

What's changed and what hasn't

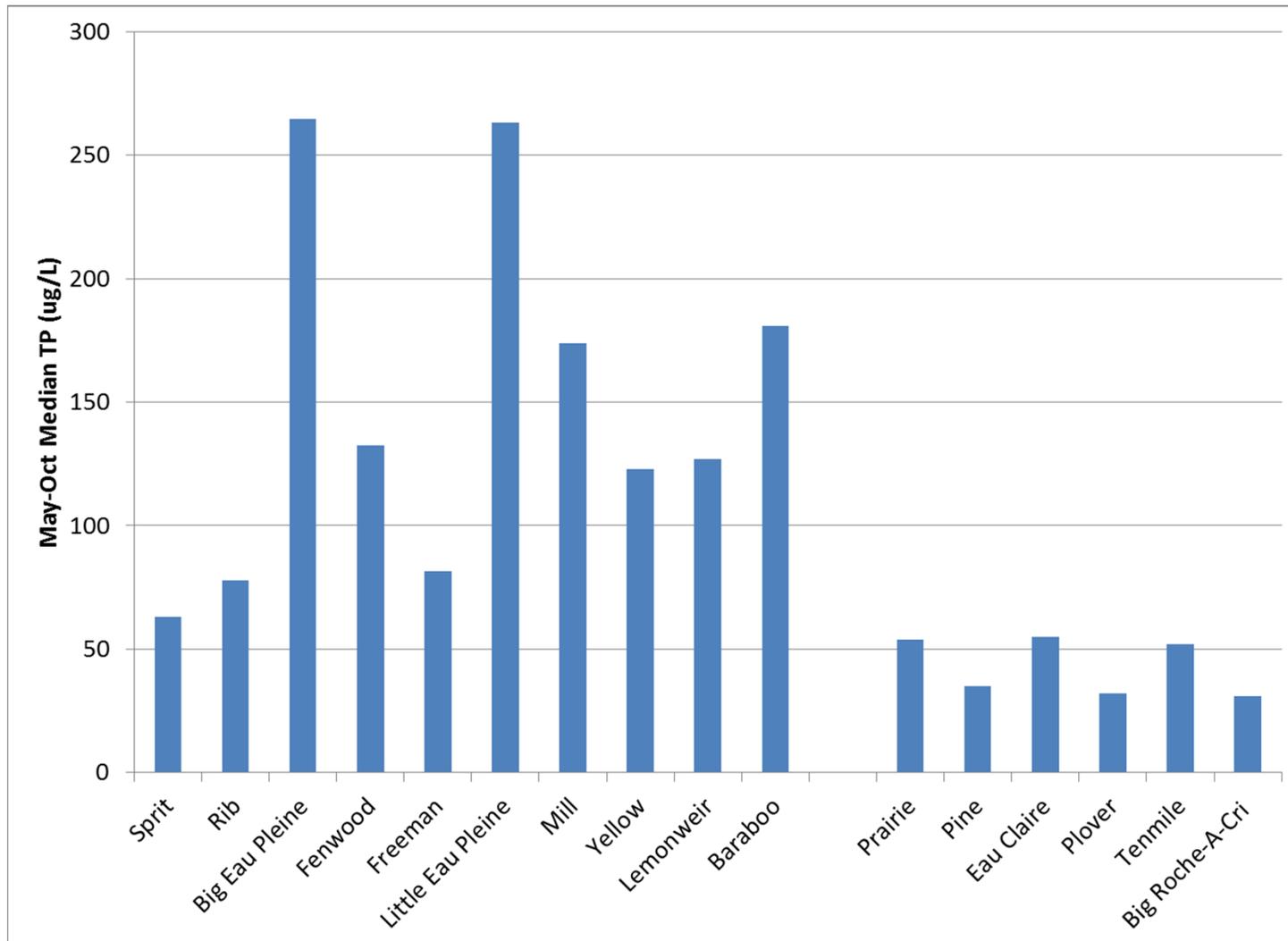


Pat Oldenburg
Water Resources Engineer
Wisconsin Dept. Natural
Resources

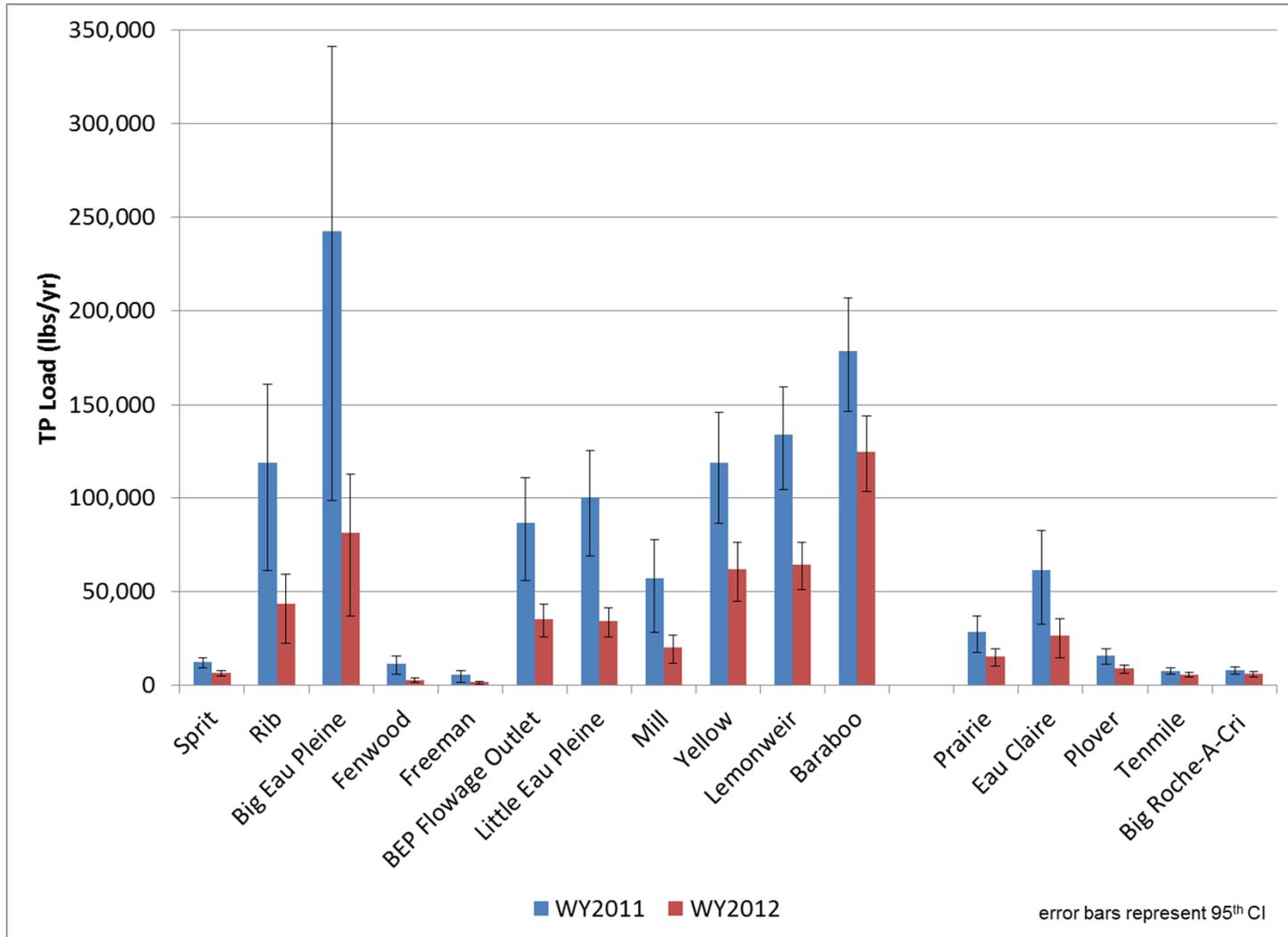
Phosphorus Criteria Refresher

- Contained in s. NR 102.06 WI Admin. Code
- Rivers and Streams
 - Named rivers – 100 µg/L
 - Wisconsin River downstream of Rhineland
 - Lemonweir River downstream of New Lisbon
