

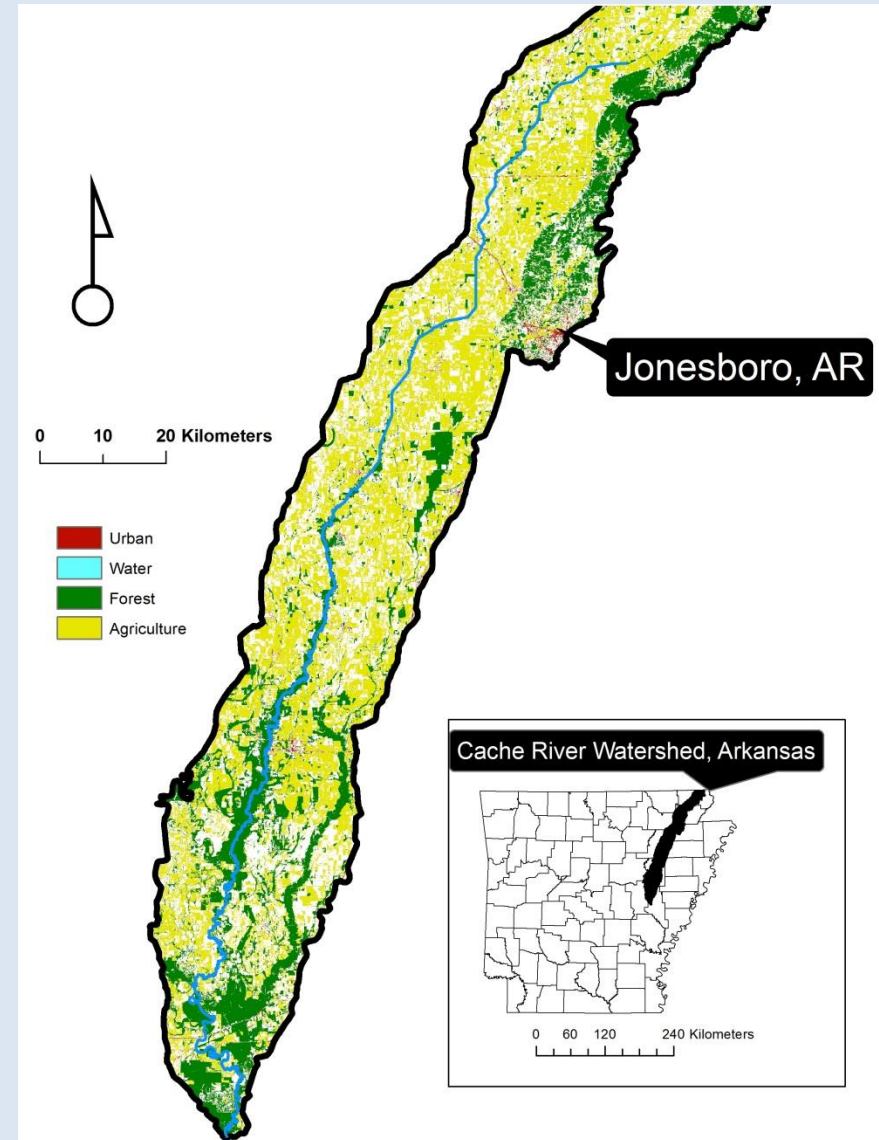
Cache River Monitoring 11-6000

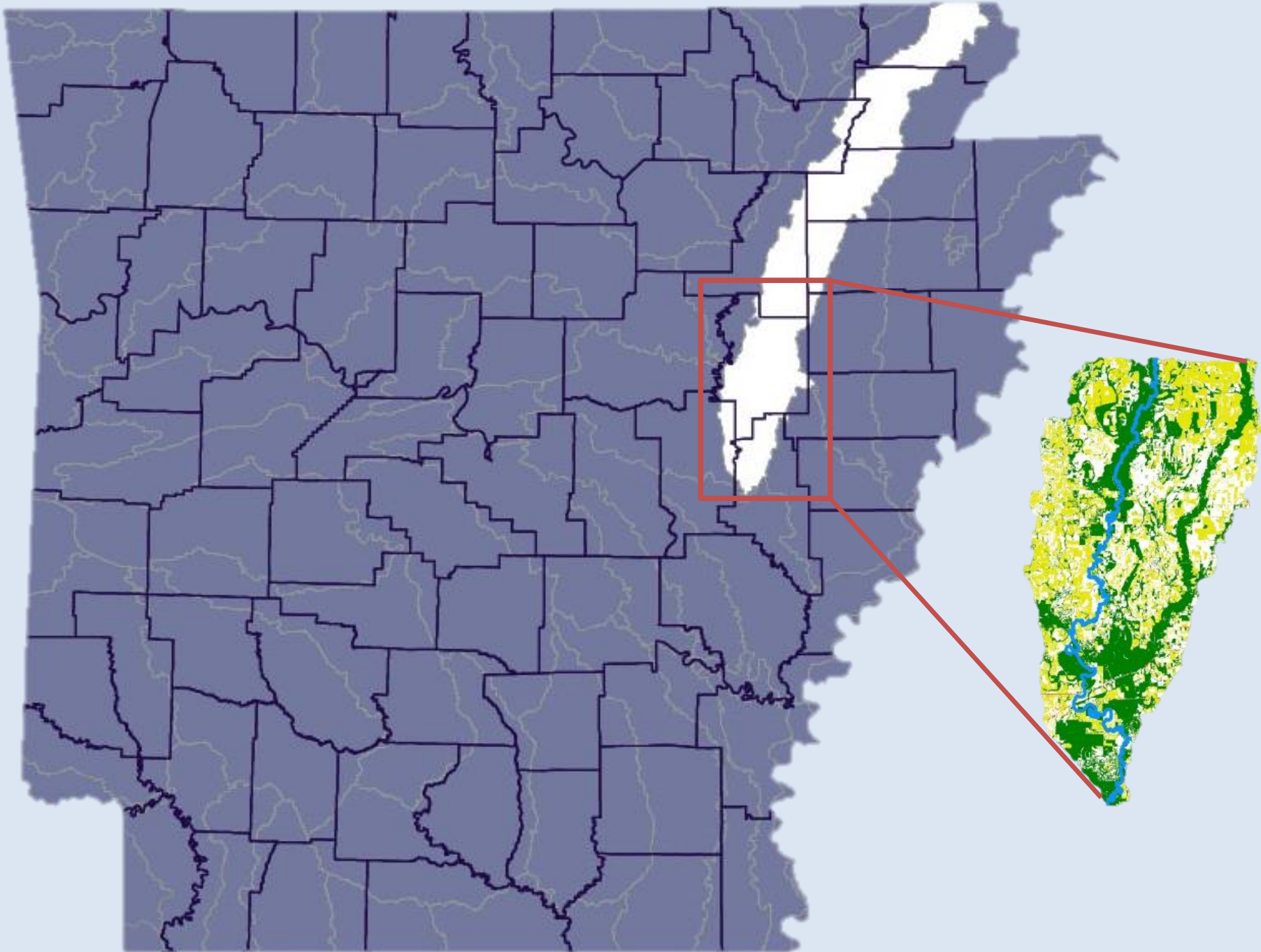
Jennifer L. Bouldin, PhD
Ecotoxicology Research Facility
Arkansas State University



Cache River

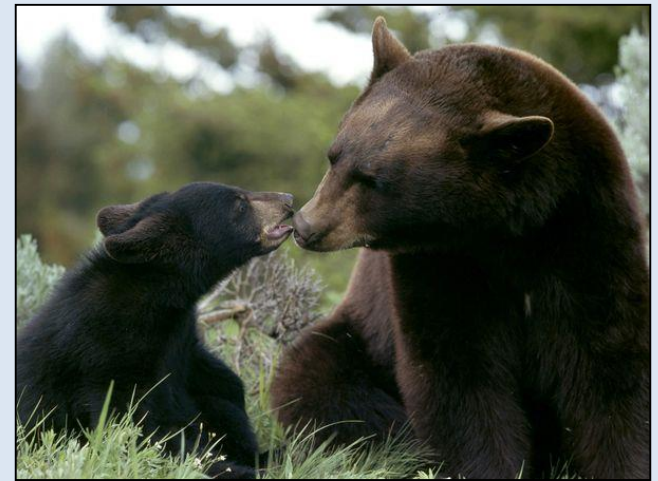
- Delta – bottomland hardwood forests
- Agricultural land
- 2 main channels of watershed
- Cache & Bayou DeView





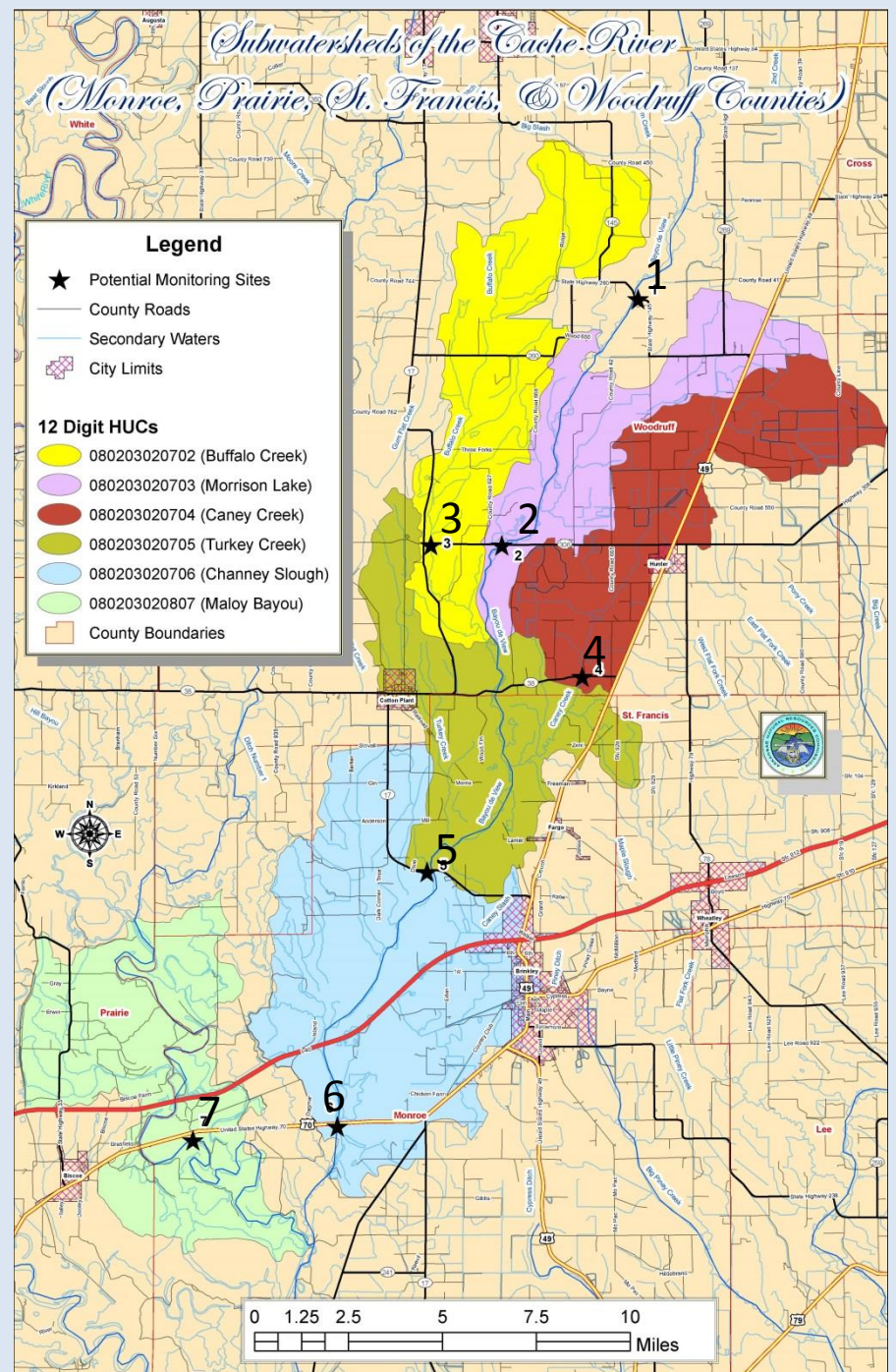
Wetland of International Importance

- Ramsar Wetland
 - 1989
 - Ramsar site 442
- Commitment to maintain
 - Ecological character
 - Sustainable use of wetlands in their territories



