

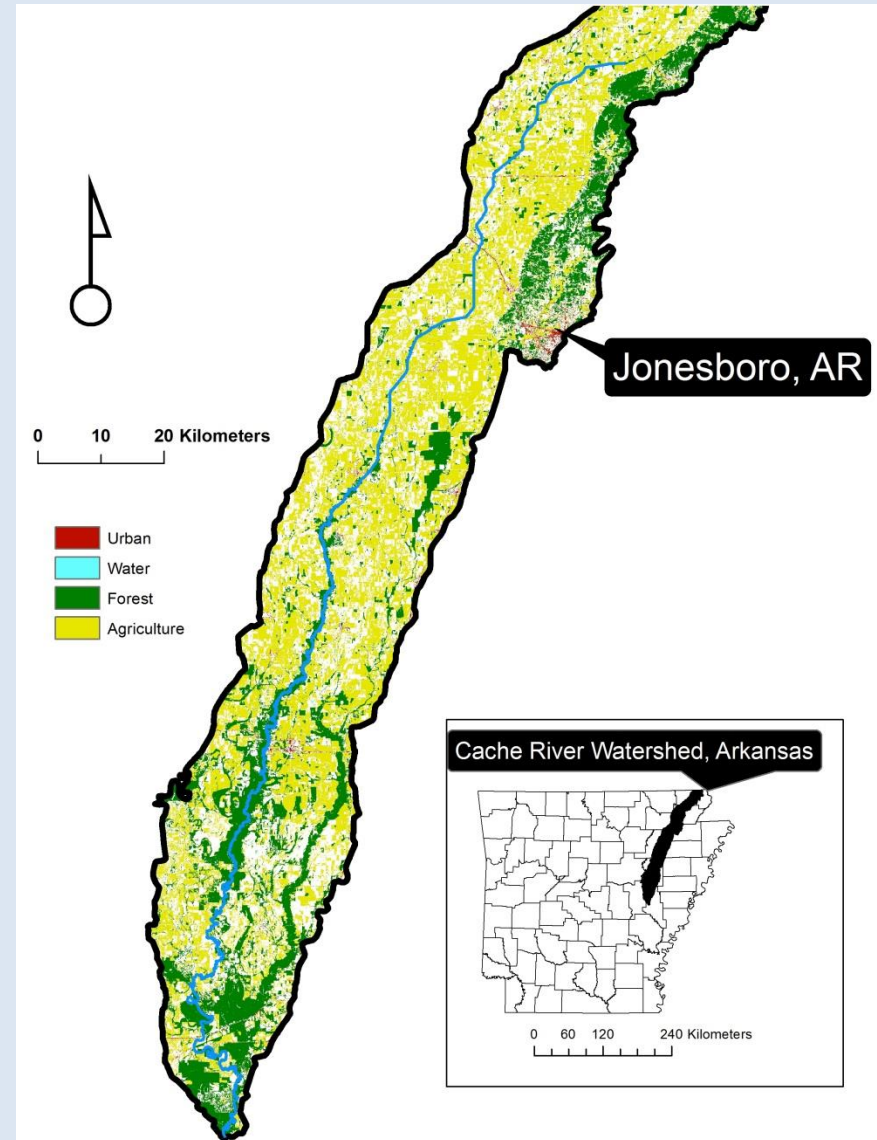
# Cache River Monitoring 11-6000

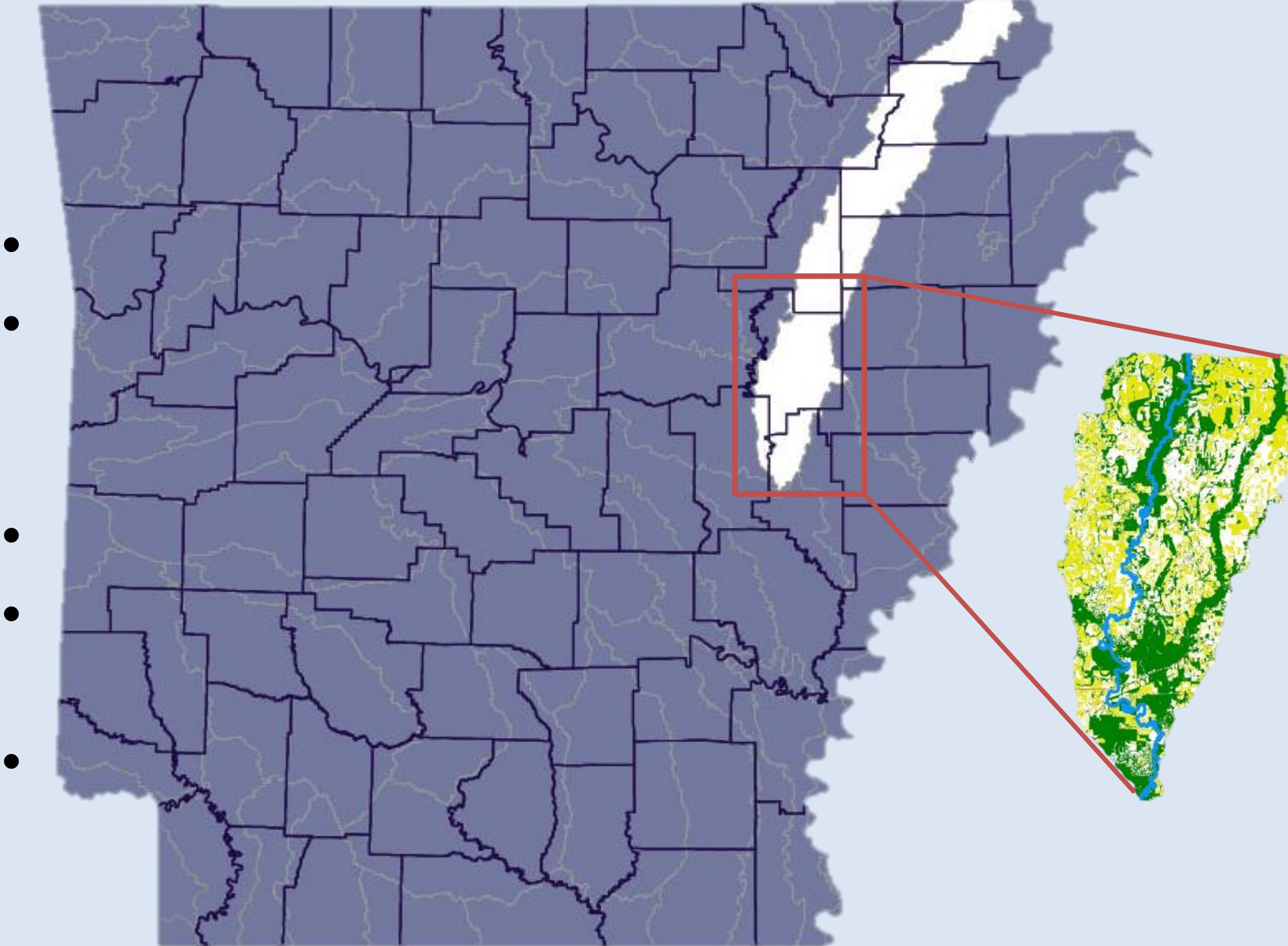
Jennifer L. Bouldin, PhD  
Ecotoxicology Research Facility  
Arkansas State University



# Cache River

- Delta – bottomland hardwood forests
- Agricultural land
- 2 main channels of watershed
- Cache & Bayou DeView





# Ramsar Convention on Wetlands

- Intergovernmental treaty
- Wetlands of International Importance
- Commitment to maintain
  - Ecological character
  - Sustainable use of all wetlands in their territories