 - Baraboo River downstream of La Valle
 - Other rivers in this study - 75 µg/L
- Lakes and Reservoirs
 - Natural lakes – 15 to 40 µg/L (none in this study)
 - Reservoirs
 - Stratified Reservoirs - 30 µg/L
 - Big Eau Pleine
 - Mixed Reservoirs - 40 µg/L
 - Lake Dubay, Petenwell, and Castle Rock

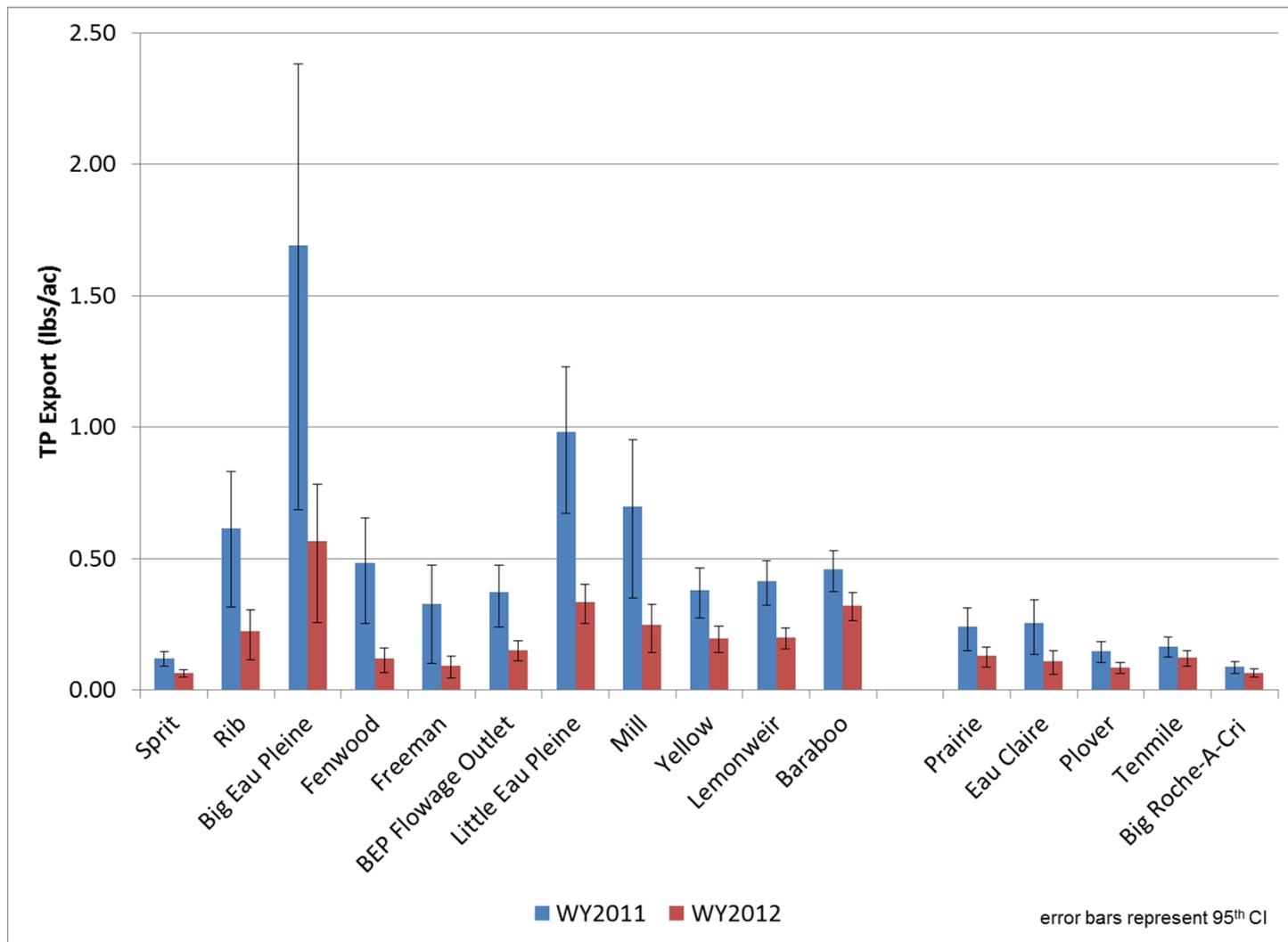
Wisconsin River Tributaries: May-Oct Medians (2009-2012)



