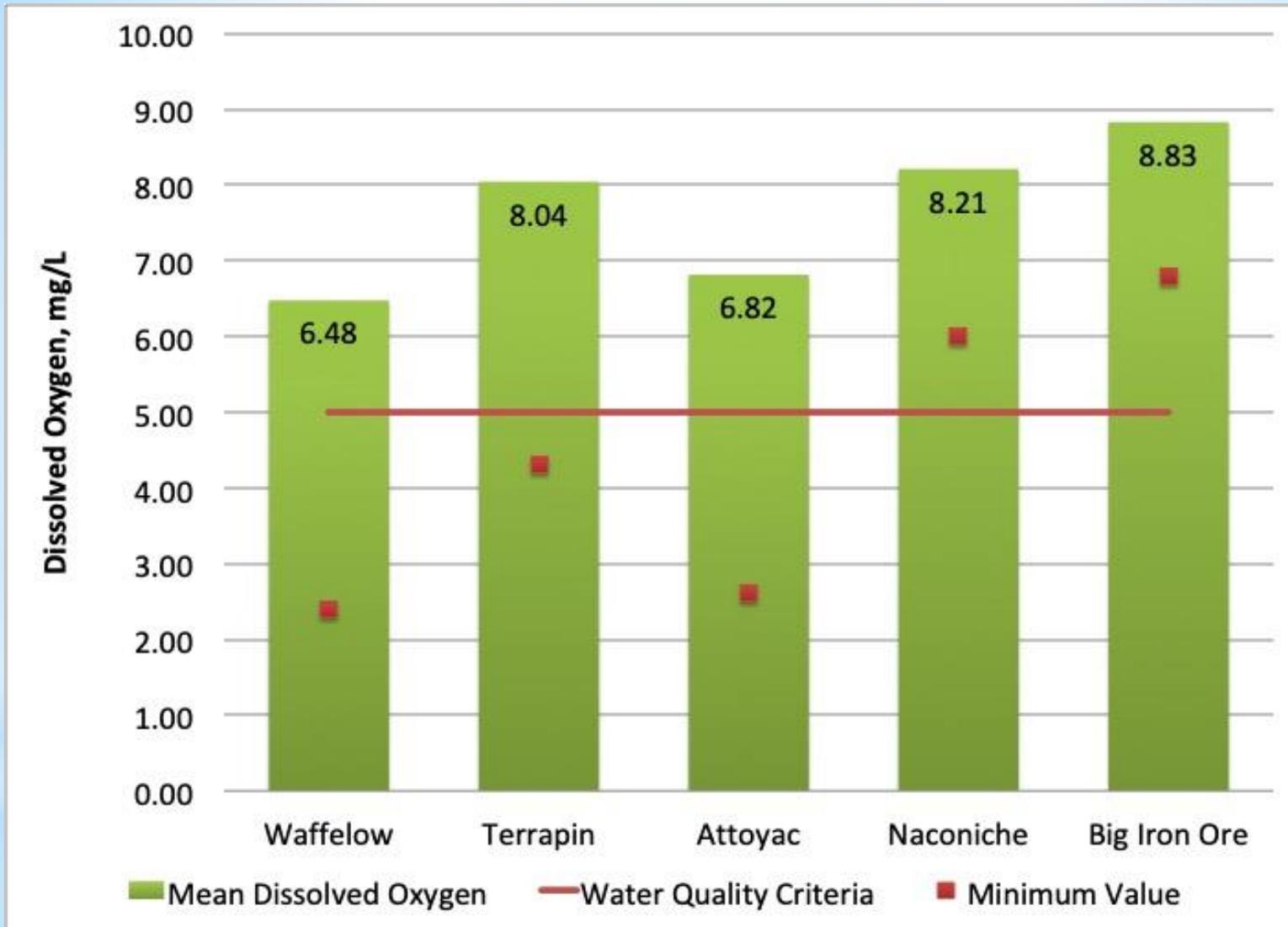


Table 5. Mean grab sample dissolved oxygen concentrations collected monthly between March 2017 and April 2019 compared with the water quality criteria of 5.0 mg/L at 5 sites in the Attoyac Bayou Watershed. Three measurements were below 3.0 mg/L