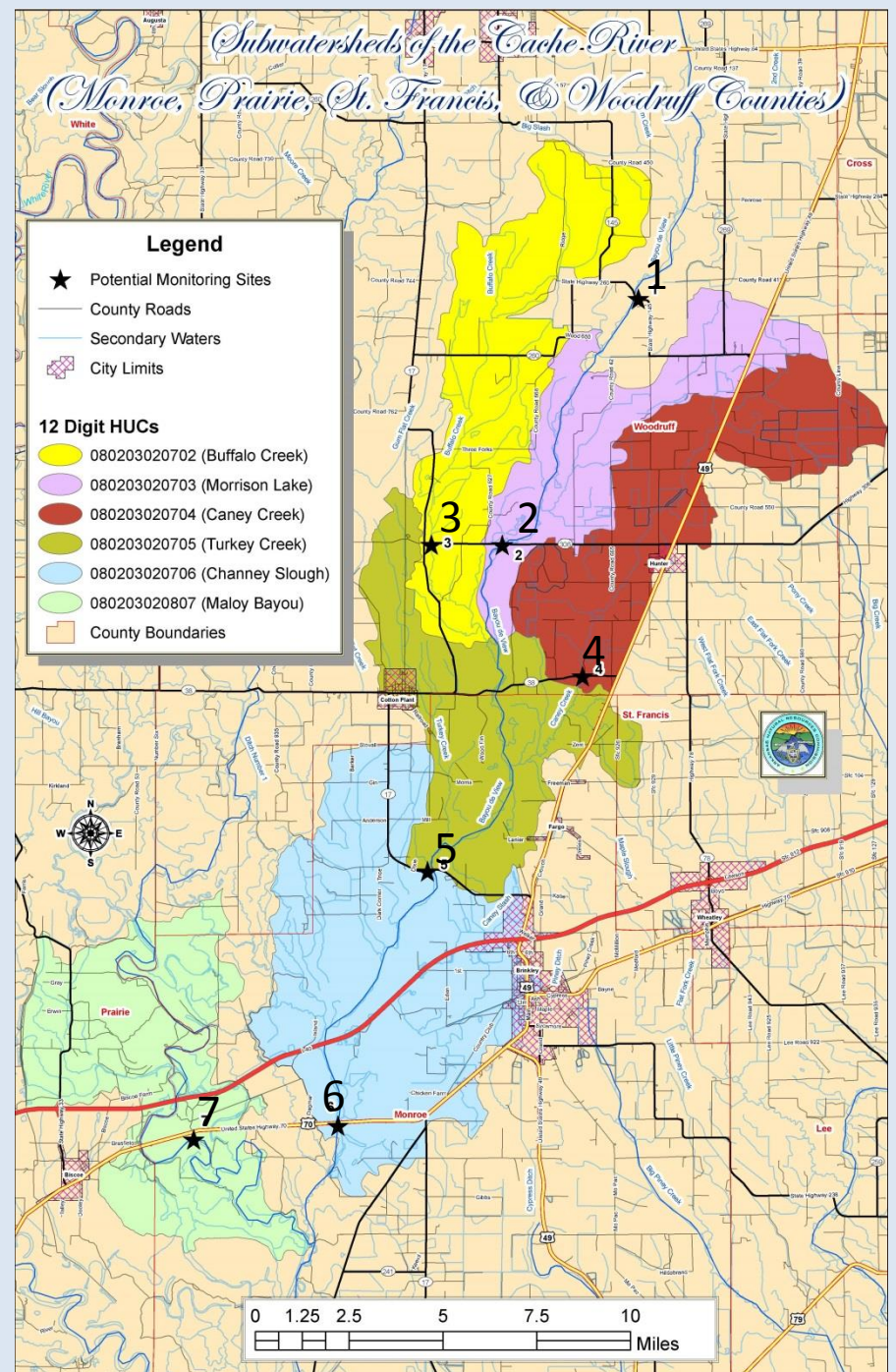
# Wetland of International Importance

- 1989
- Ramsar site 442



# Sampling sites

- Site 1 – upstream of target subwatersheds
- Sites 2-6 – Bayou De View subwatersheds
- Site 7 – Cache River main channel



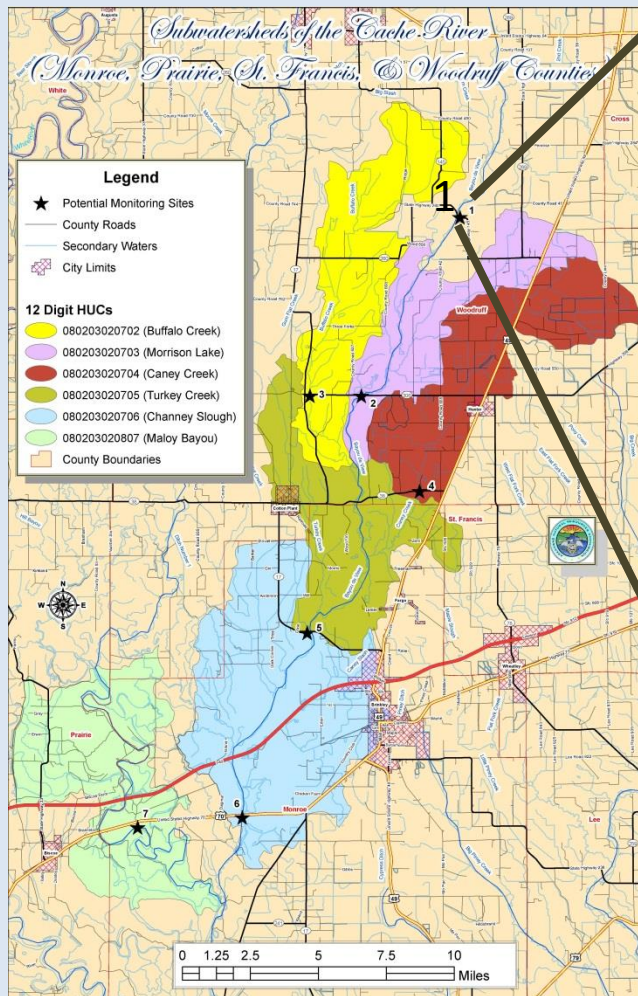
# Measured Parameters

- pH
- Dissolved Oxygen
- Total Suspended Solids (TSS)
- Turbidity
- Dissolved Nitrate, Nitrite, Orthophosphate
- Total Nitrogen, Total Phosphorus



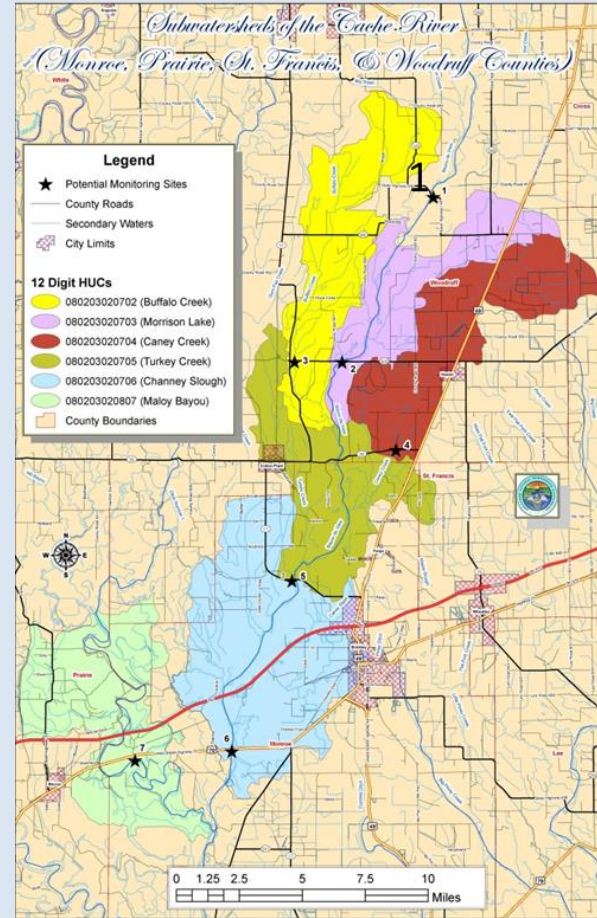
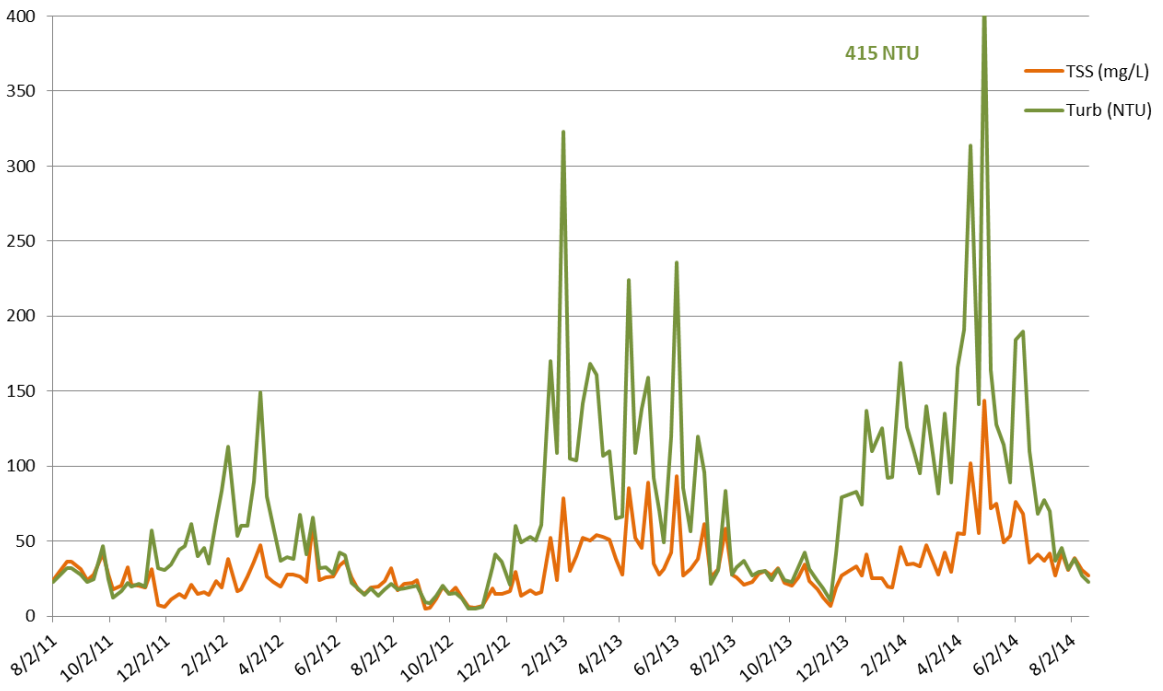
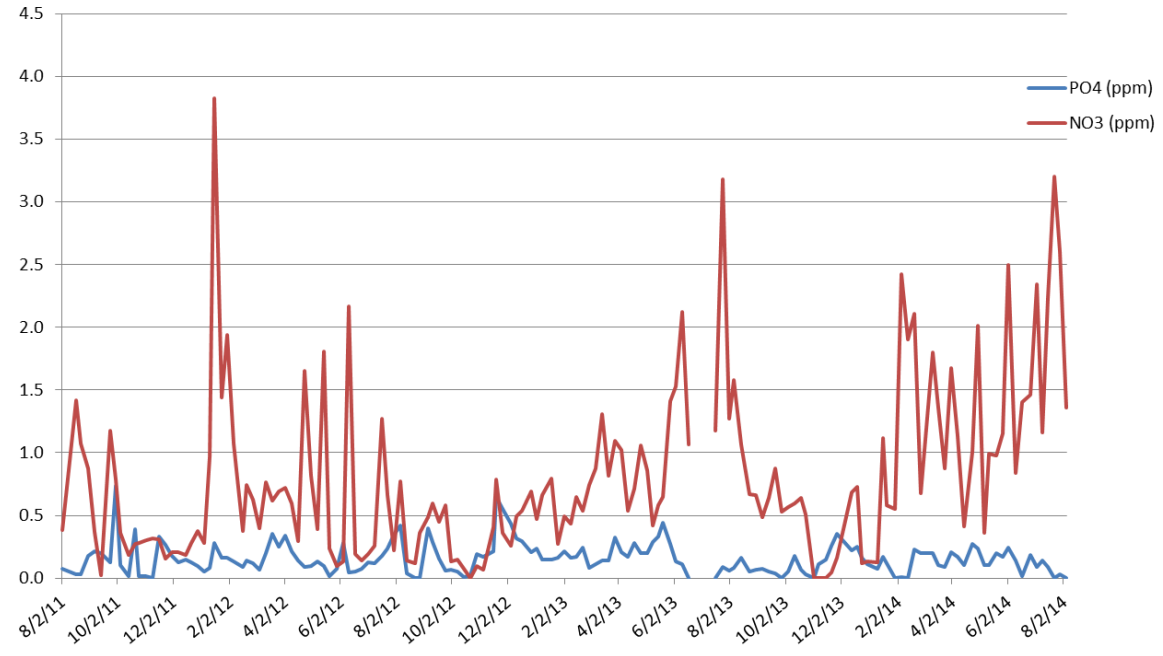
# Site 1