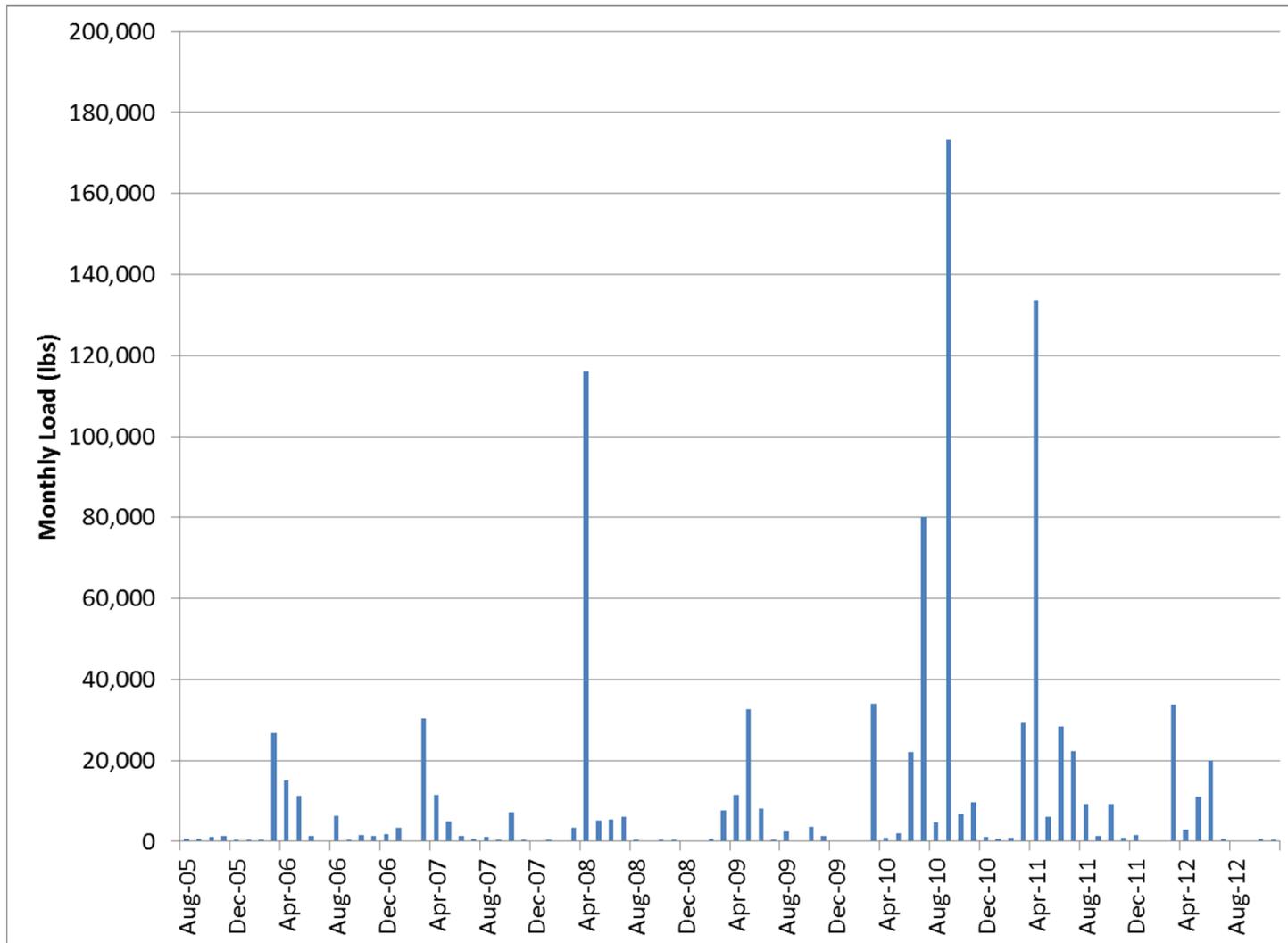
Wisconsin River Tributaries: Preliminary Loads



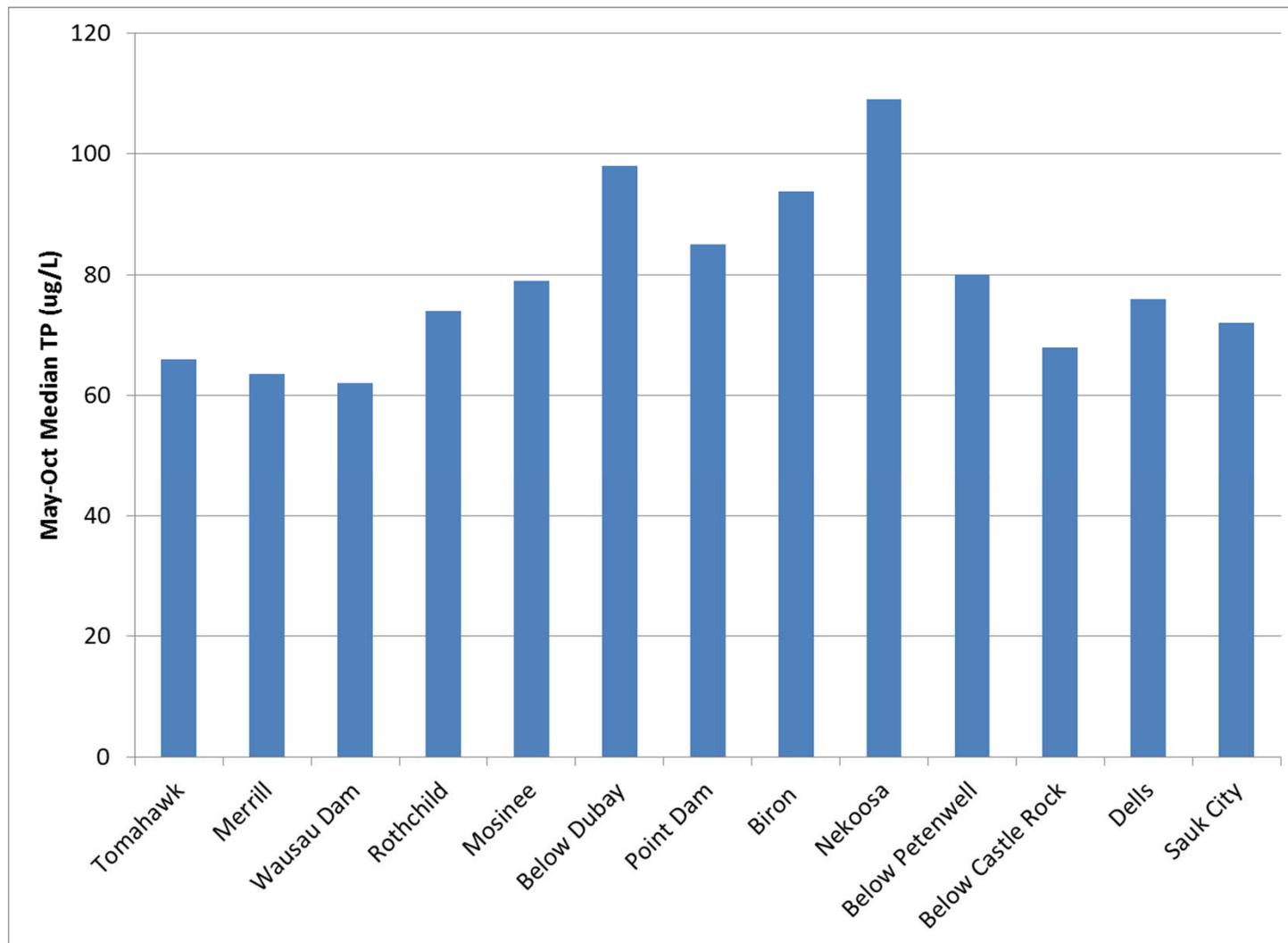
Wisconsin River Tributaries: Preliminary Loads