Sampling sites

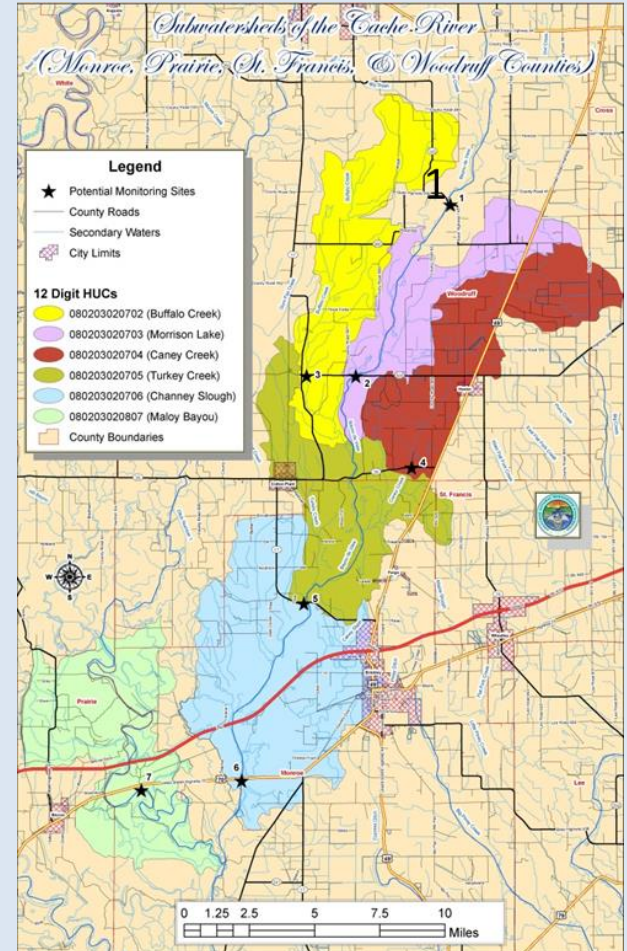
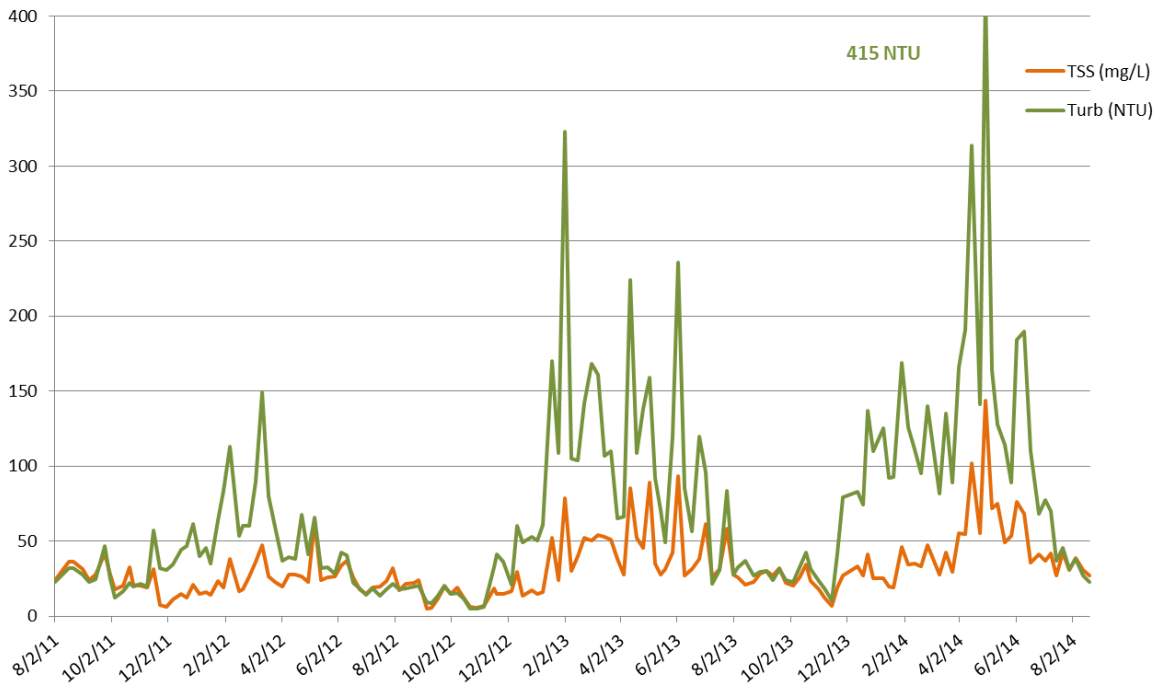
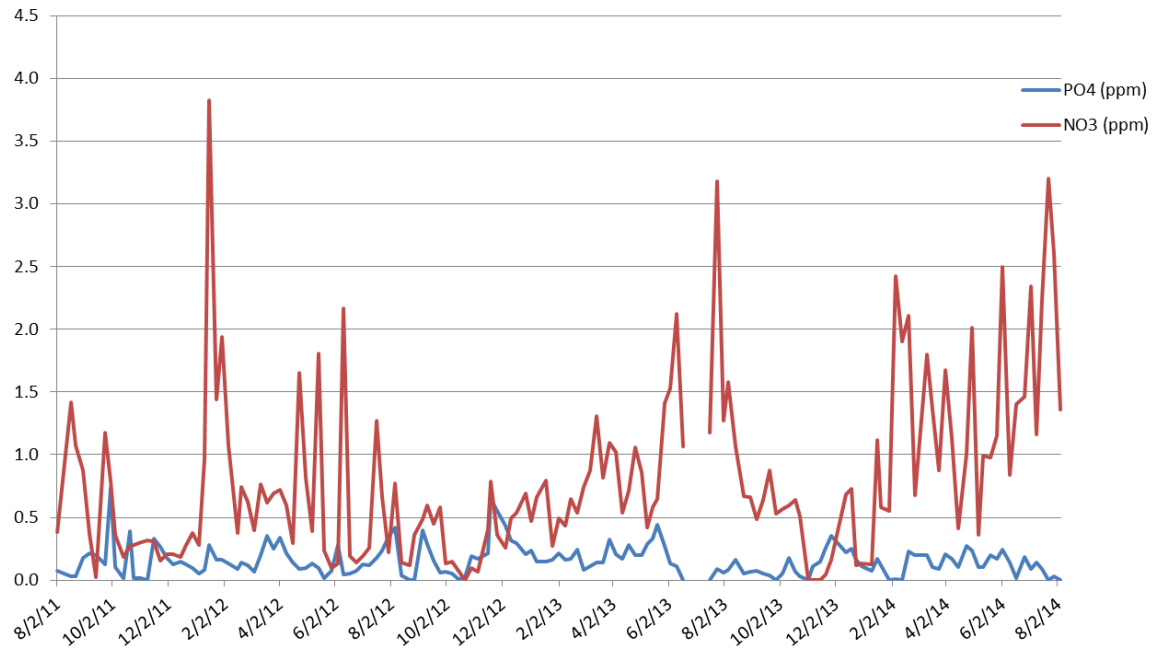
- Site 1 – upstream of target subwatersheds
- Sites 2-6 – Bayou De View subwatersheds
- Site 7 – Cache River main channel