## Upper Cache River



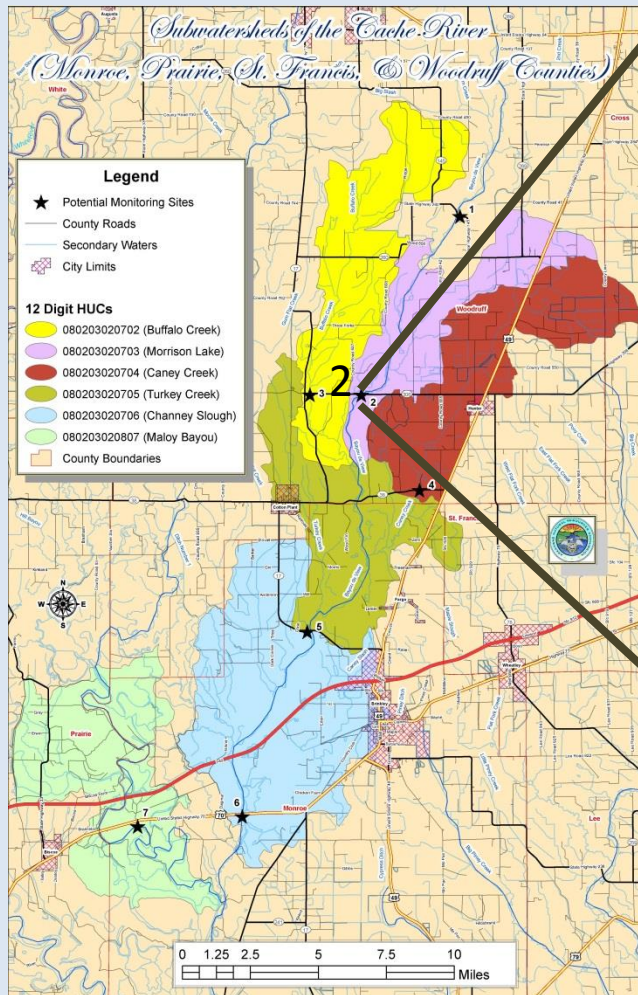


# Site 1



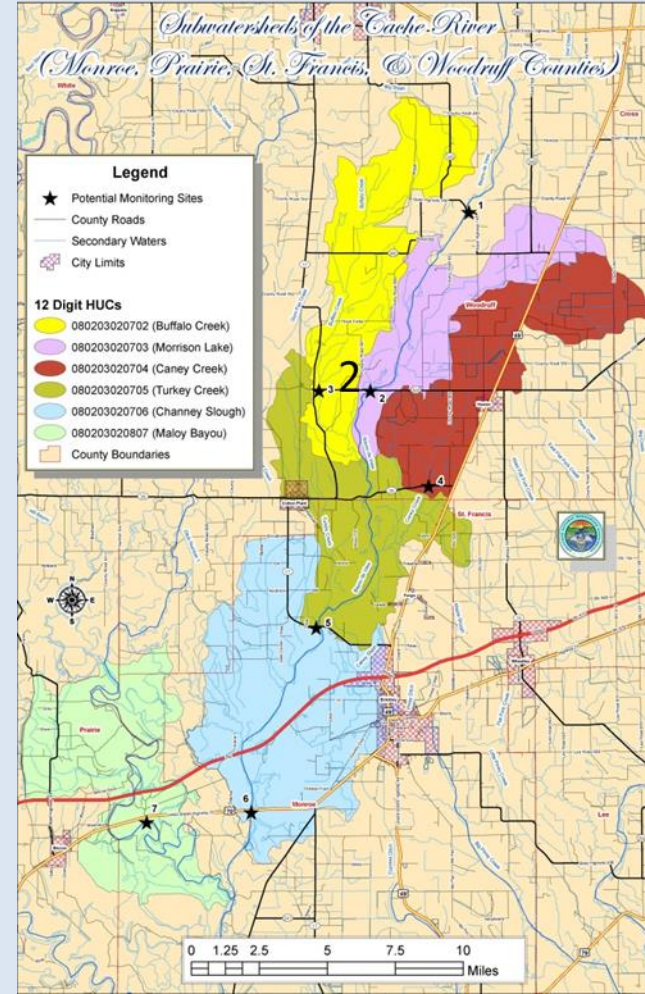
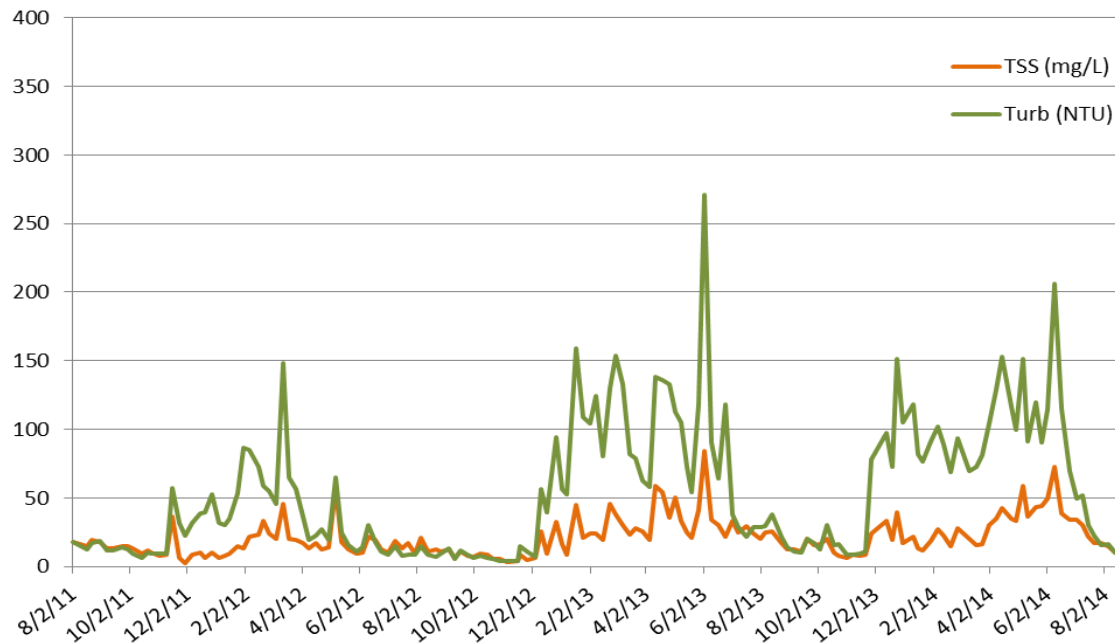
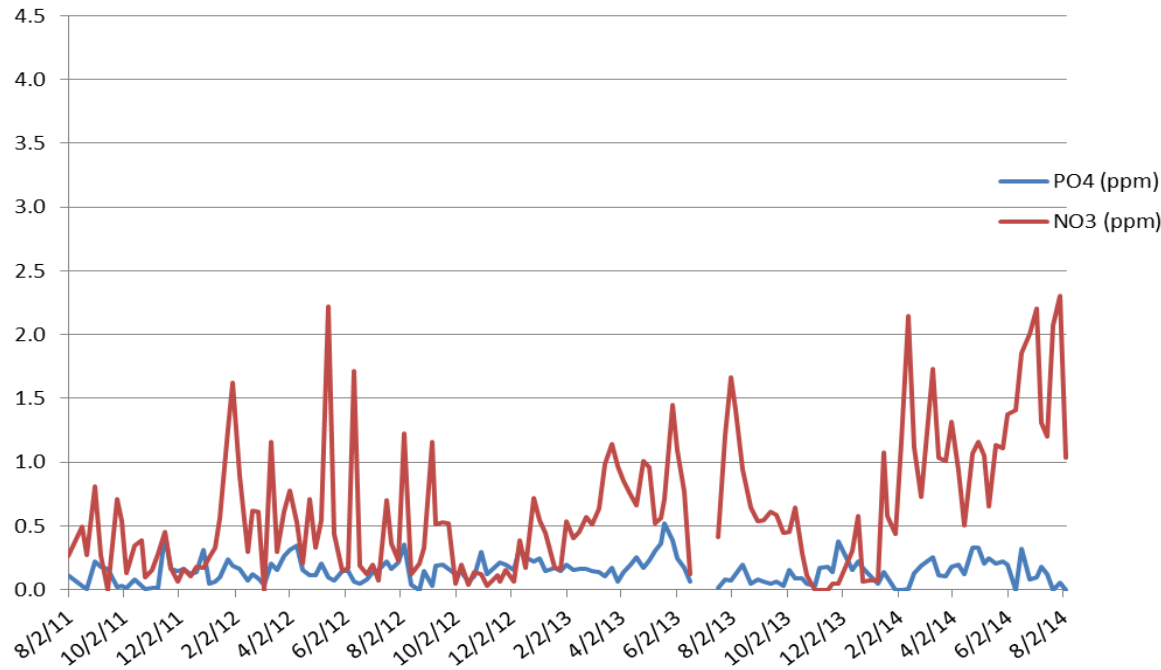
# Site 2