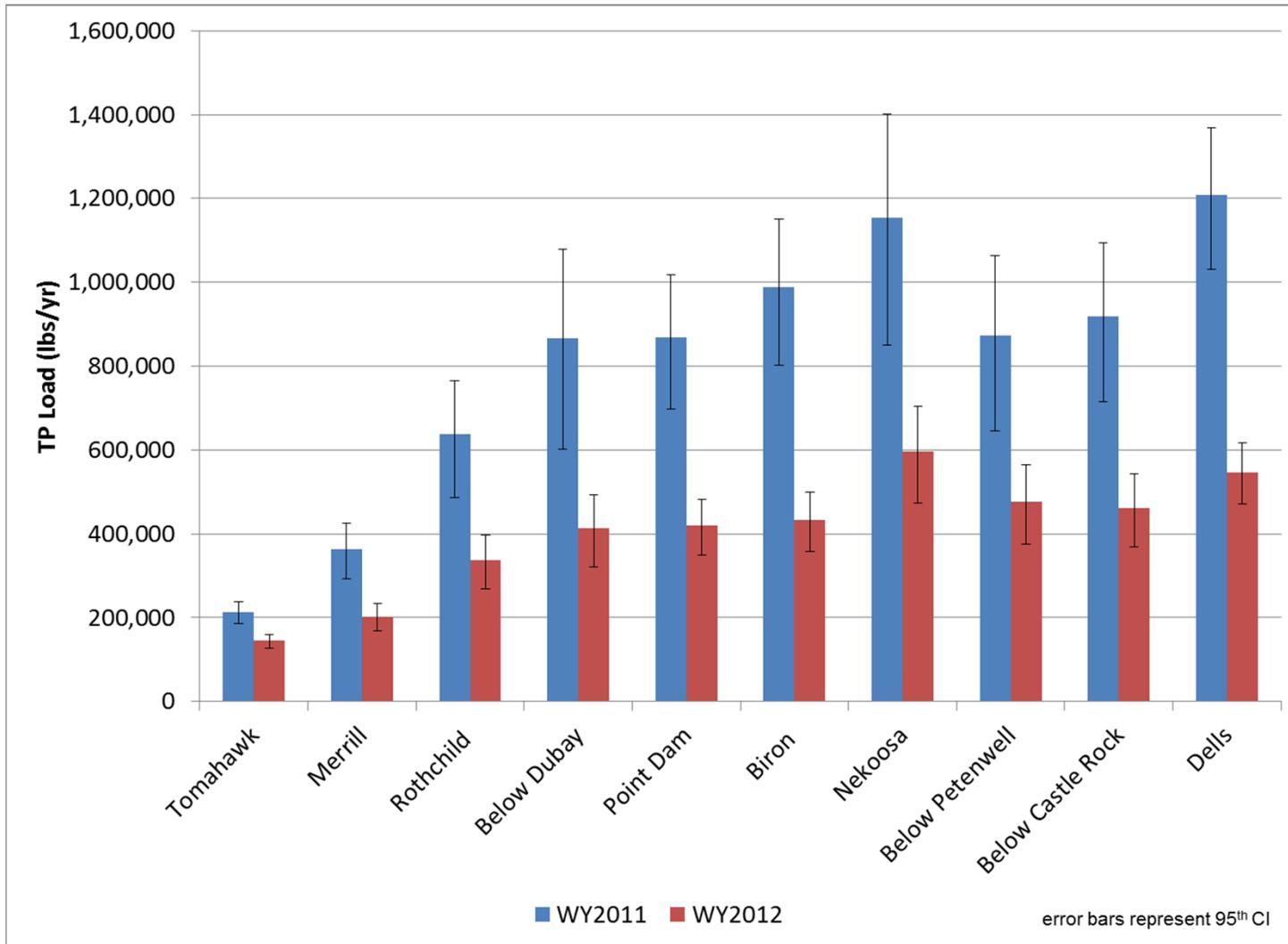
Wisconsin River Tributaries: Preliminary Loads: Big Eau Pleine



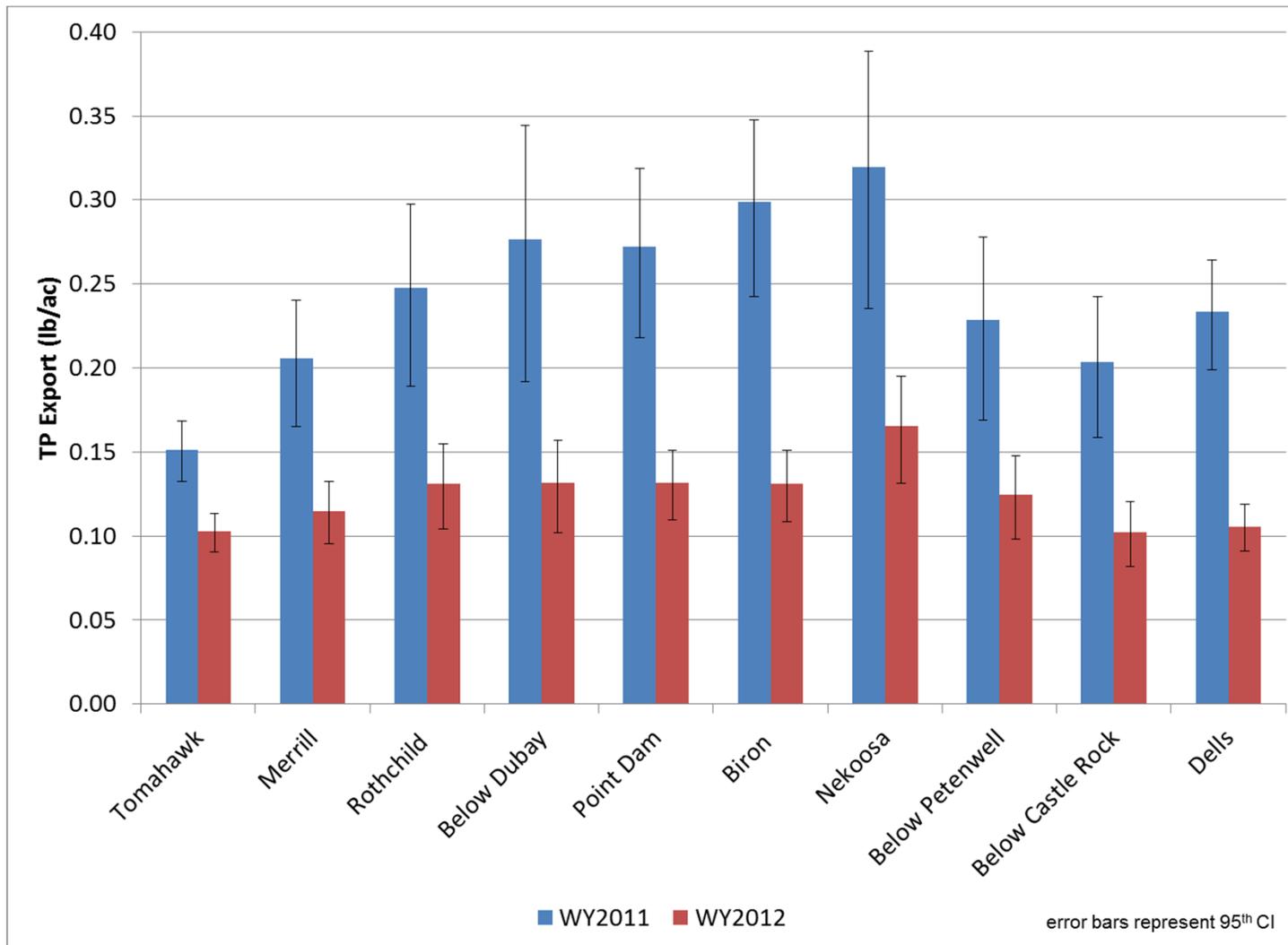
Wisconsin River Mainstem: May-Oct Medians (2009-2012)