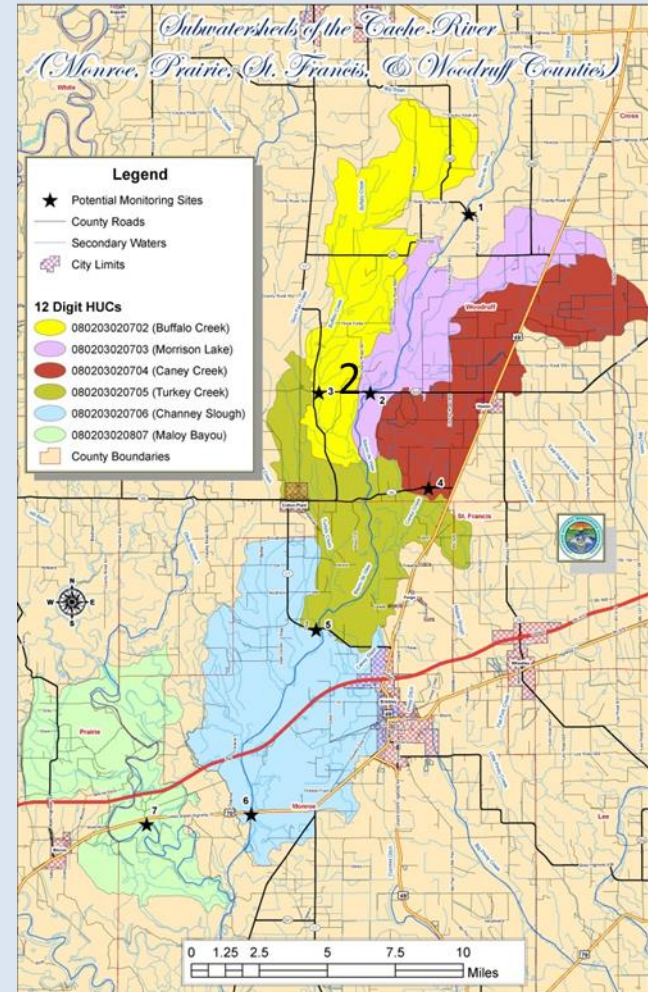
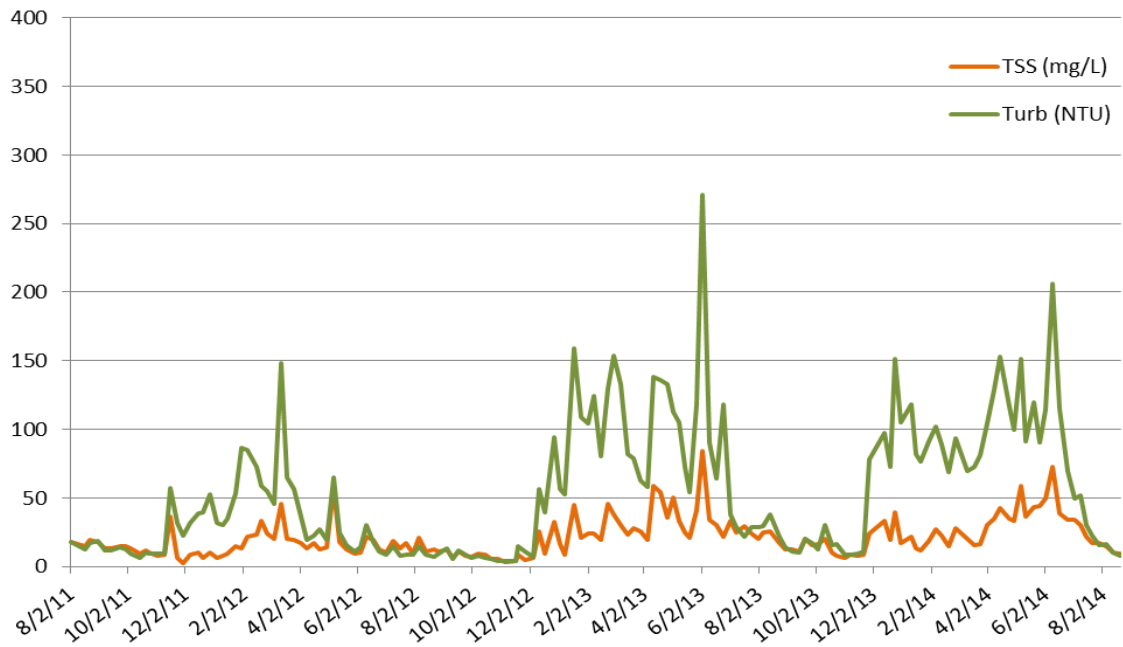
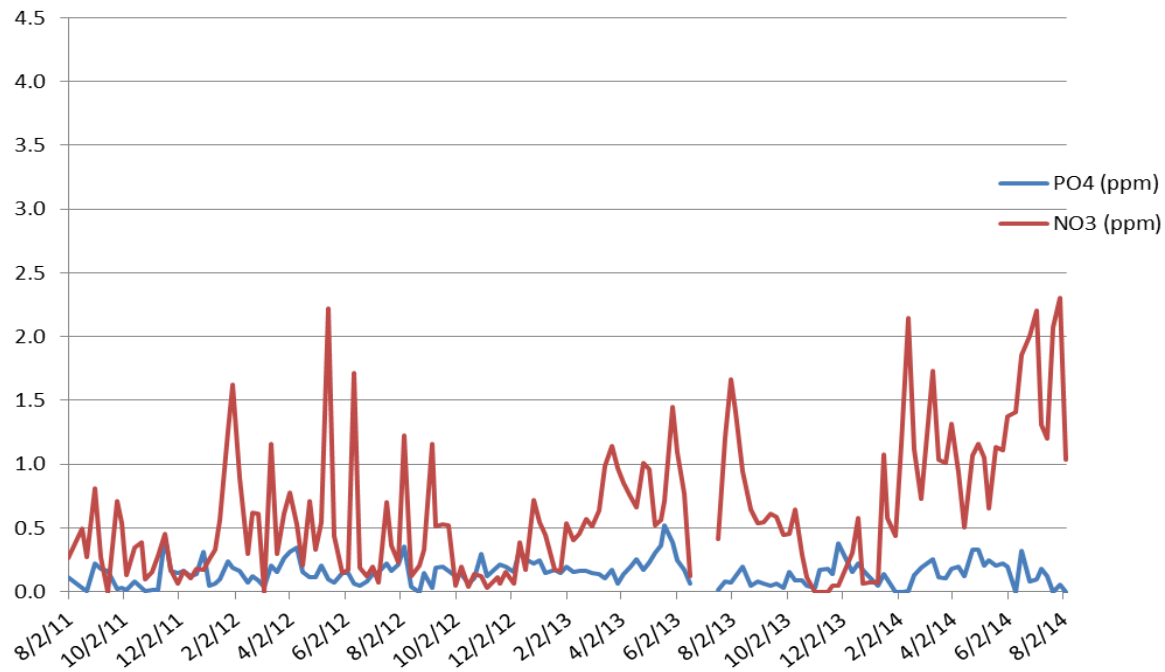
Measured Parameters

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

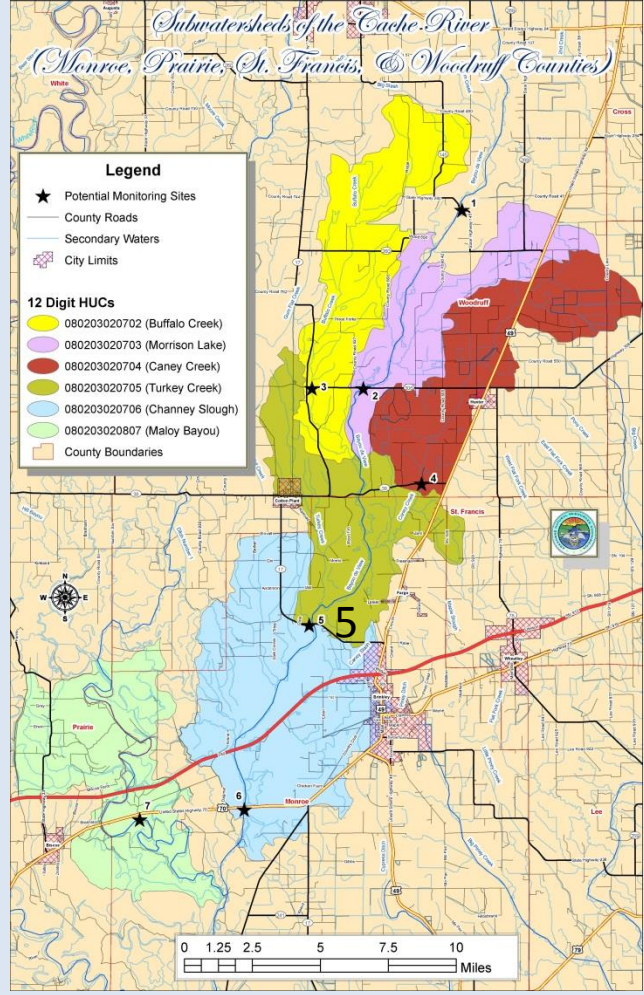
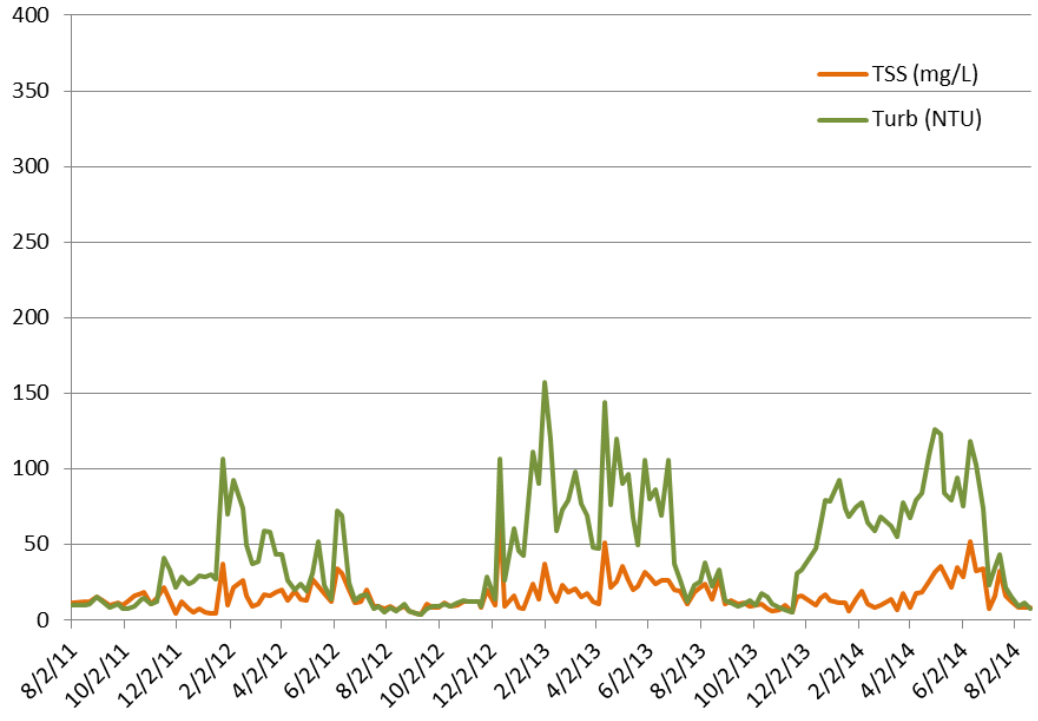
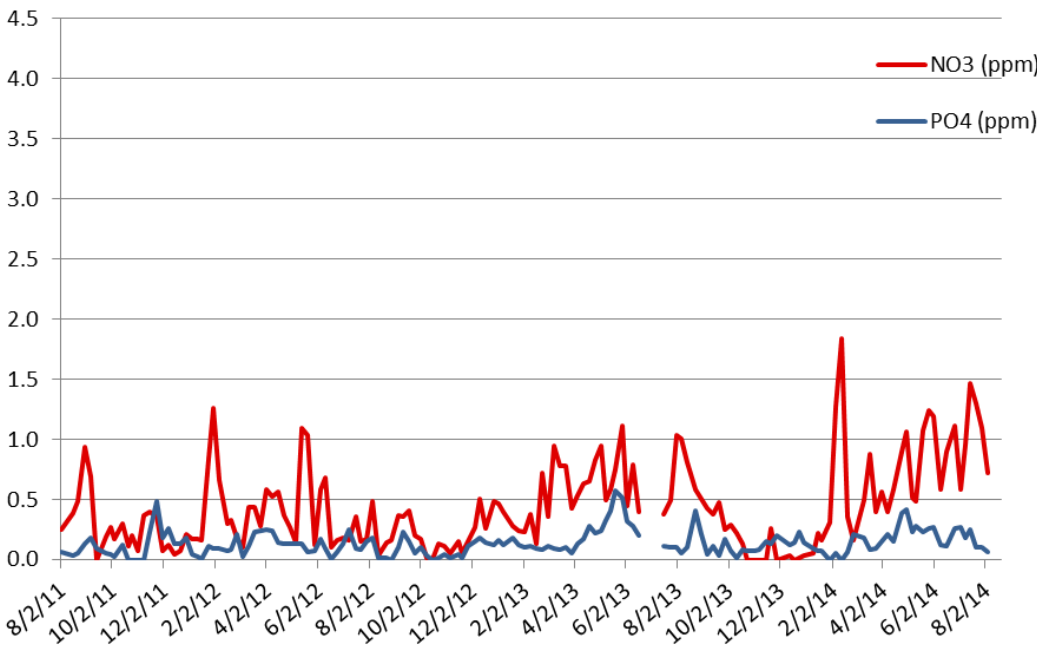
Site 1 Upper Bayou DeView