## Morrison Lake





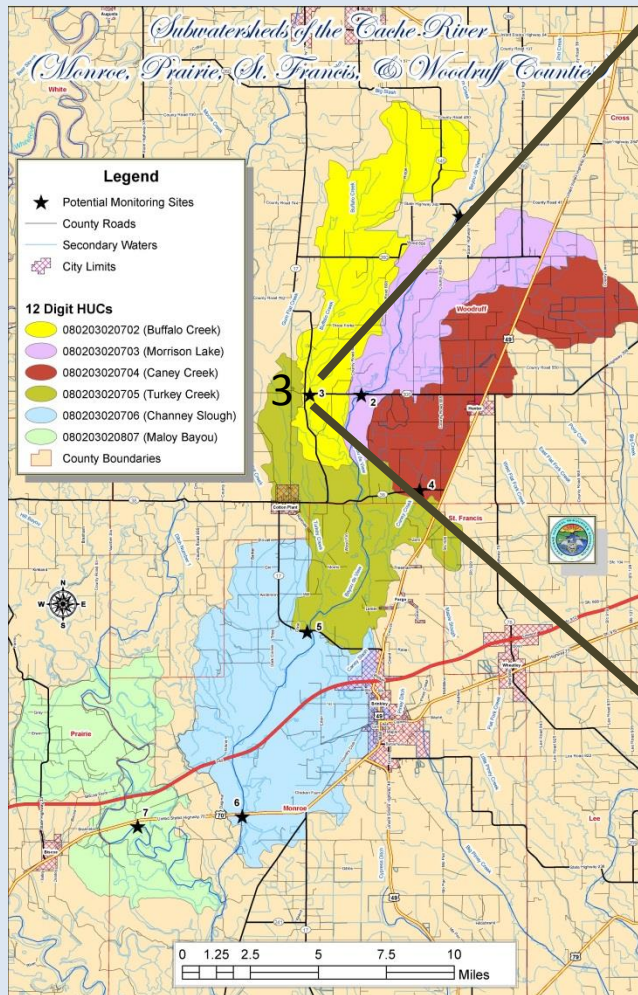
# Site 2



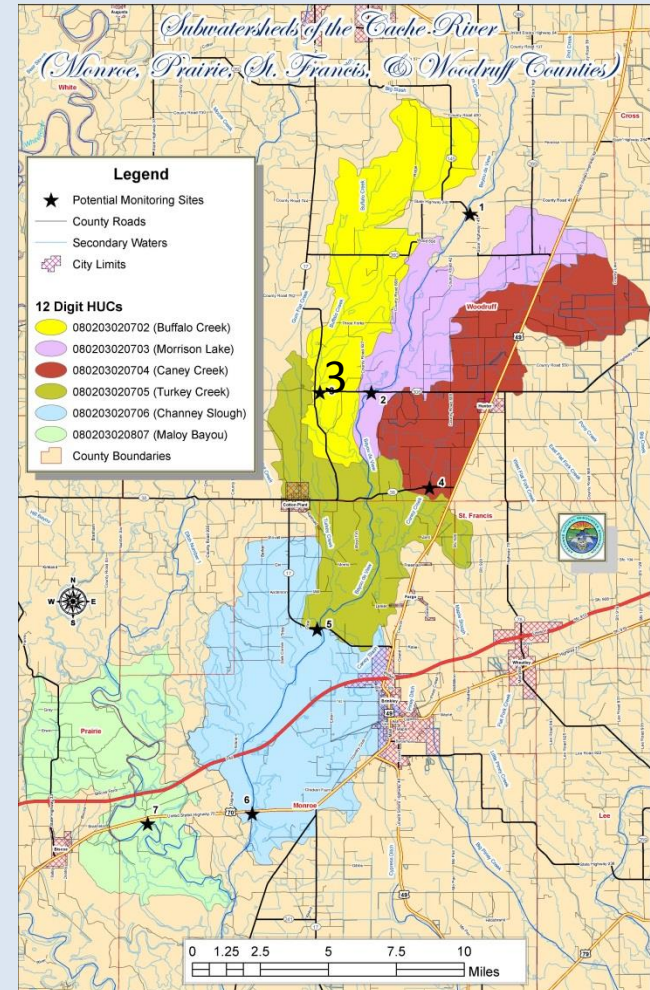
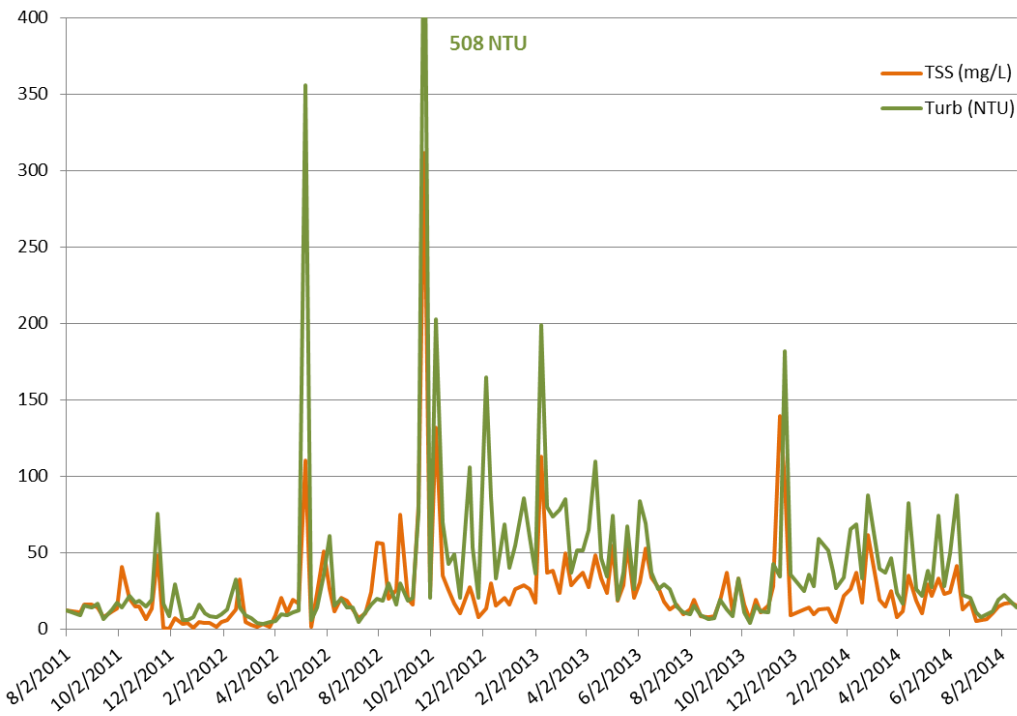
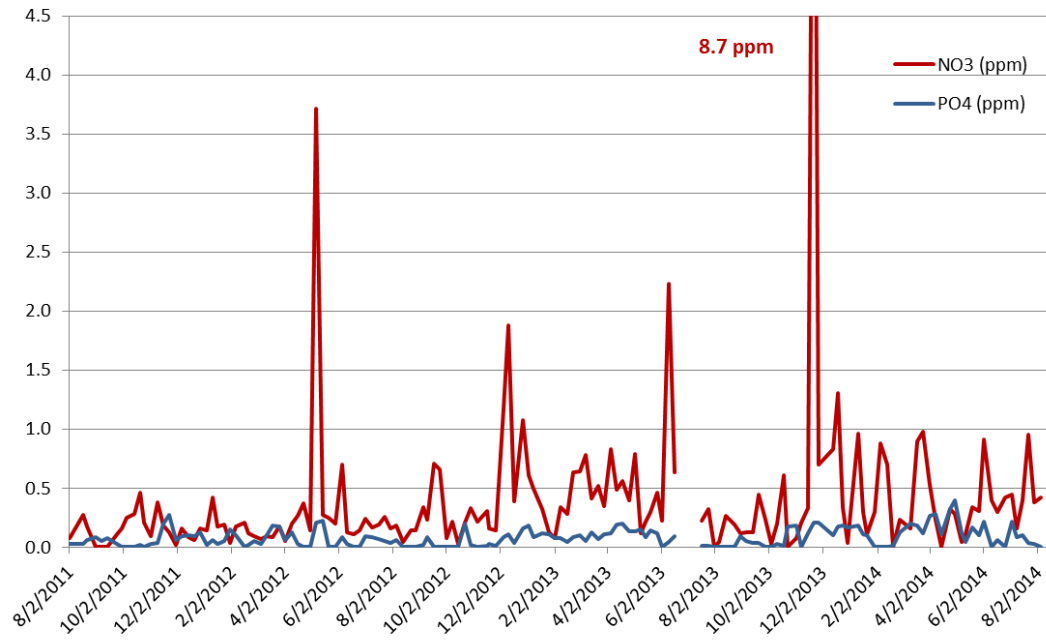