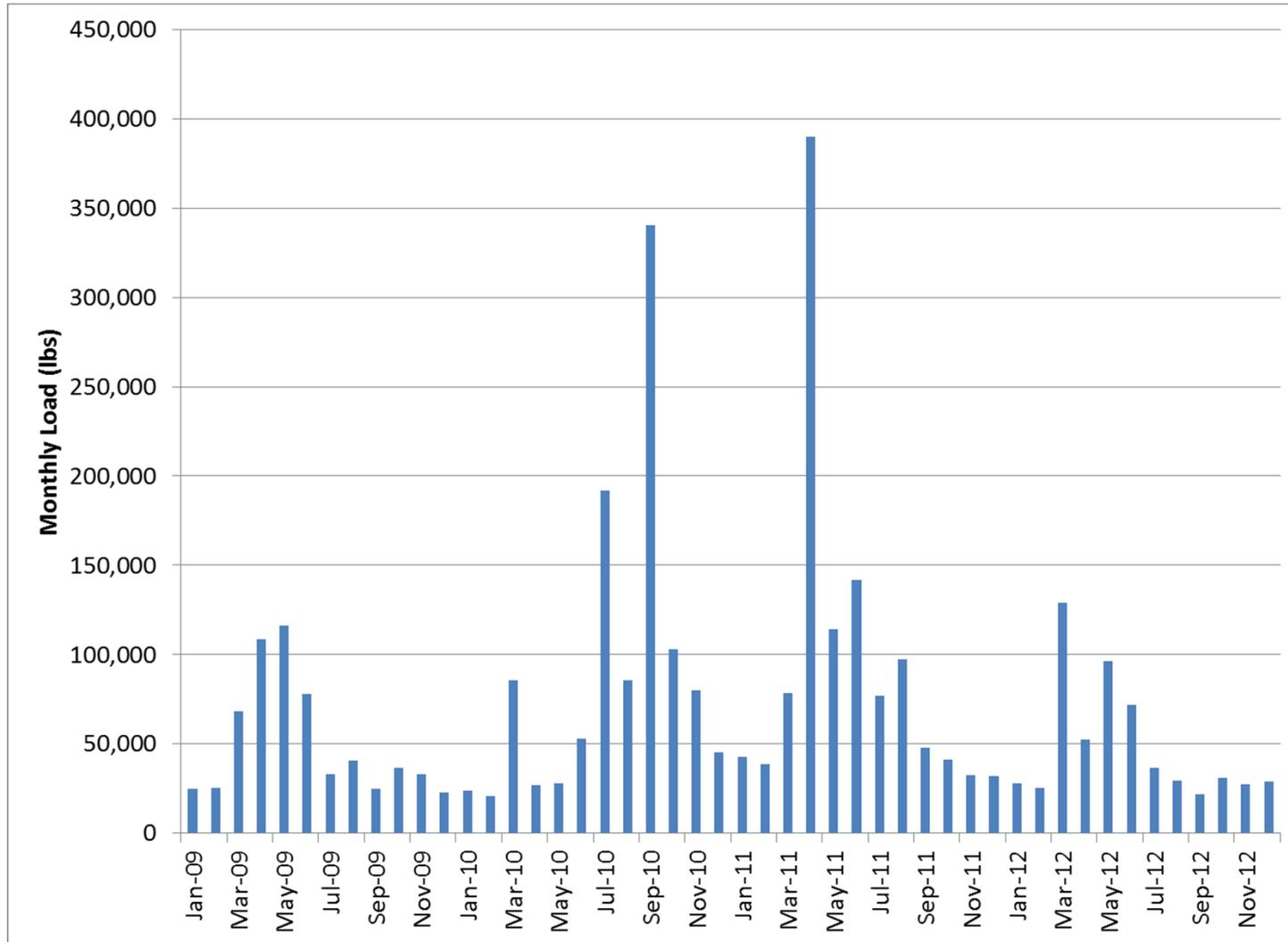
Wisconsin River Mainstem: Preliminary Loads