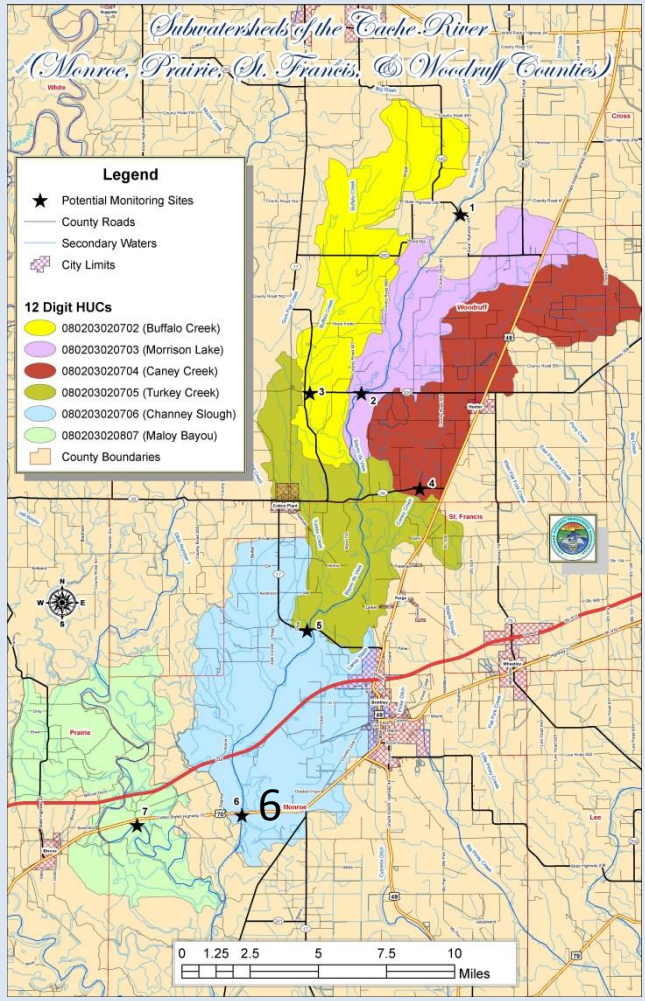
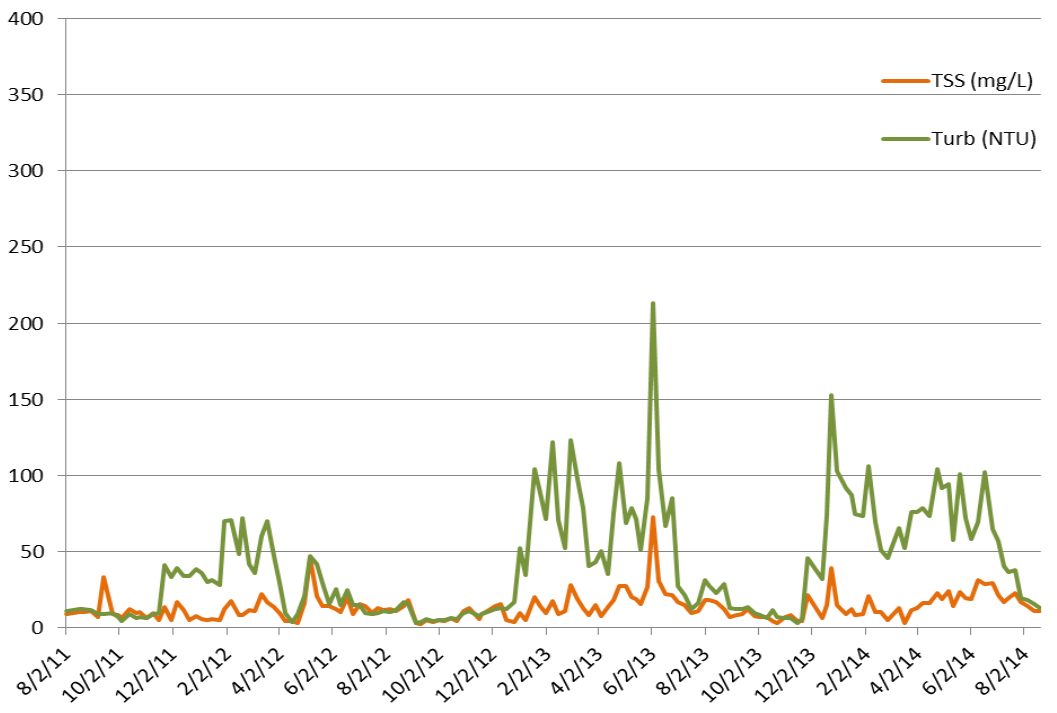
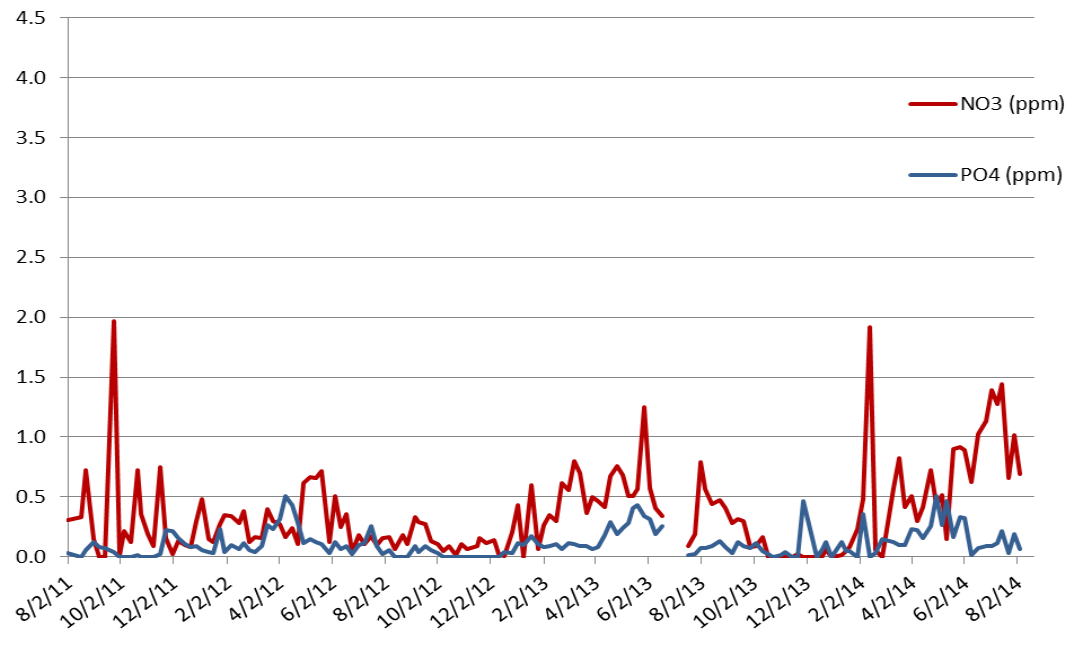
Site 2 Morrison Lake



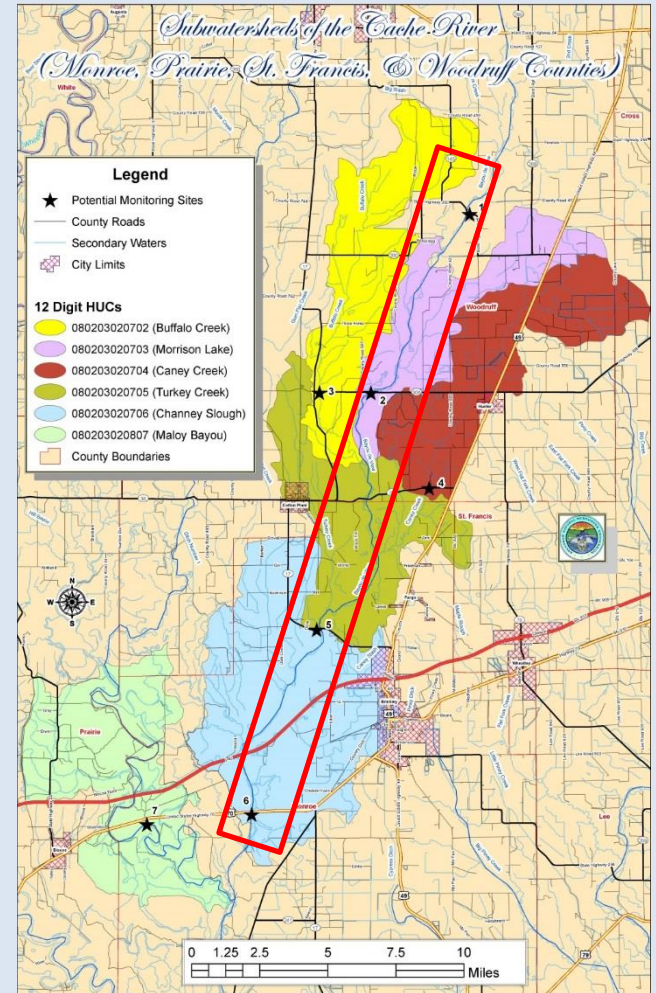
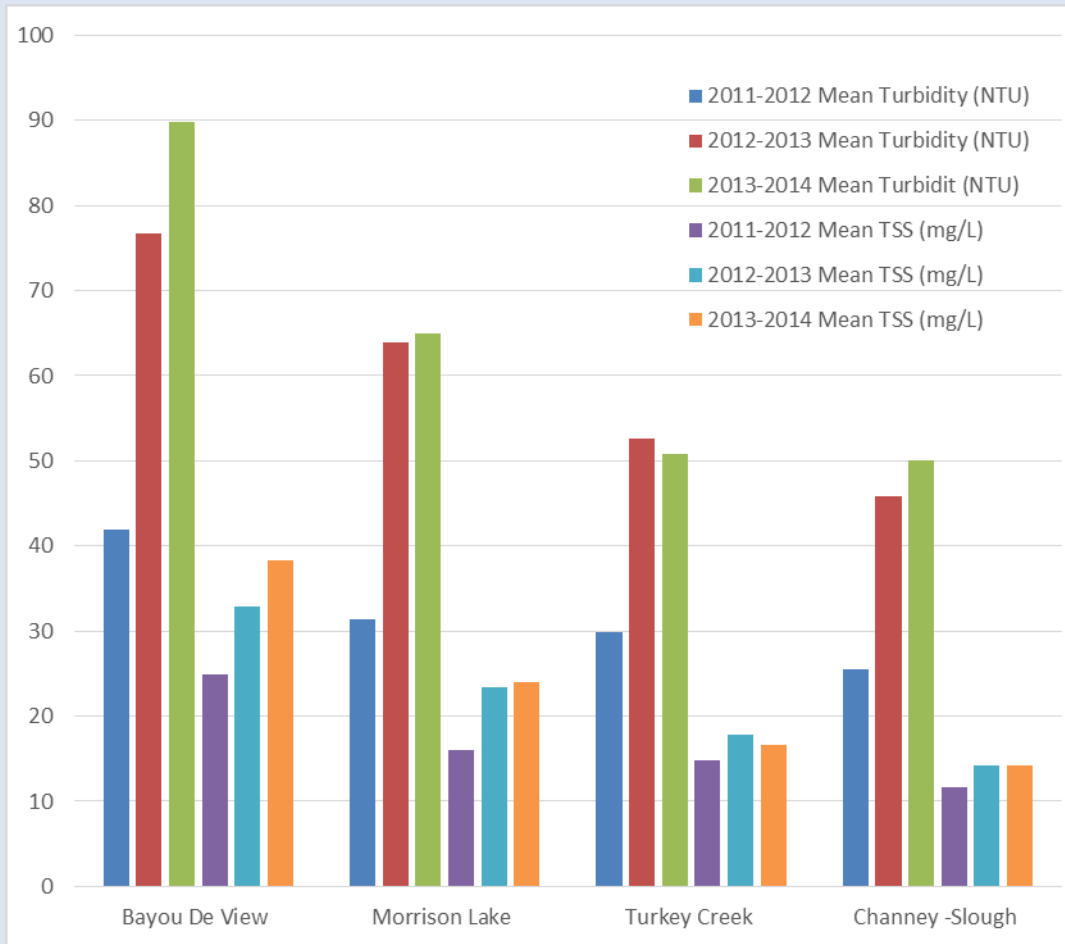
Site 5 Turkey Creek