# Site 3

## Buffalo Creek



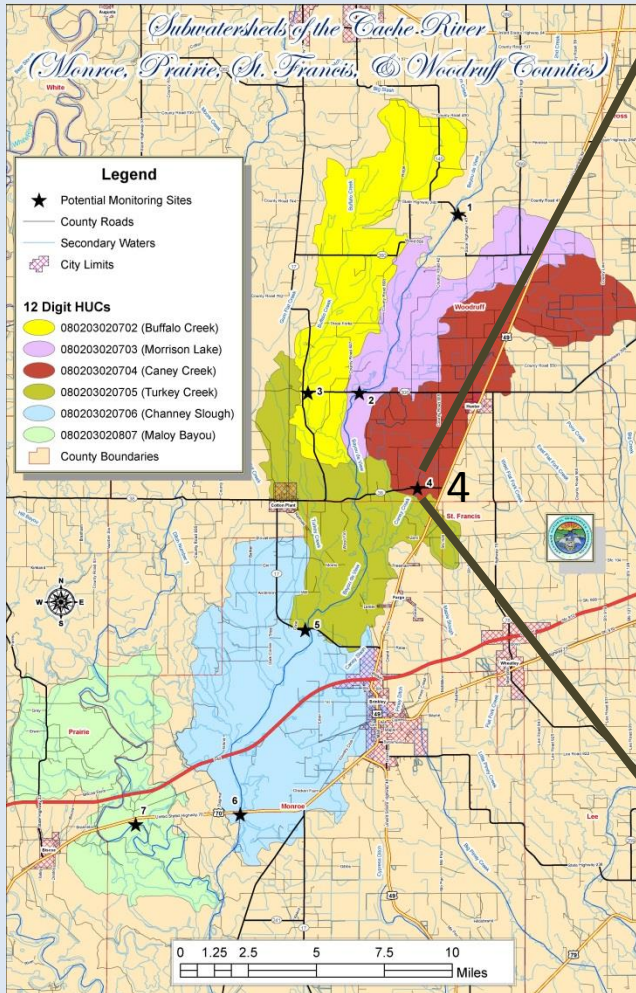
# Site 3





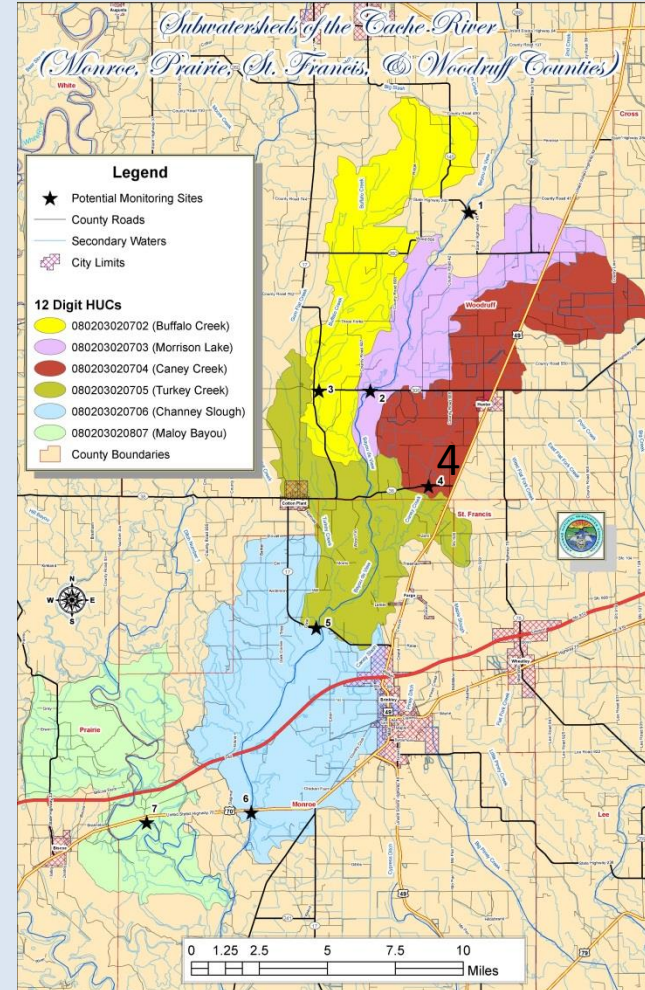
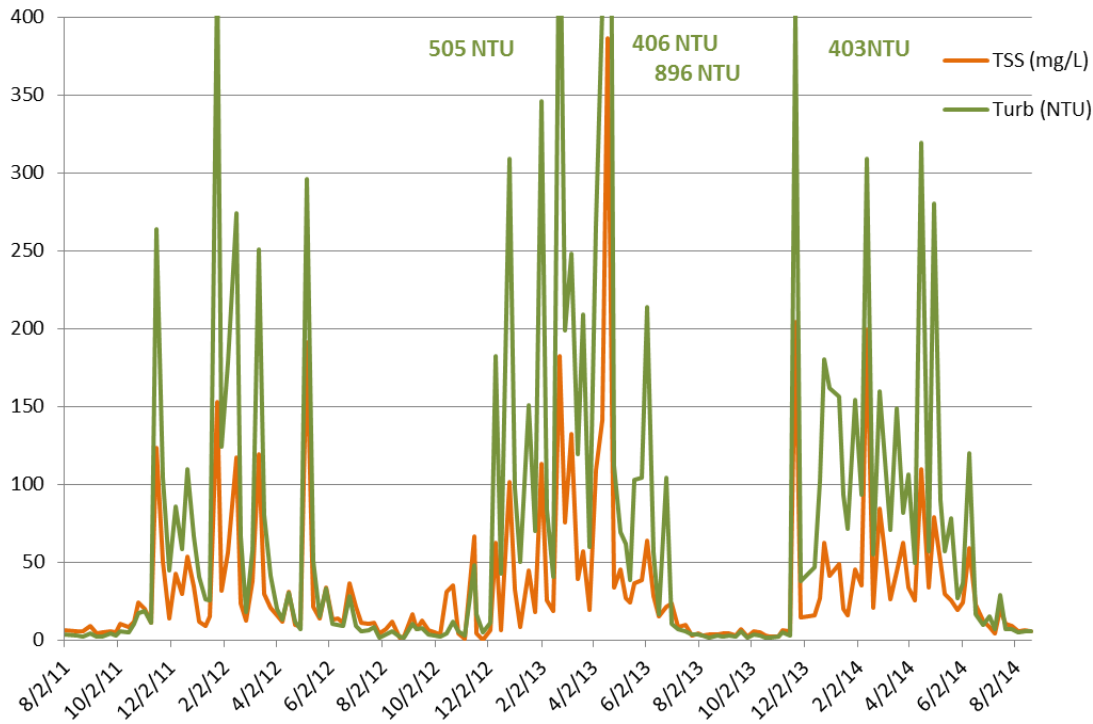
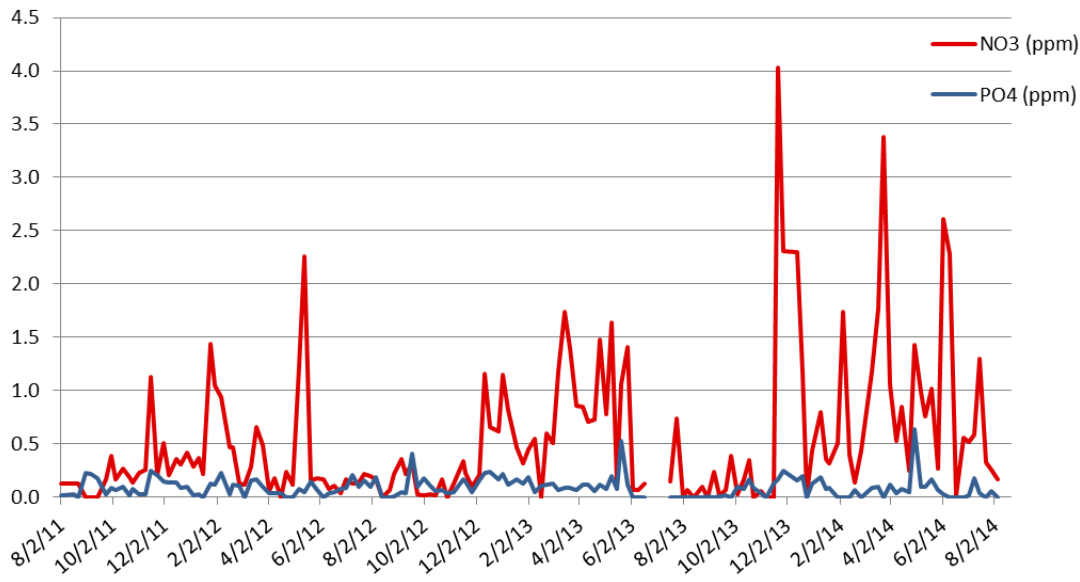
# Site 4