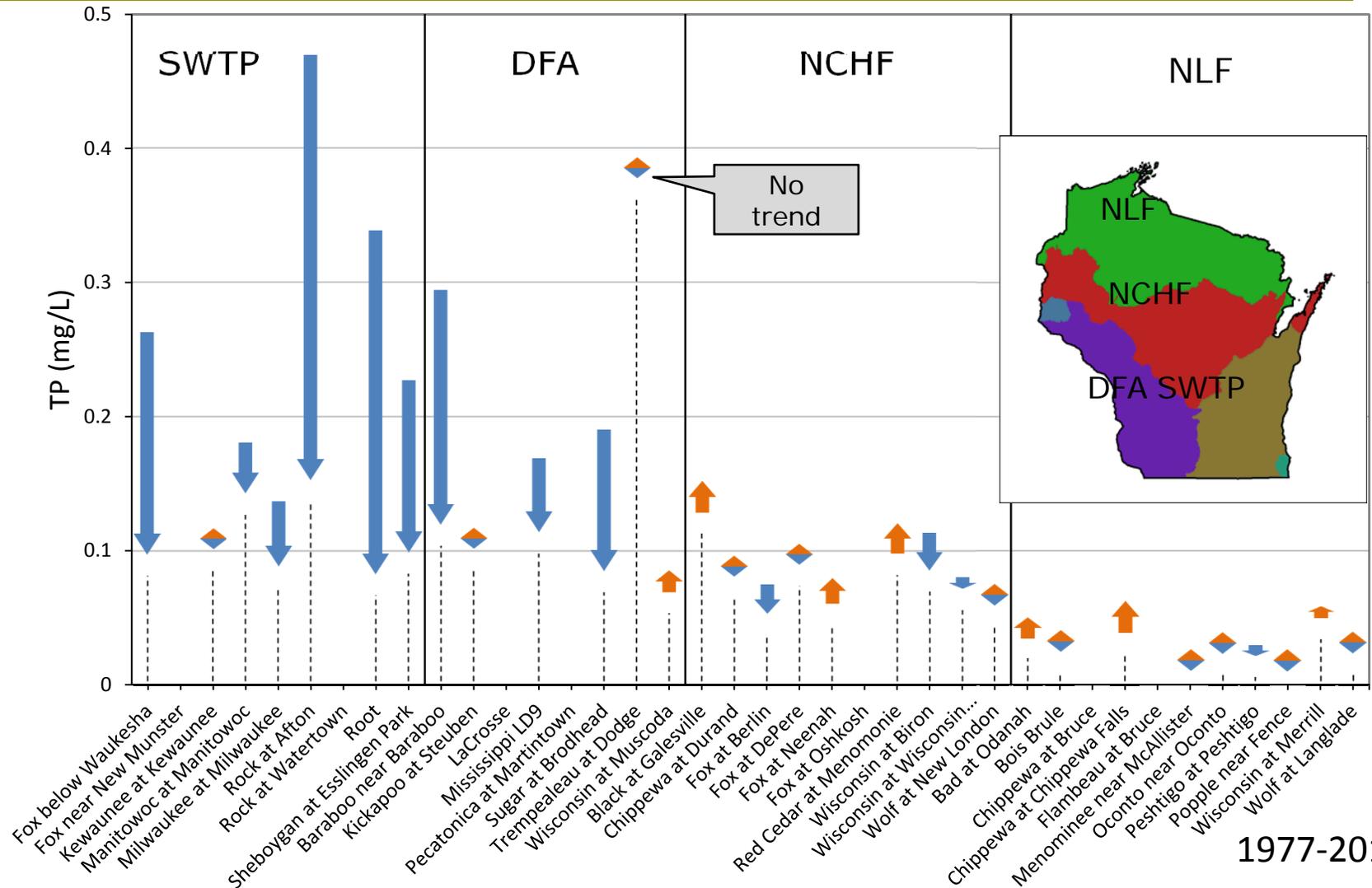
Wisconsin River Mainstem: Preliminary Loads