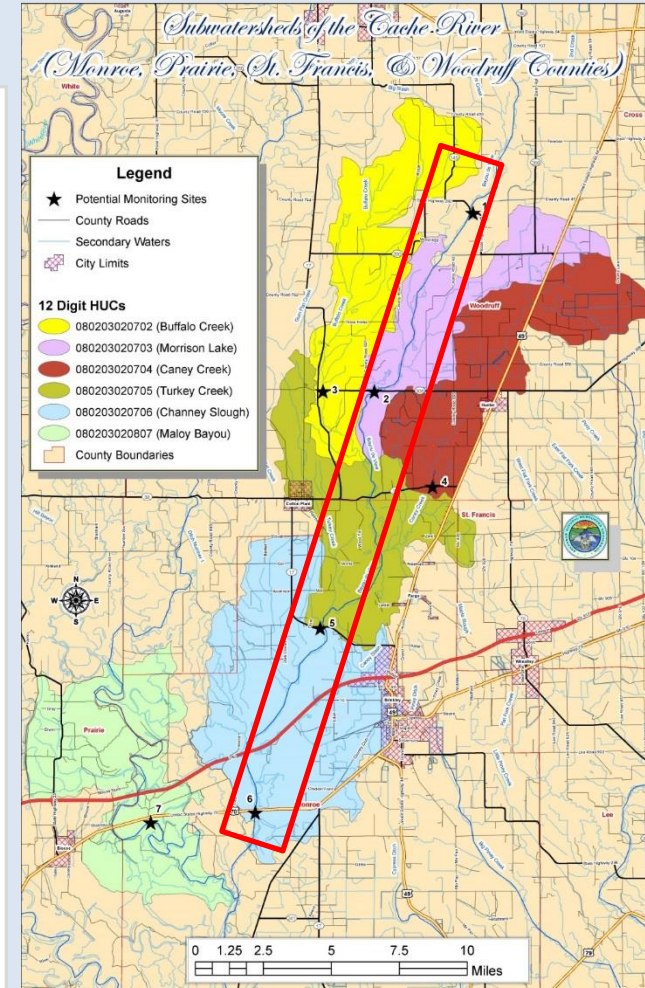
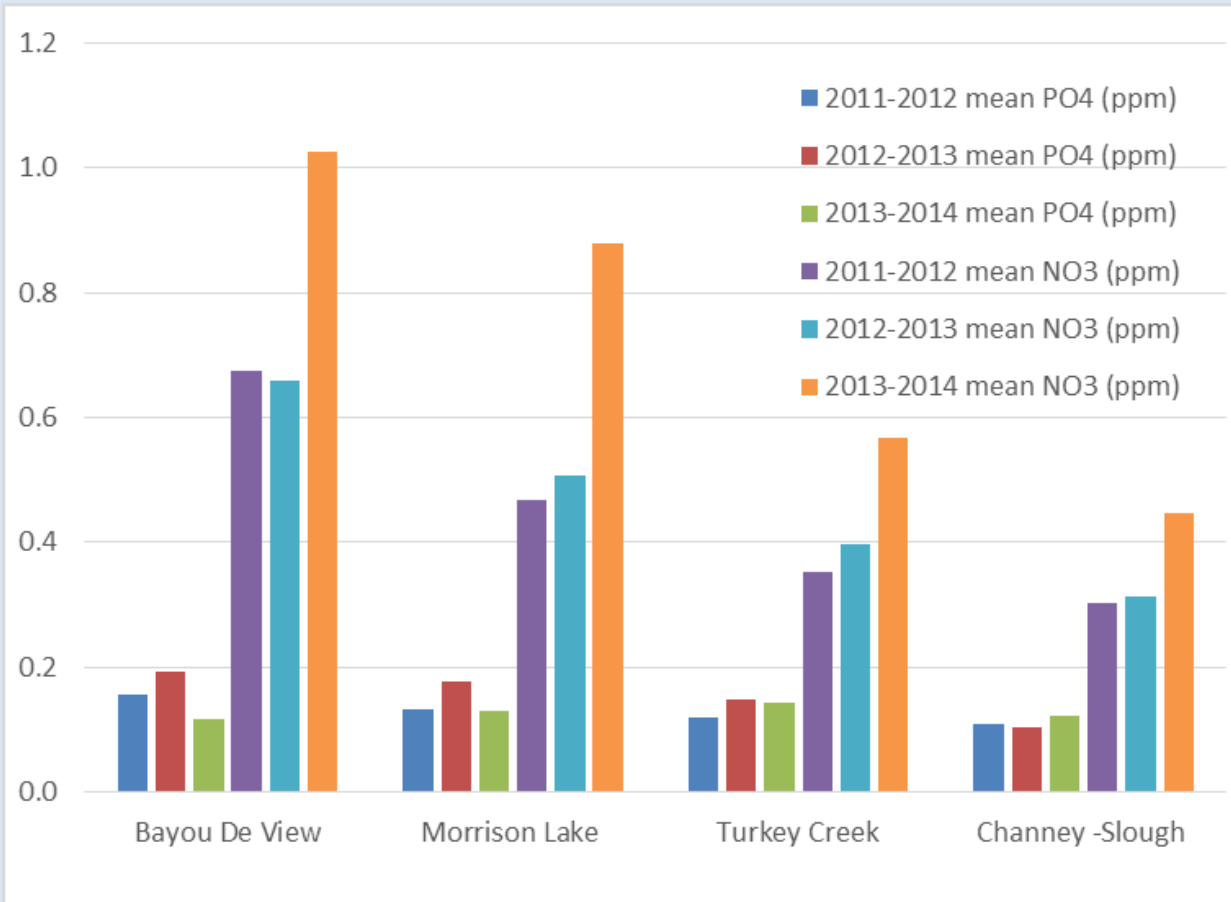
Site 6 Channey Slough



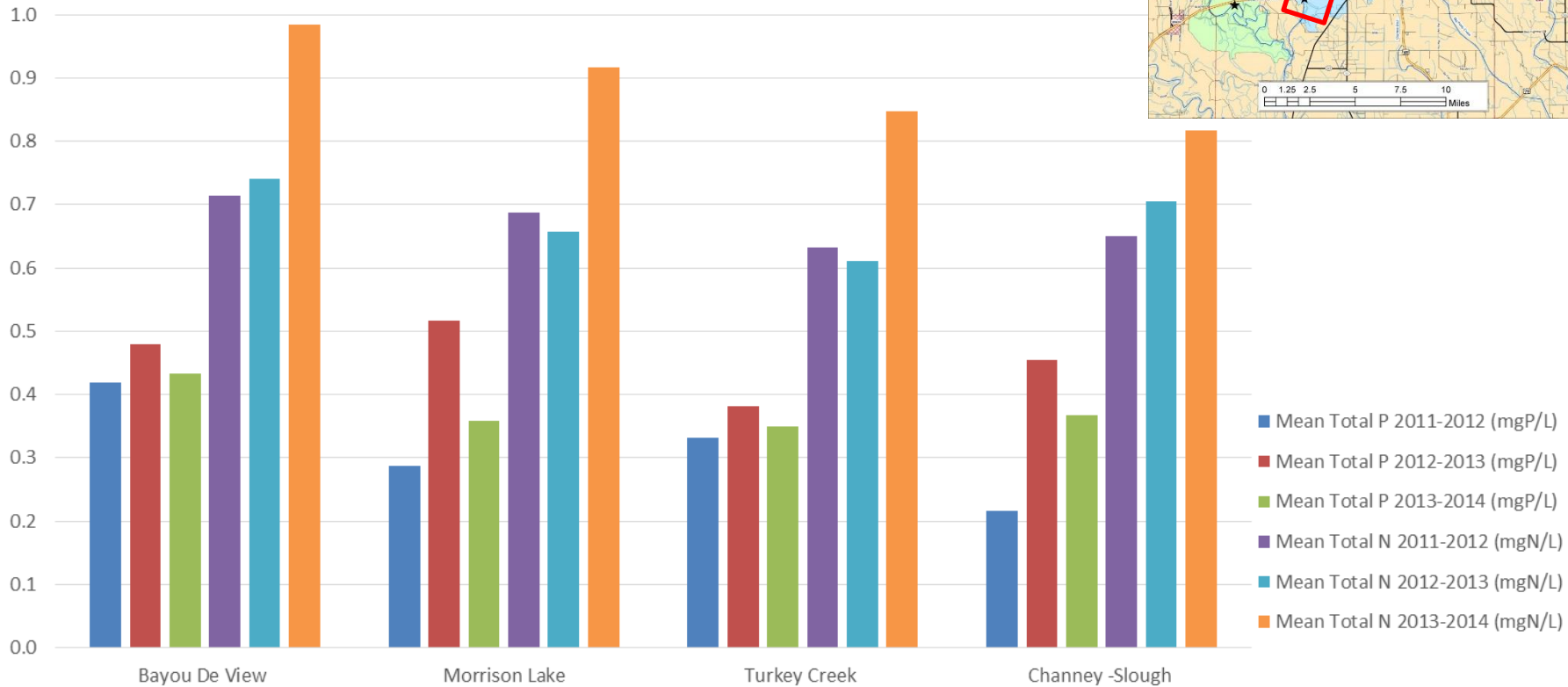
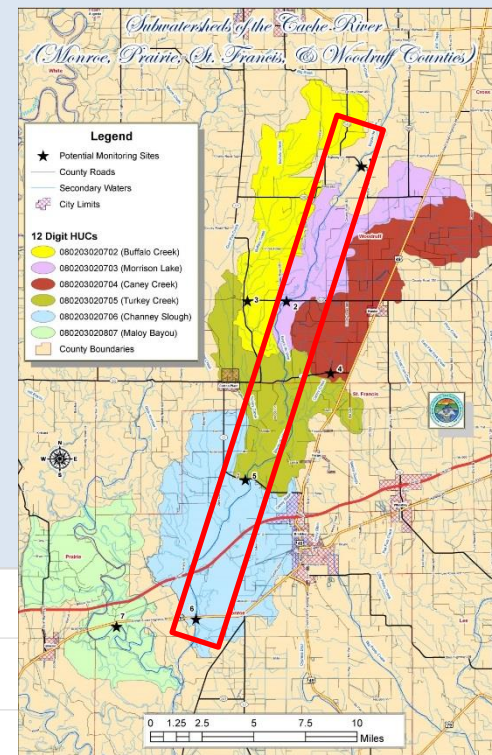
Sites 1,2,5,6