Results – Dissolved Oxygen by Season

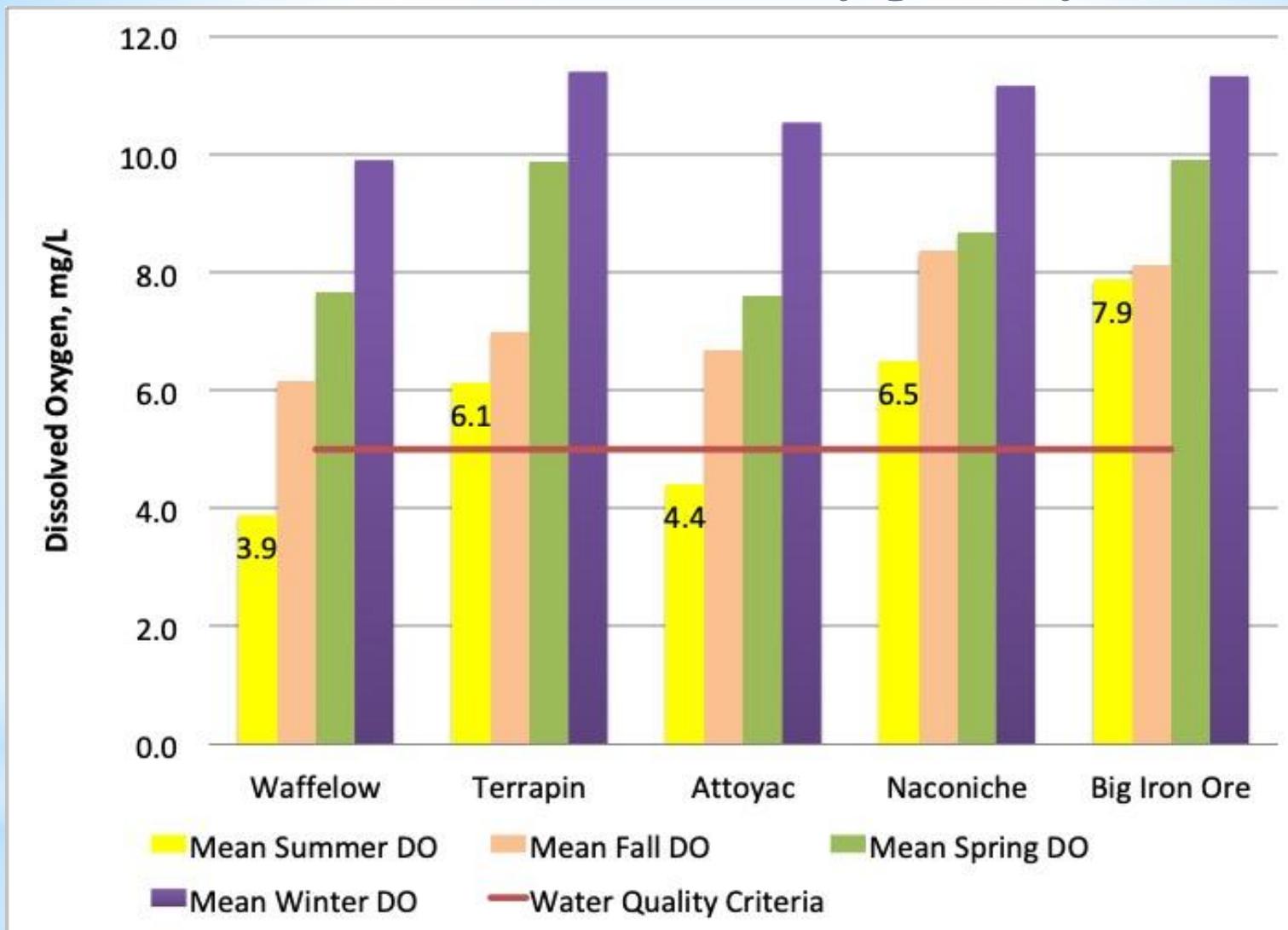


Table 6. Mean seasonal grab sample dissolved oxygen concentrations collected monthly between March 2017 and April 2019 compared with the water quality criteria of 5.0 mg/L at 5 sites in the Attoyac Bayou Watershed.