## Caney Creek



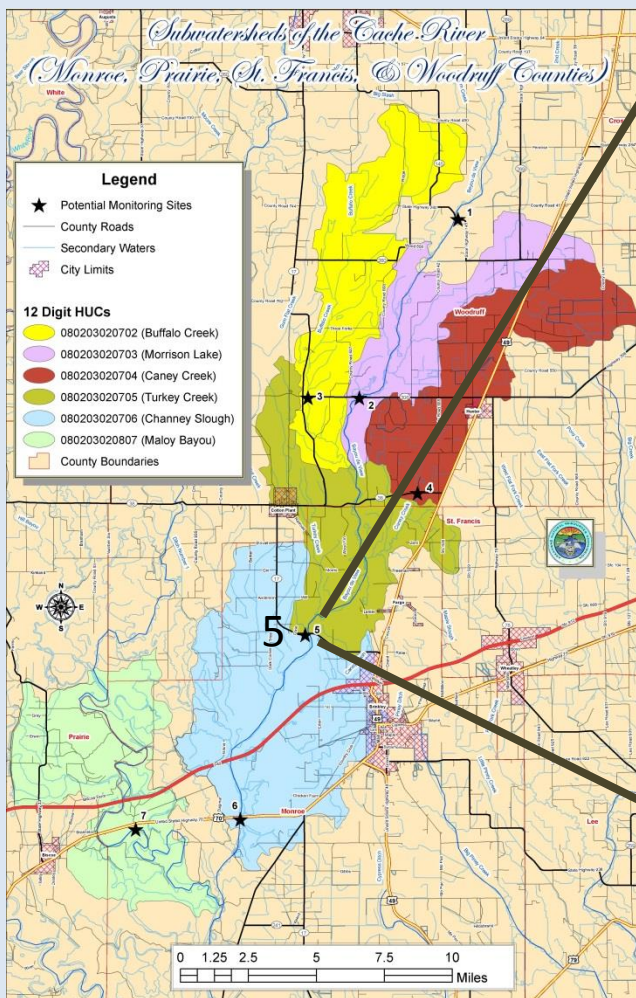


# Site 4



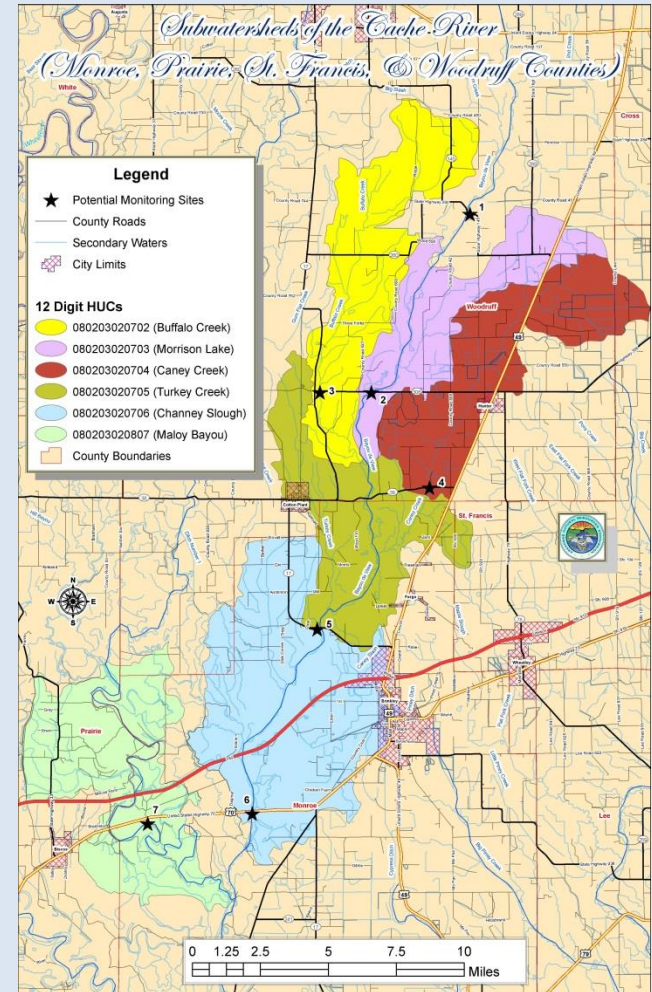
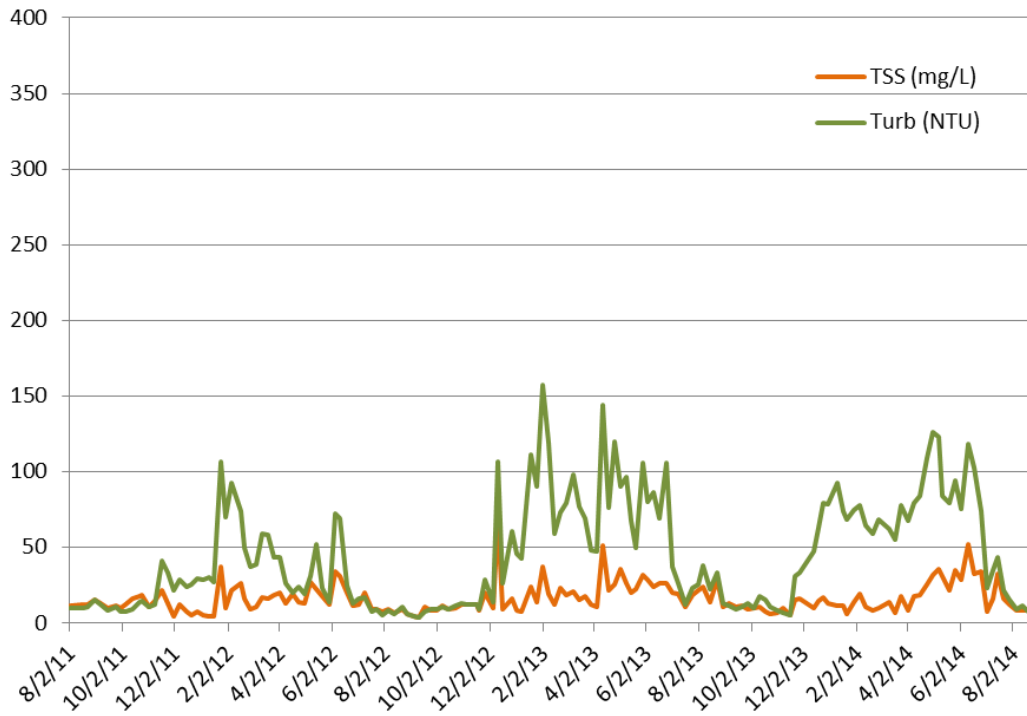
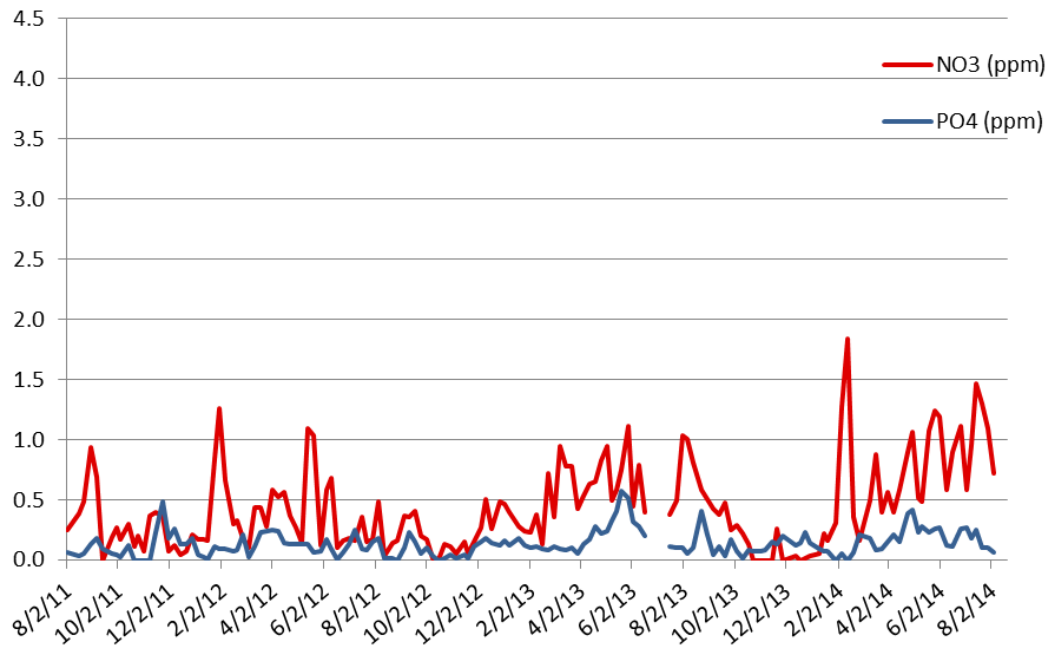
# Site 5