Wisconsin River Mainstem: Preliminary Loads: Nekoosa

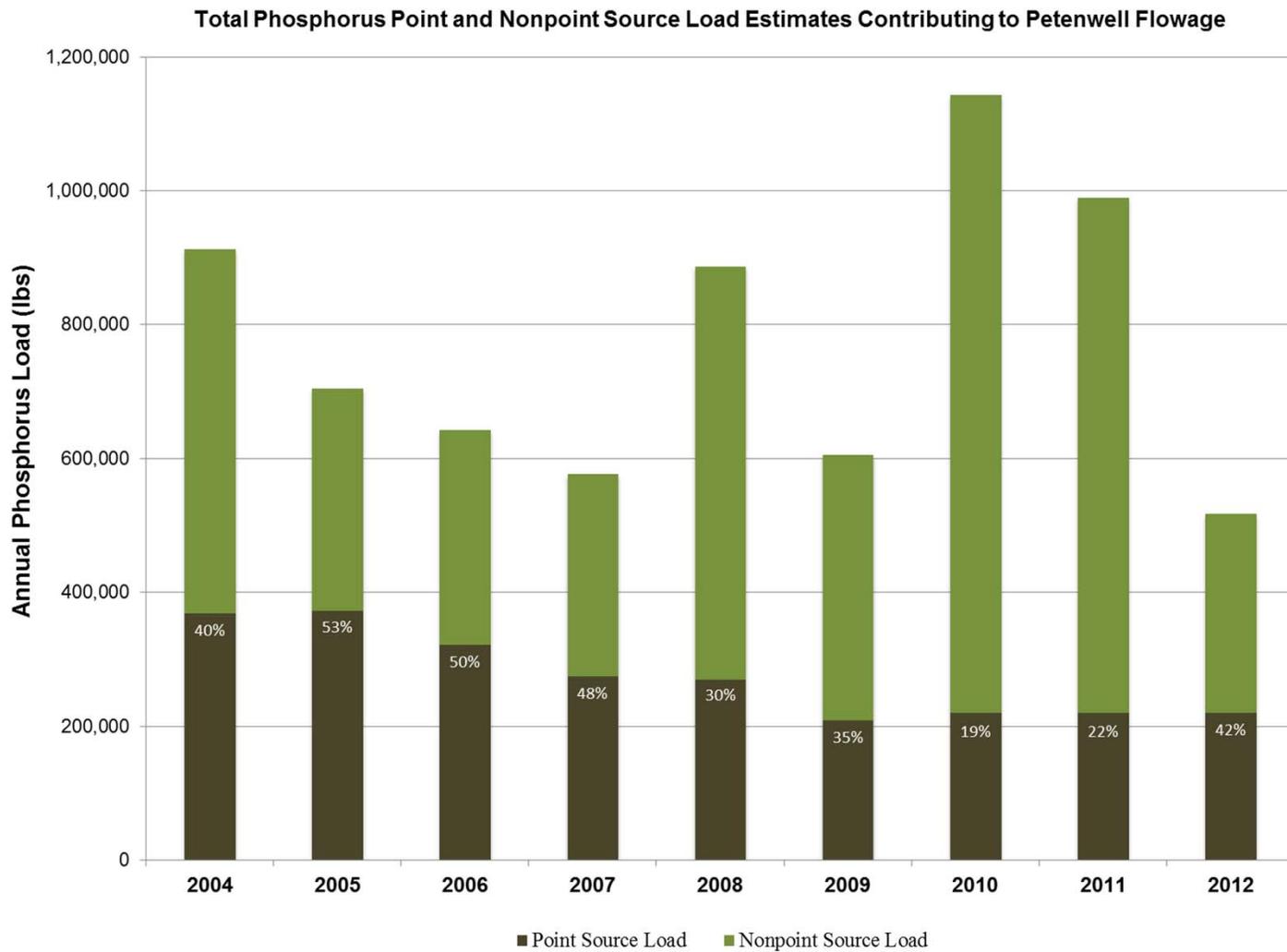


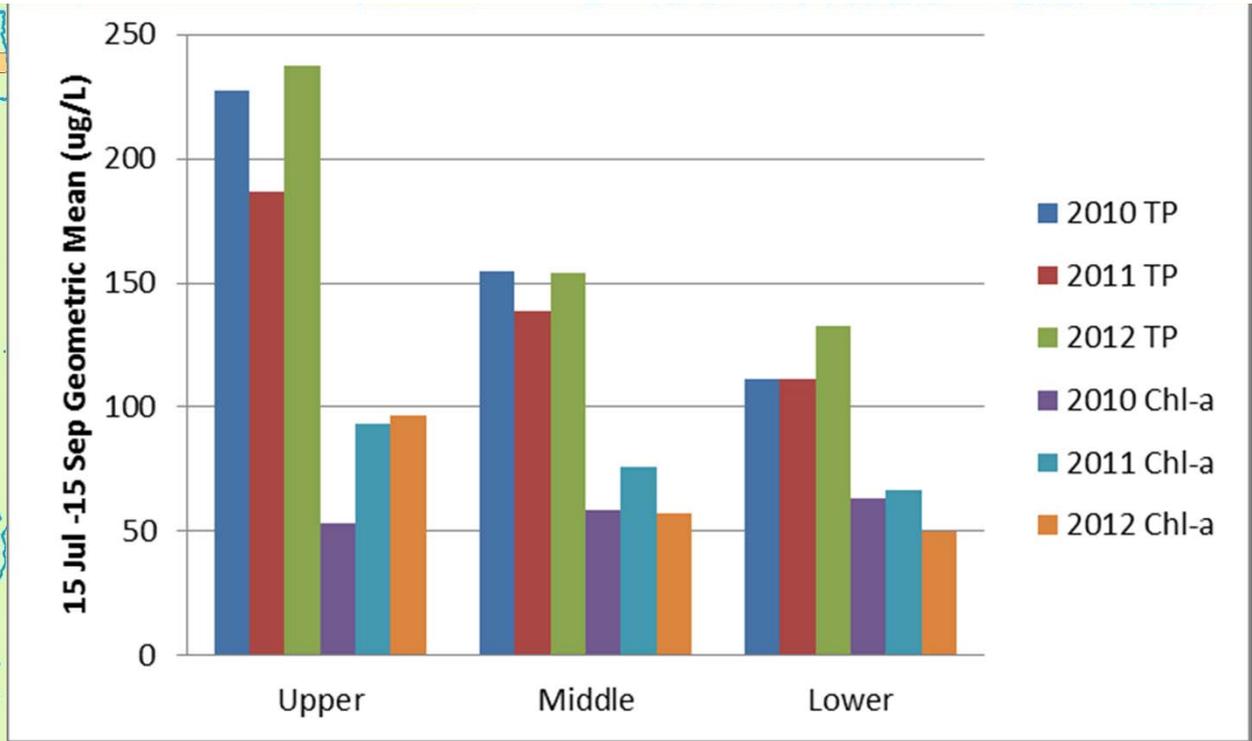
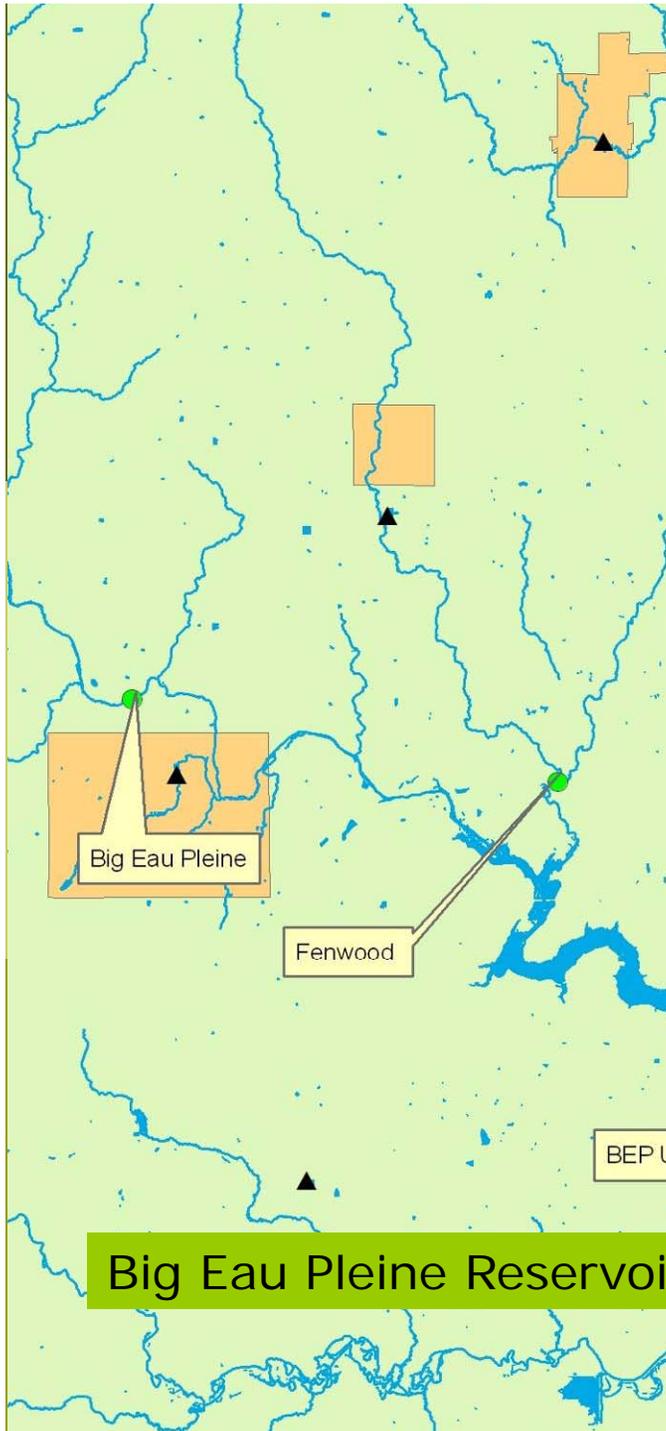
Longer Term Comparisons