Results – pH

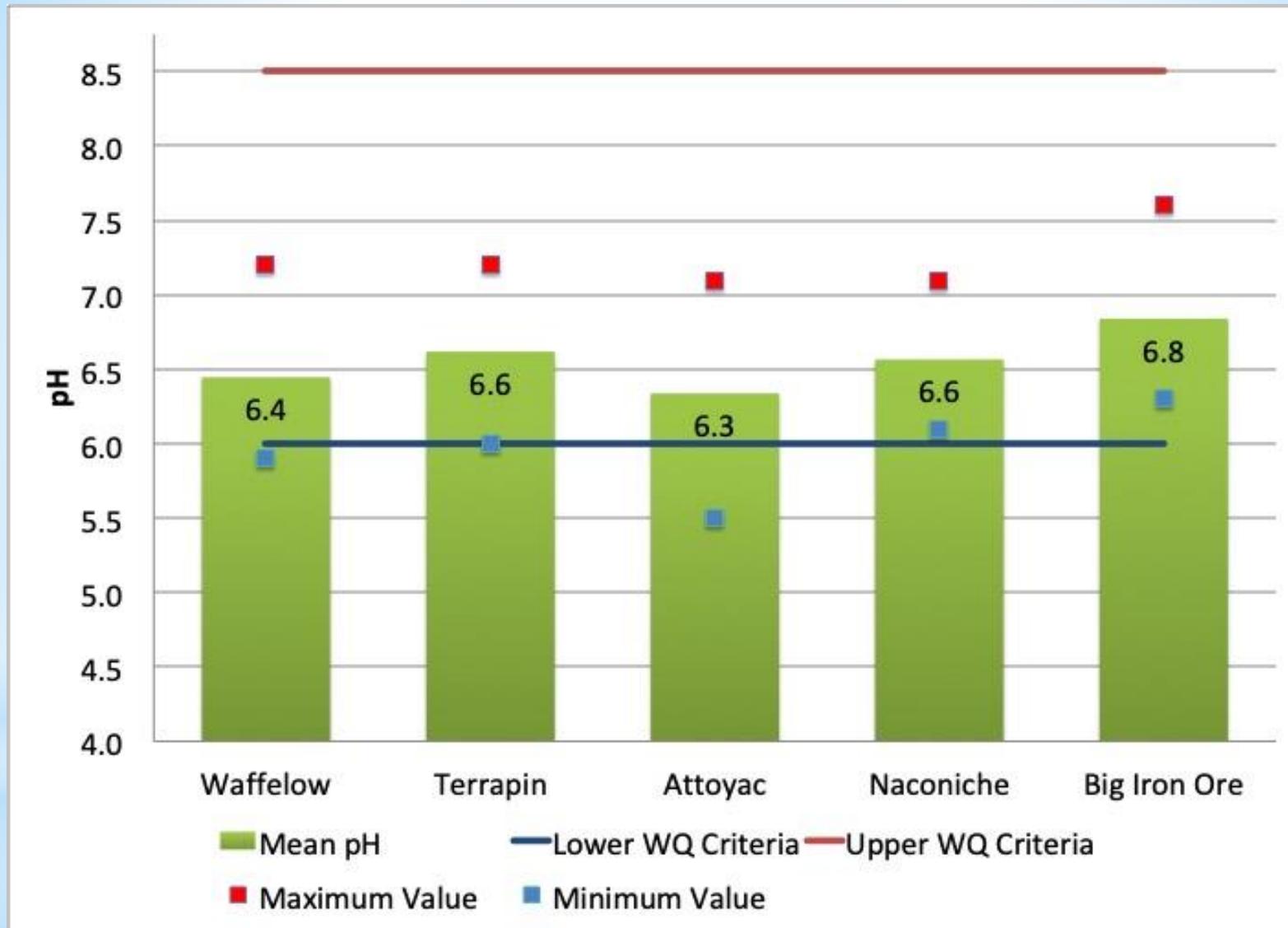


Table 7. Mean grab sample pH values collected monthly between March 2017 and April 2019 compared with the water quality criteria (between 6.0 and 8.5) at 5 sites in the Attoyac Bayou Watershed. Mean values were calculated from H⁺ ion concentrations not pH values.

Continued Monitoring

- These sites will be monitored through August 2019 on the current project funding.
- Additional funding for an additional 22 months is anticipated.



Questions?



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