## Turkey Creek





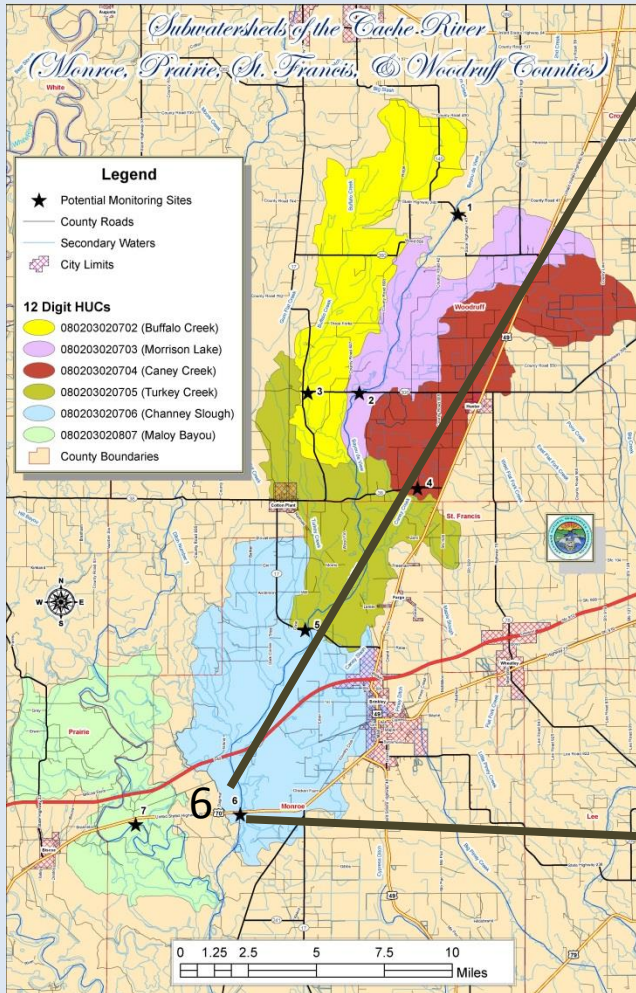
# Site 5



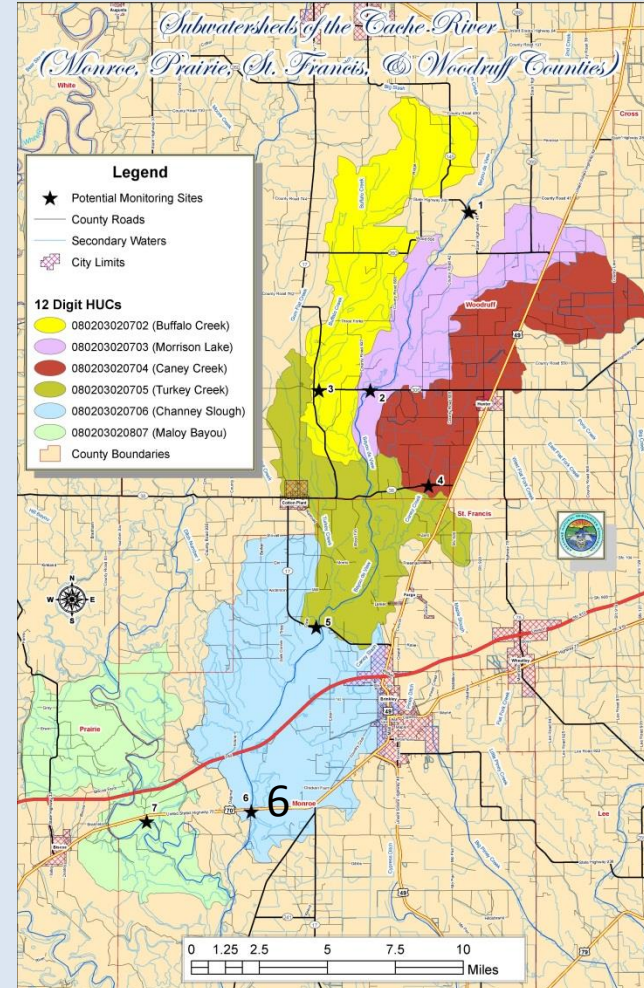
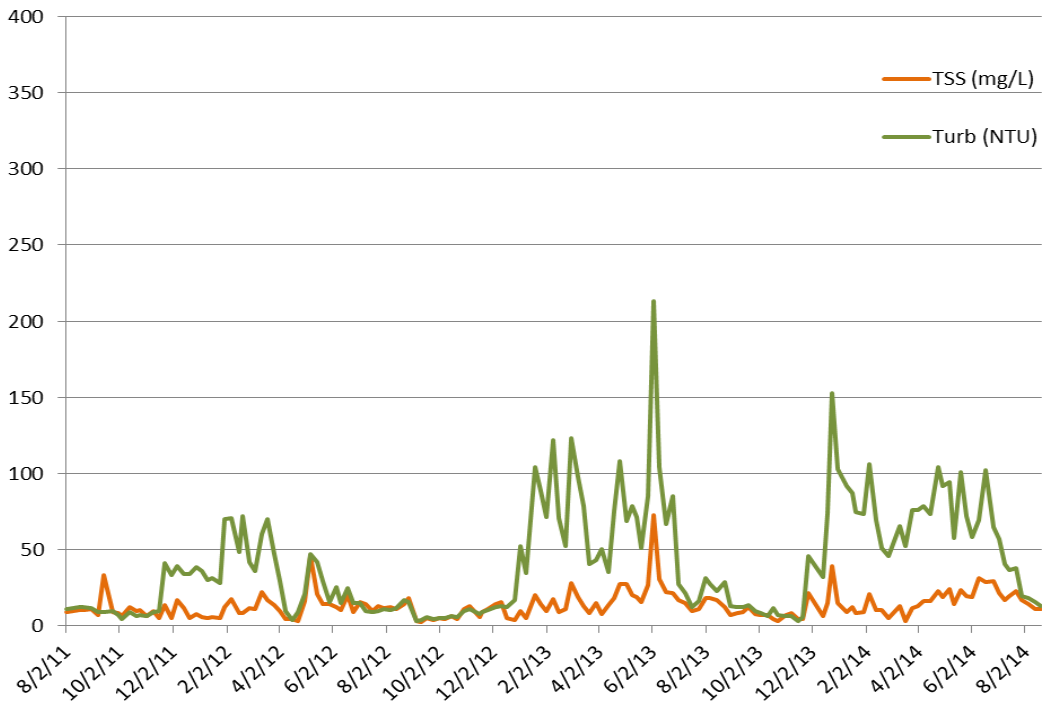
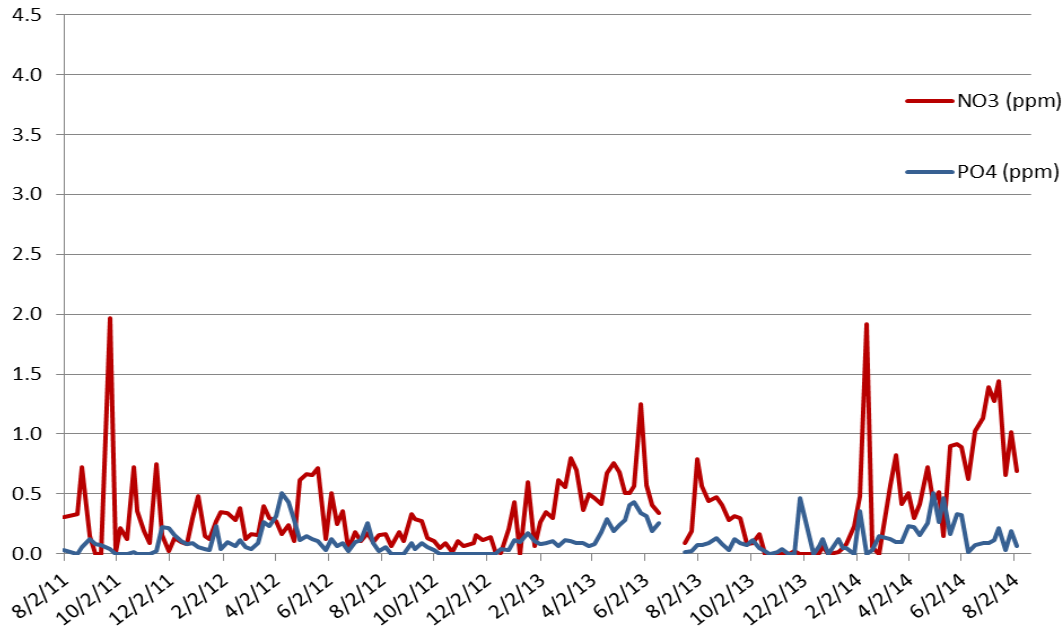