Sites 1,2,5,6

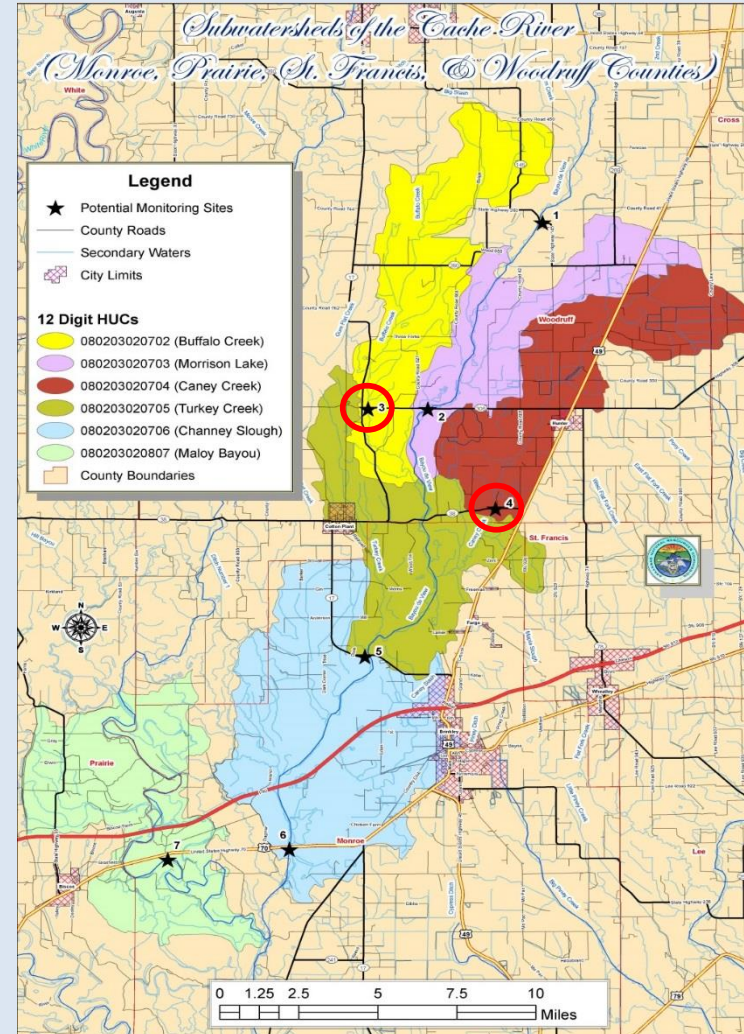


Sites 1,2,5,6

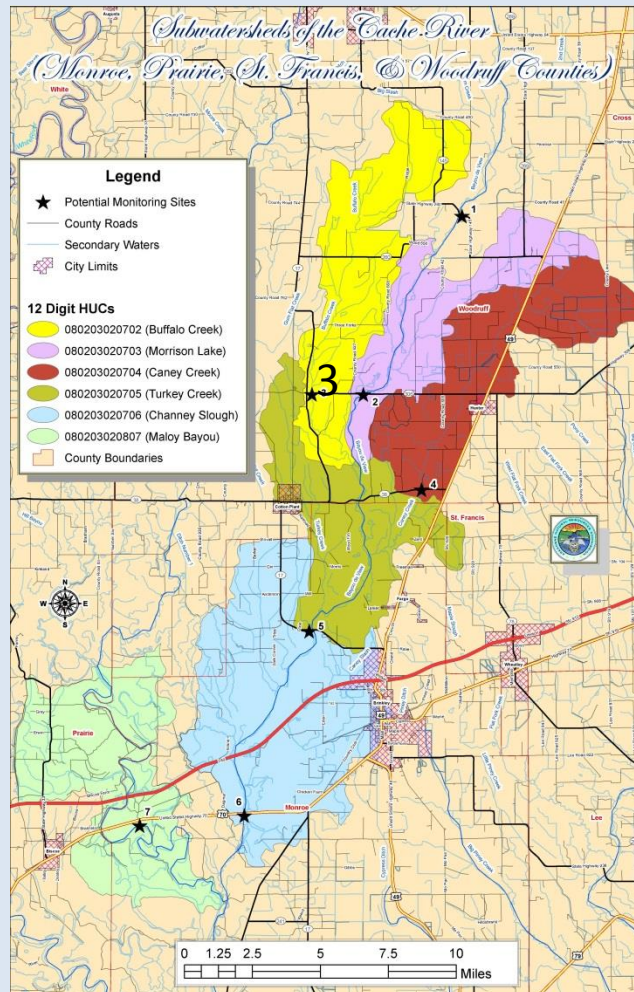
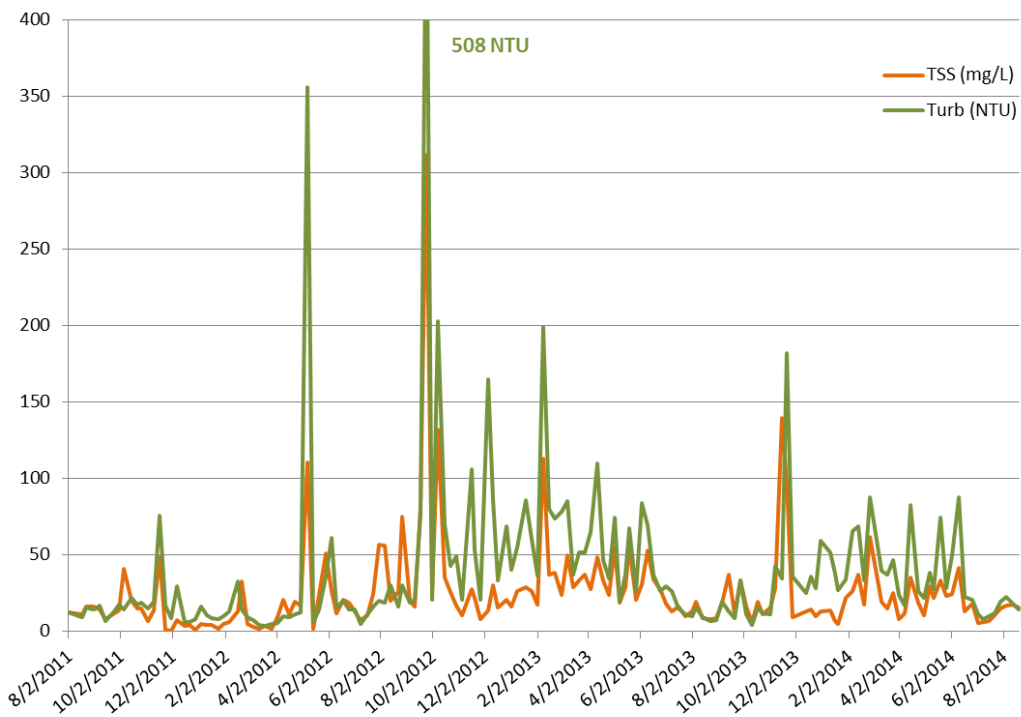
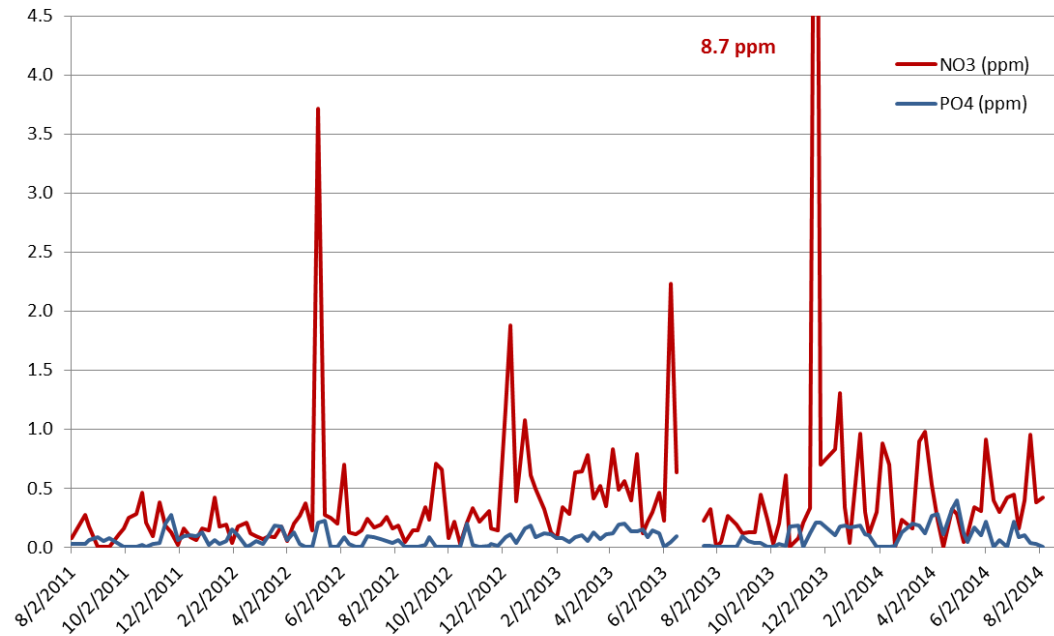