# Site 6

## Channey Slough



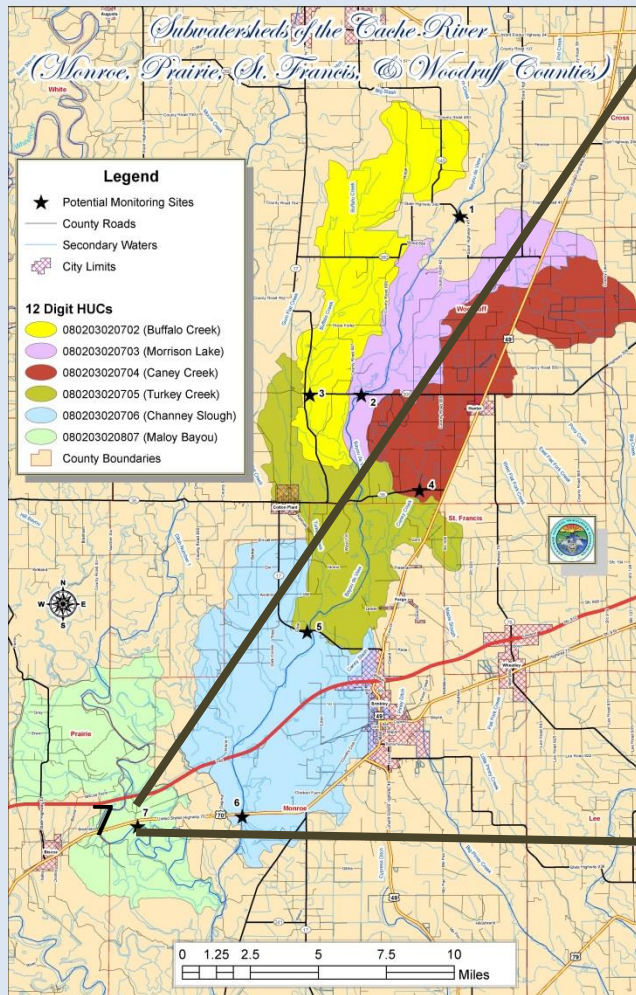
# Site 6





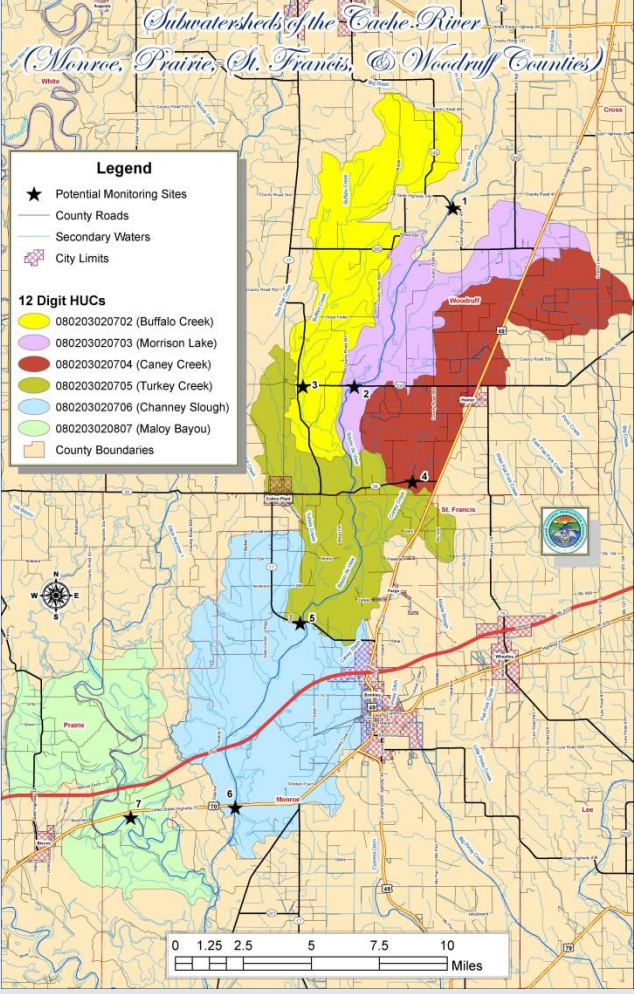
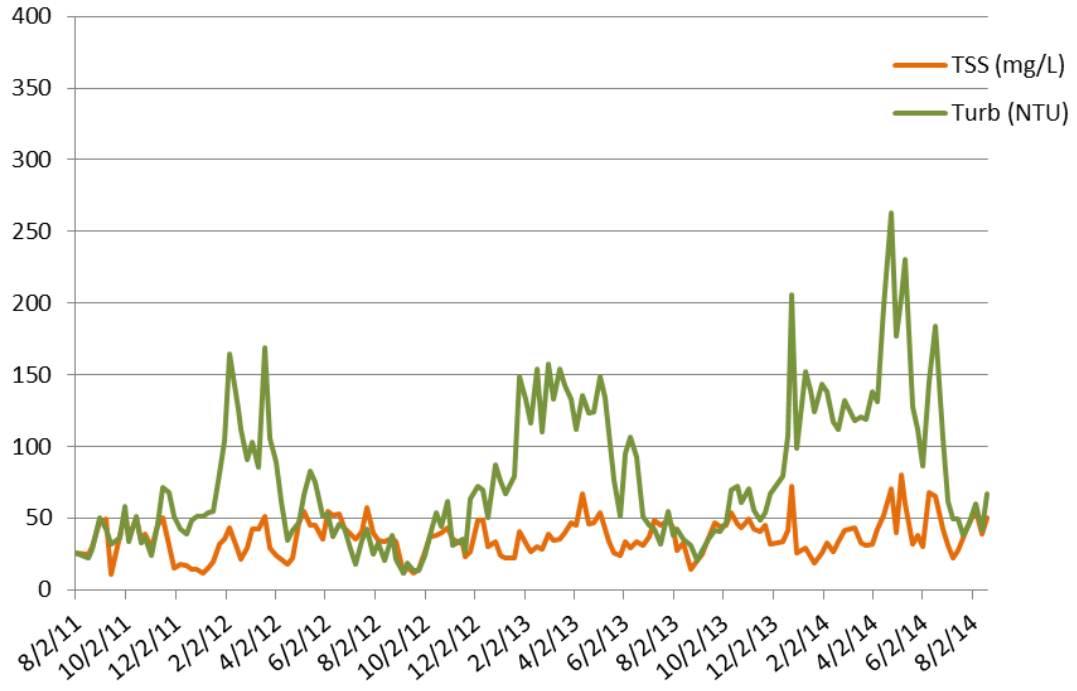
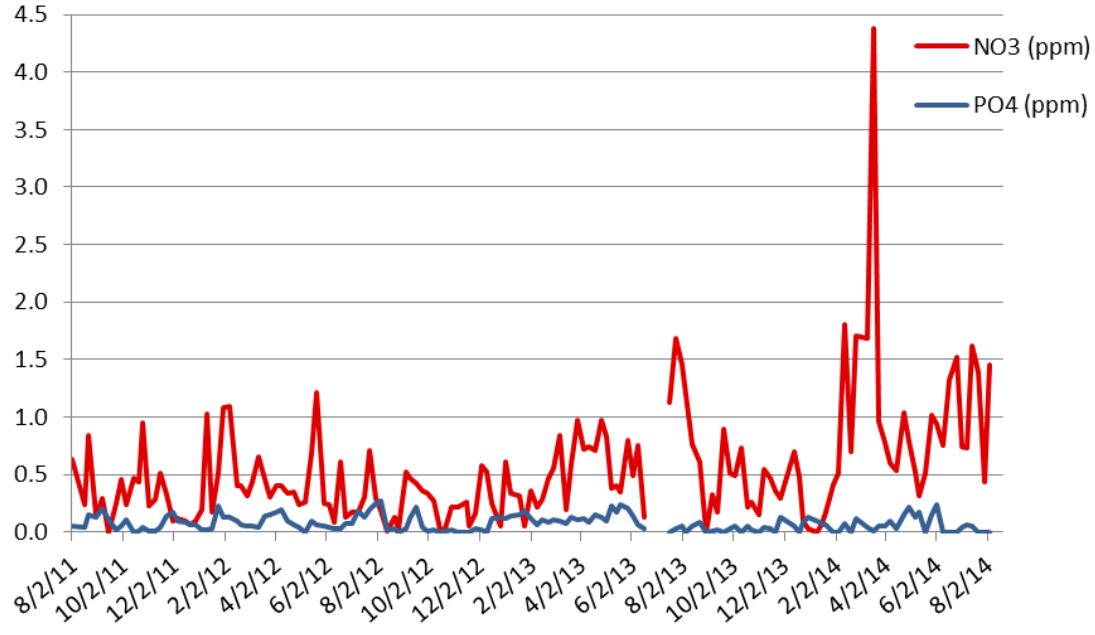
# Site 7

## Cache River





# Site 7



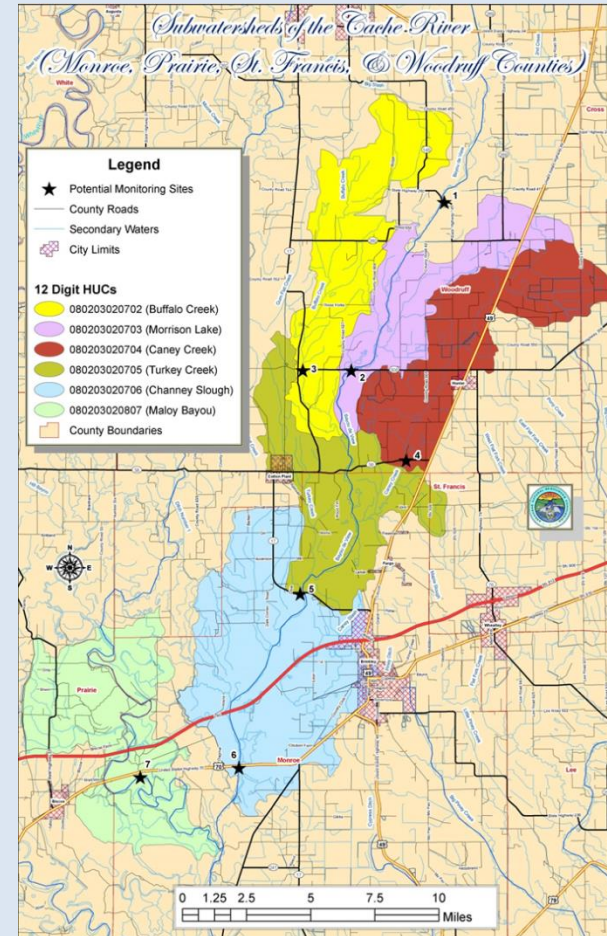


2011 - 2014 Cumulative means

	Site 1	Site 2	Site 3	Site 4	Site 5	Site 6	Site 7
PO4 (ppm)	0.16	0.15	0.09	0.09	0.14	0.12	0.08
NO3 (ppm)	0.81	0.64	0.42	0.55	0.45	0.37	0.54
TSS (mg/L)	32.0	21.1	25.5	34.4	16.4	13.3	36.7
Turbidity (NTU)	69.7	53.5	40.2	76.7	44.5	40.6	78.6

- Bayou De View main channel:  
Sites 1, 2, 5 & 6

- Sampling ended August 2014
- Separate rain and baseflow events for interpretation



# Results

- Nutrient spikes following applications and rainfall events
- Trend of lower sediment and nutrient values at downstream sites
  - Bayou De View channels
  - Benefit from wetlands and natural meanders
- Established wetlands should reduce nutrient and sediment loading
  - Drought year (2012) and wet years (2013 & 2014)



# Questions?



Thanks to ANRC, Carlos Rosado-Berrios, students  
and technicians at Ecotox