Sites 3,4

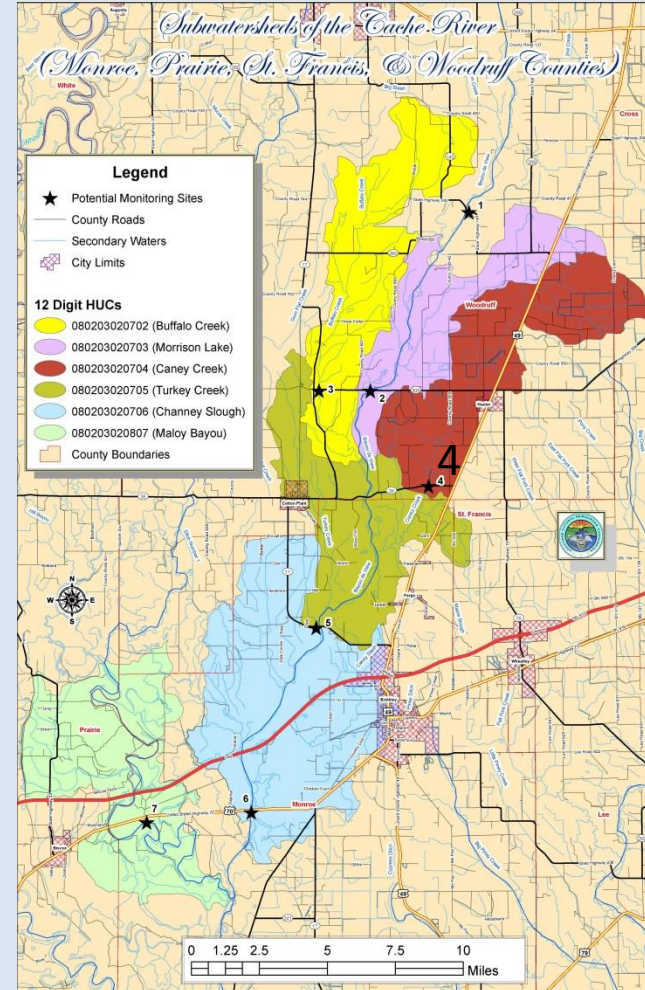
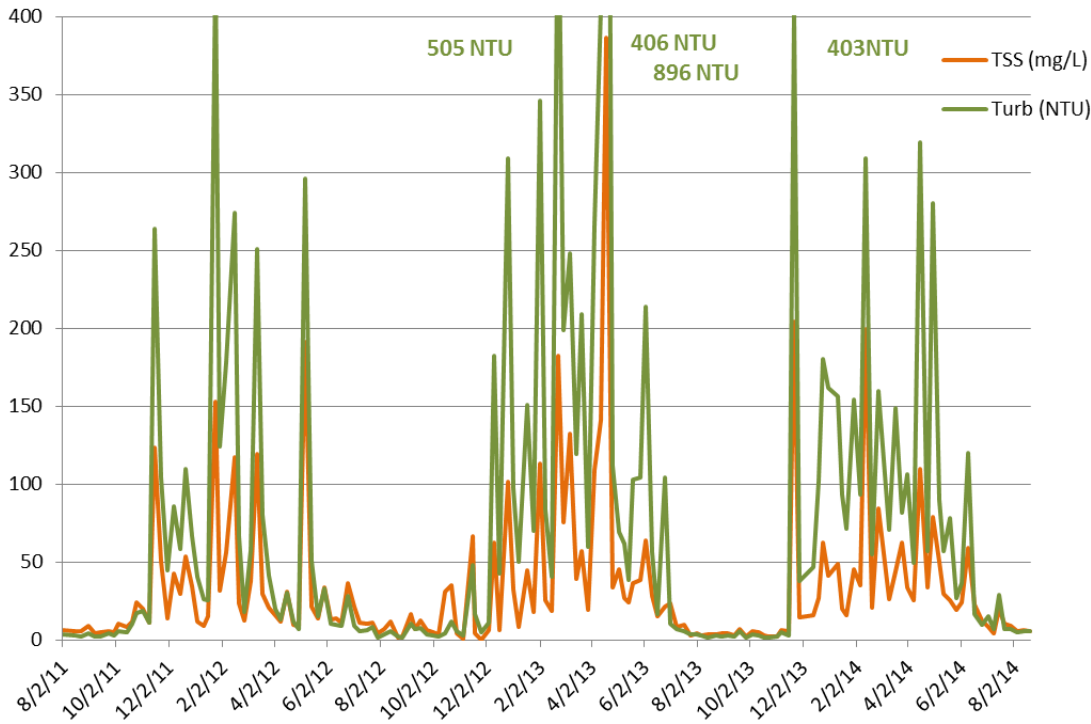
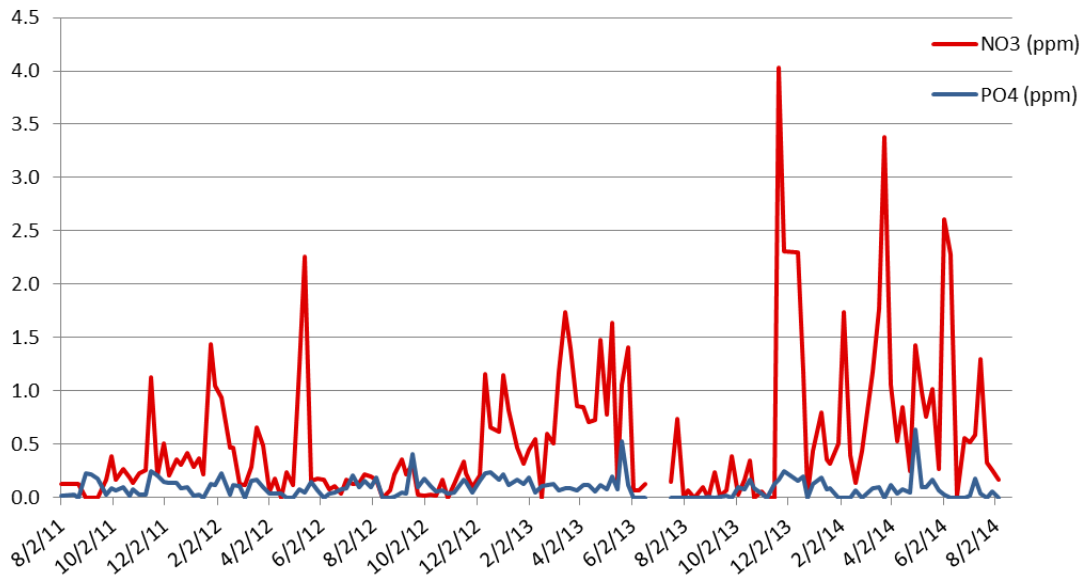
Bayou DeView tributaries –
confluence between
Morrison Lake and Turkey
Creek (sites 2 and 5)



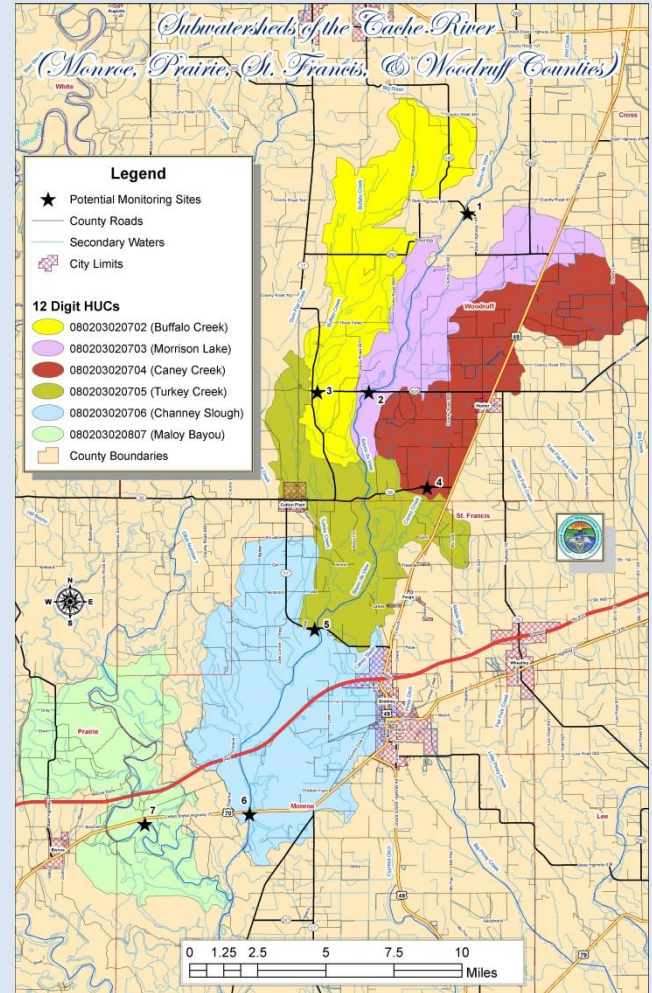
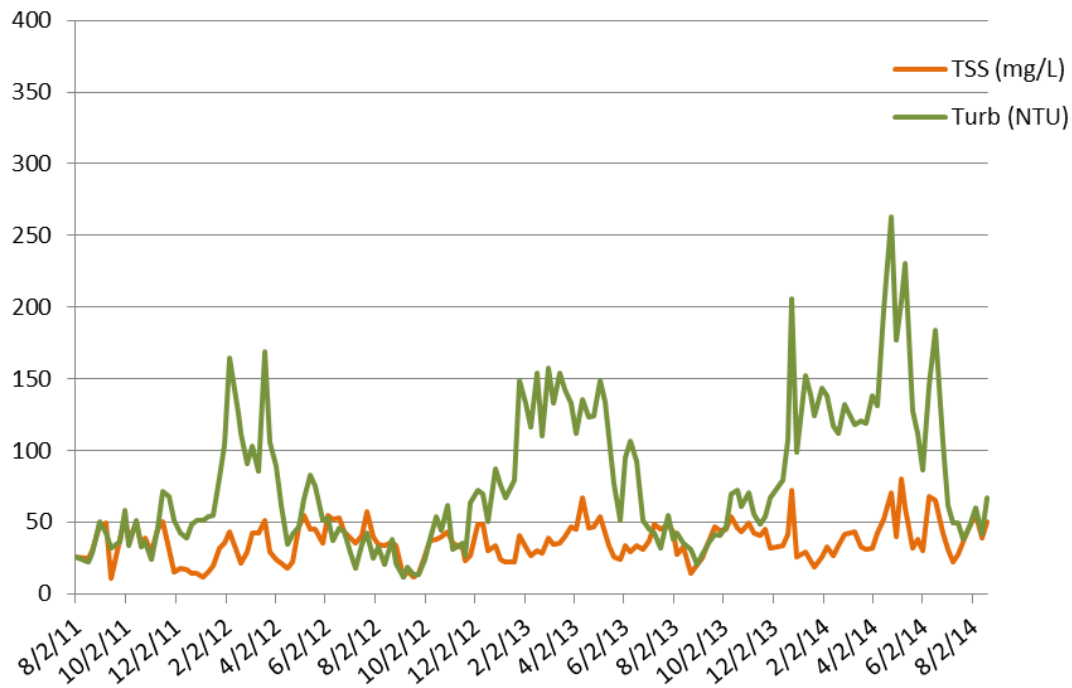
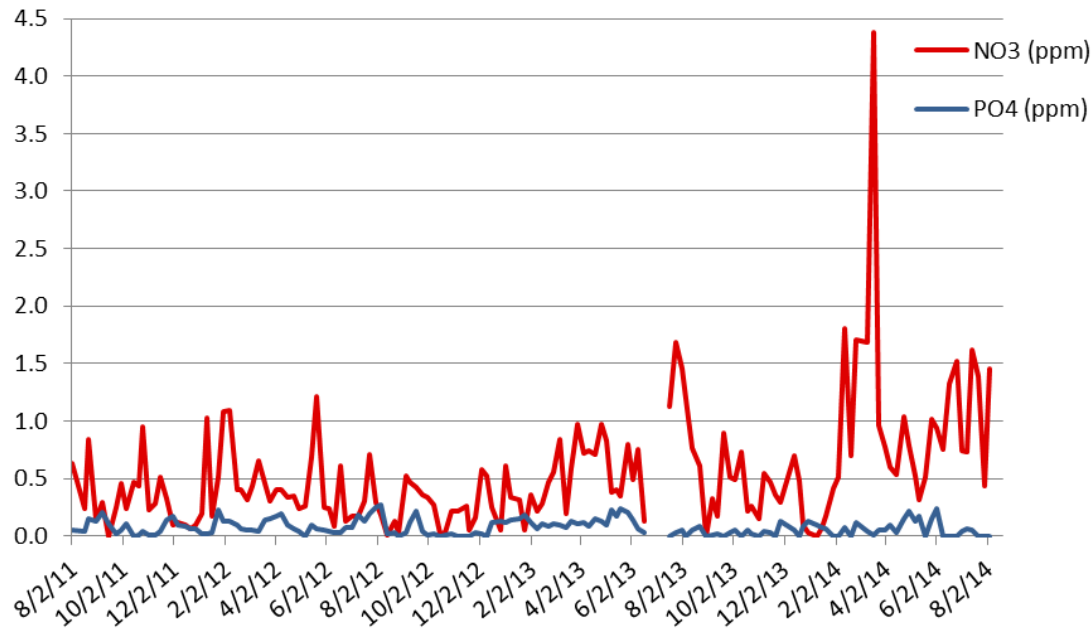
Site 3 Buffalo Creek



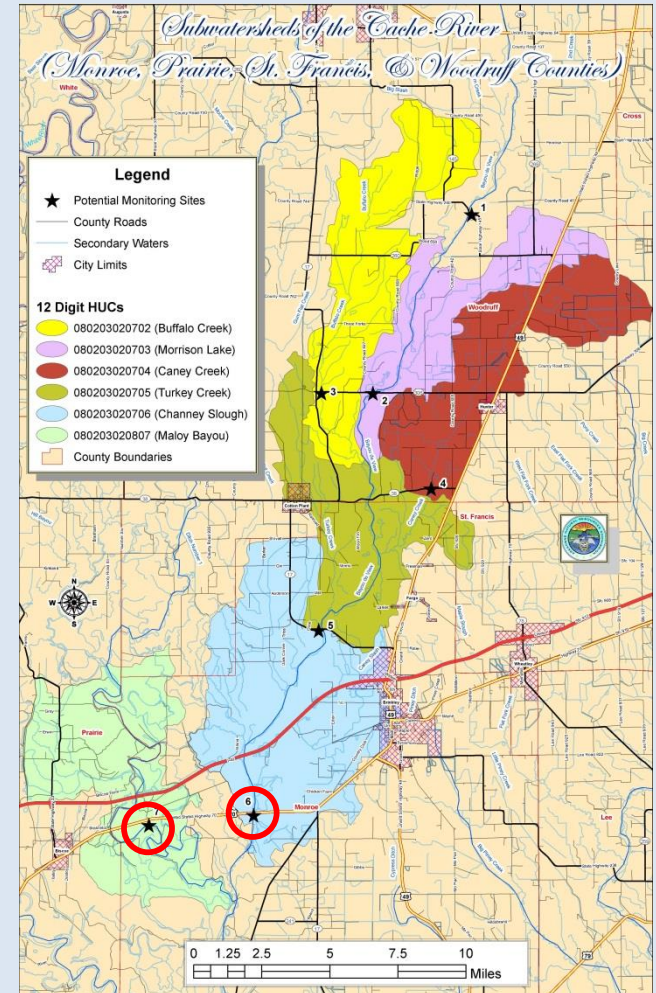
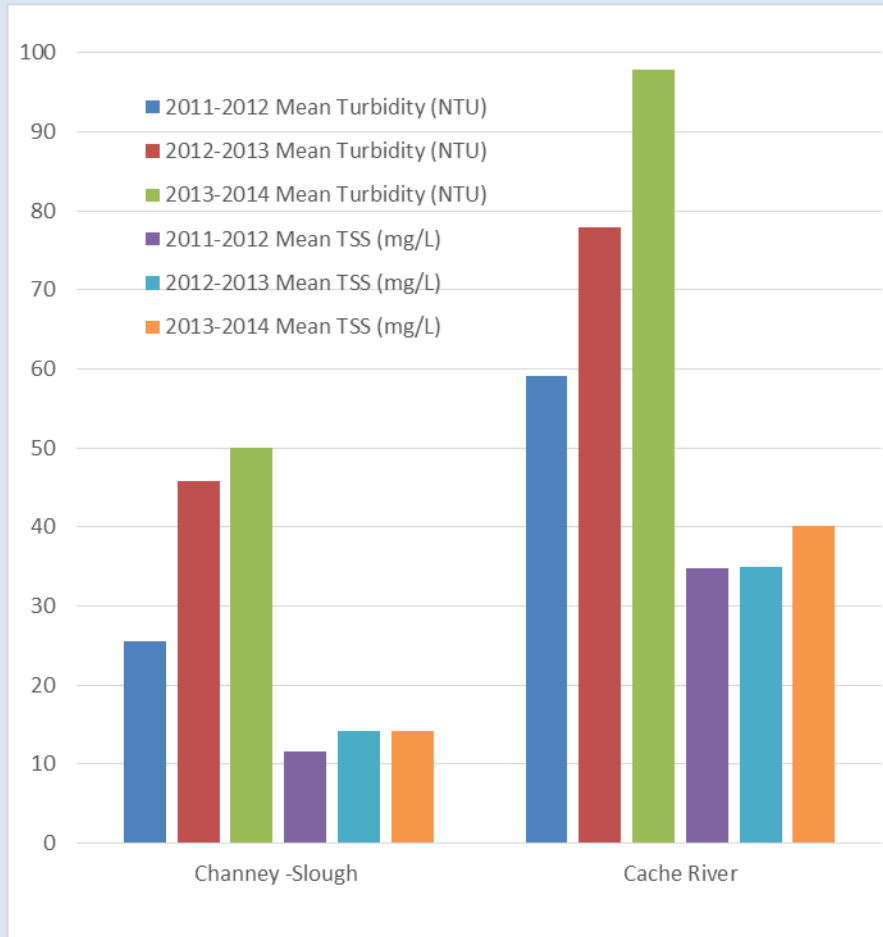
Site 4 Caney Creek



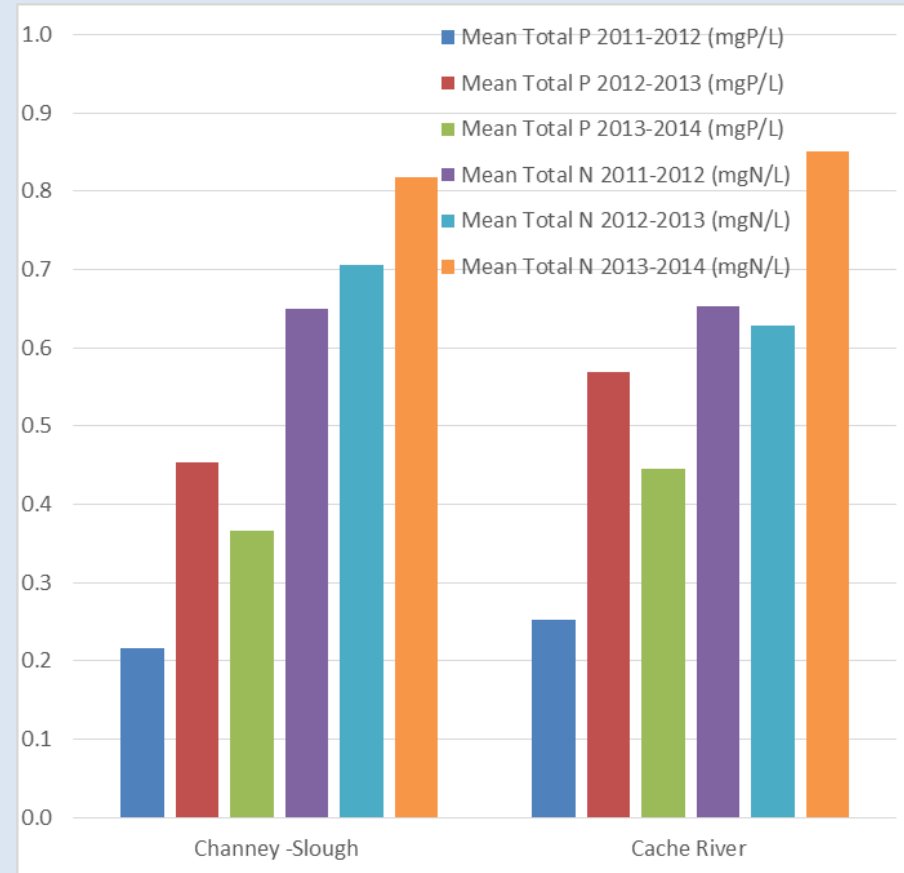
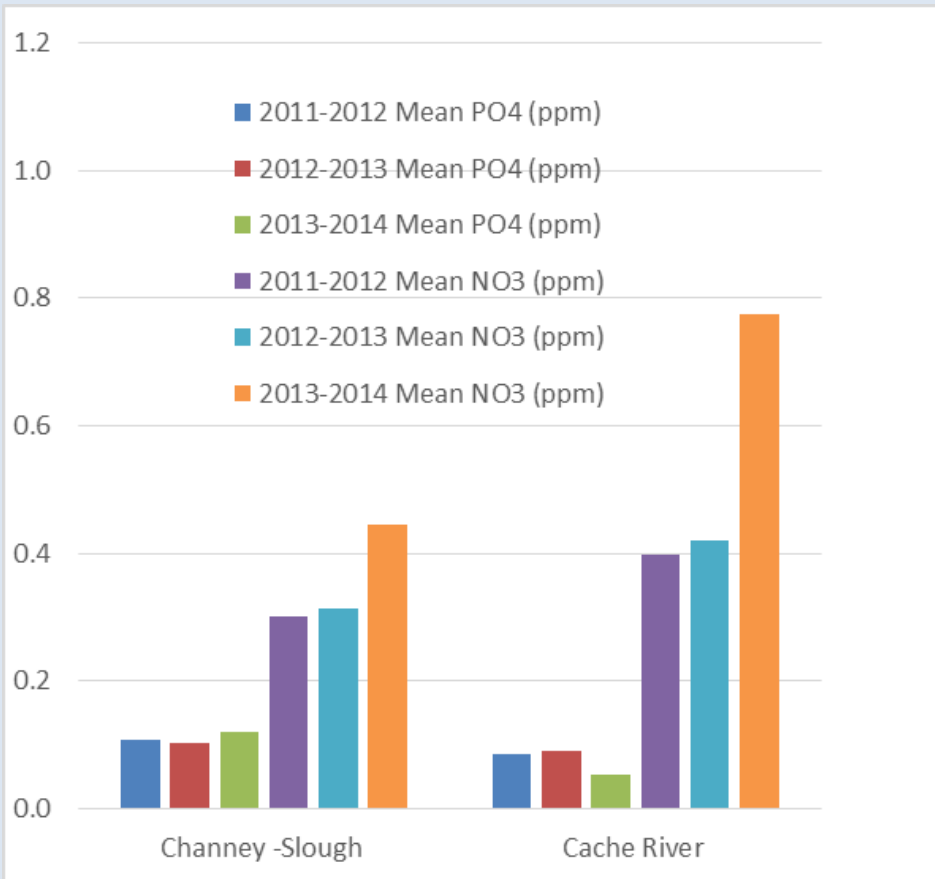
Site 7 Cache River



Bayou DeView & Cache River



Bayou DeView & Cache River



Bayou DeView & Cache River

	Channey-Slough	Cache River
TSS	19,217.5	122,557.4
NO3	604.1	2,368.5
PO4	164.1	162.5
Total N	1,108.7	2,597.7
Total P	497.4	1,360.4

2013-2014 mean annual loading from Bayou DeView channel as measured at Channey-Slough and Cache River channel, upstream from their confluence.

USGS streamflow data from Morton (Bayou DeView) and Patterson (Cache) 1997-2014, 1987-2014

Results

- Nutrient and sediment total input greater for Cache River channel
- Trend of lower sediment and nutrient values at downstream sites in Bayou De View channels
- Established wetlands and meanders in the Bayou DeView channel reduce nutrient and sediment loading
- Drought year (2012) and wet years (2013 & 2014)

Questions?



Thanks to ANRC, Billy Justus (USGS), Carlos Rosado-Berrios, students and technicians at Ecotox