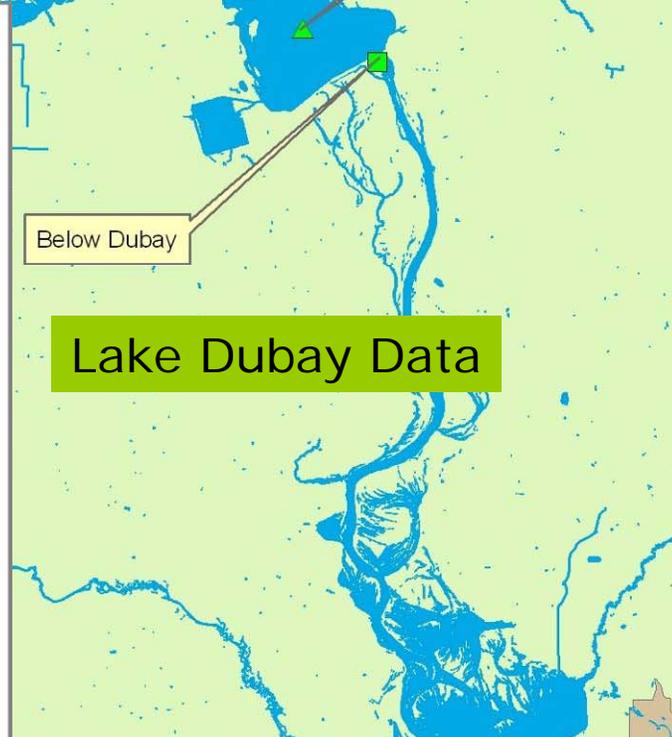
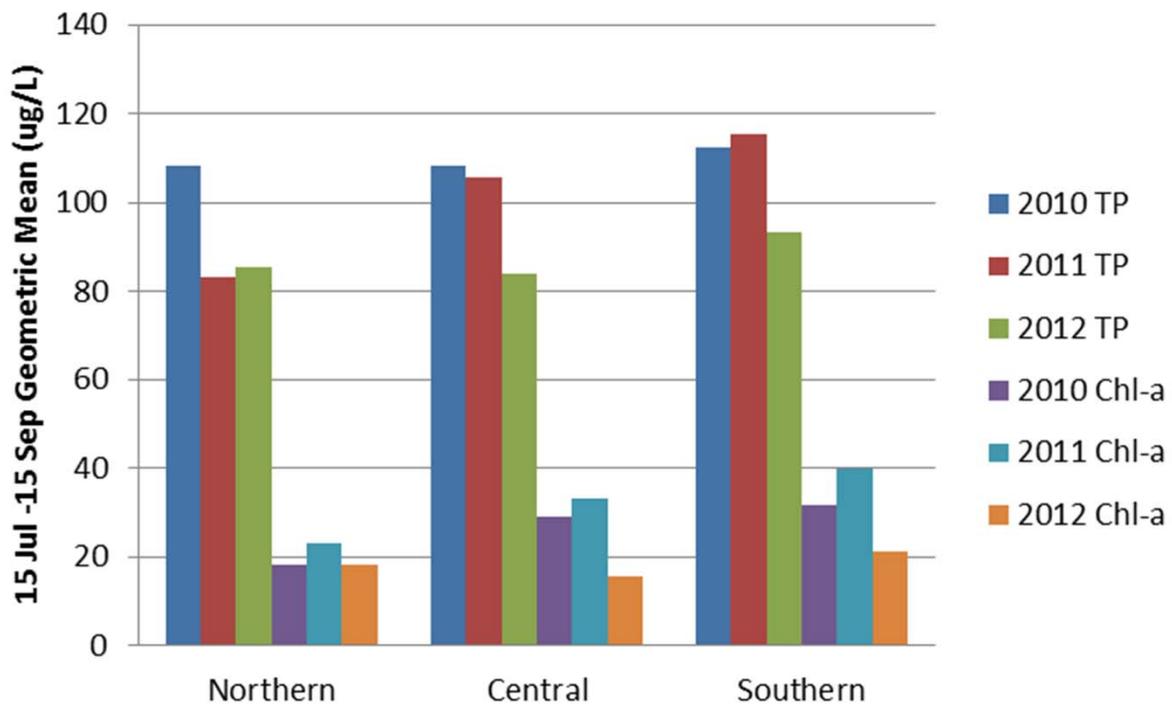
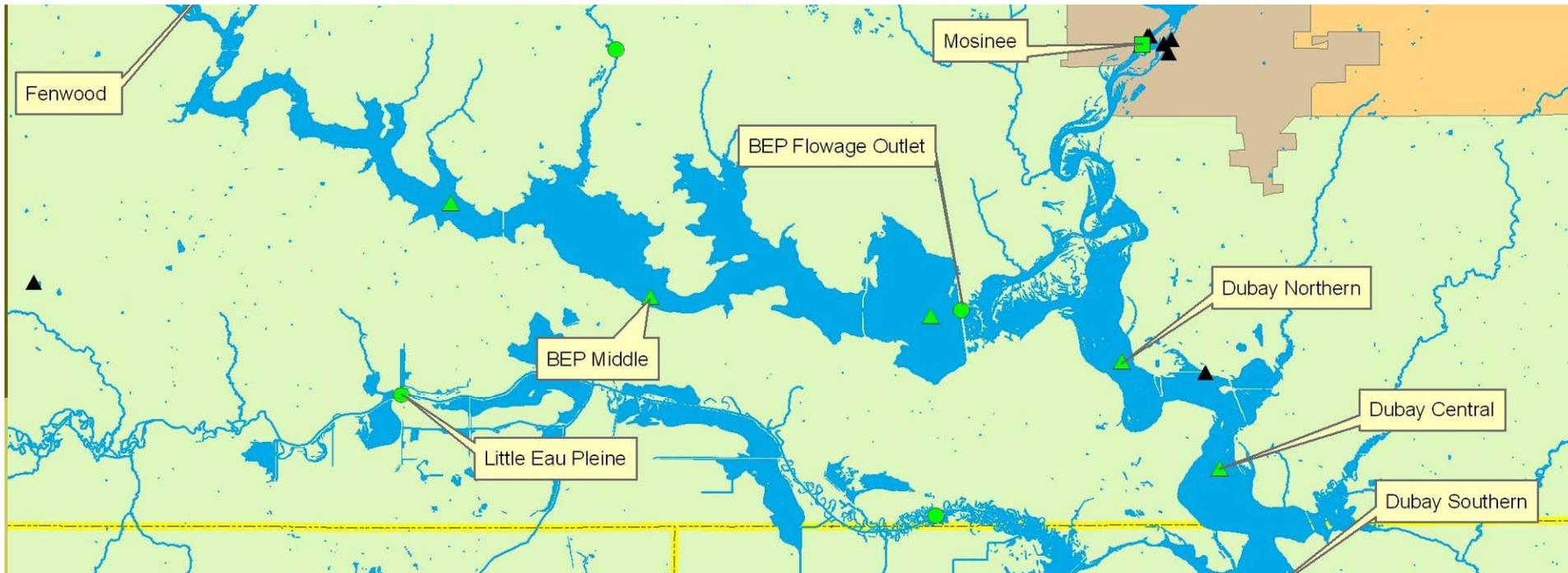


1977-2010

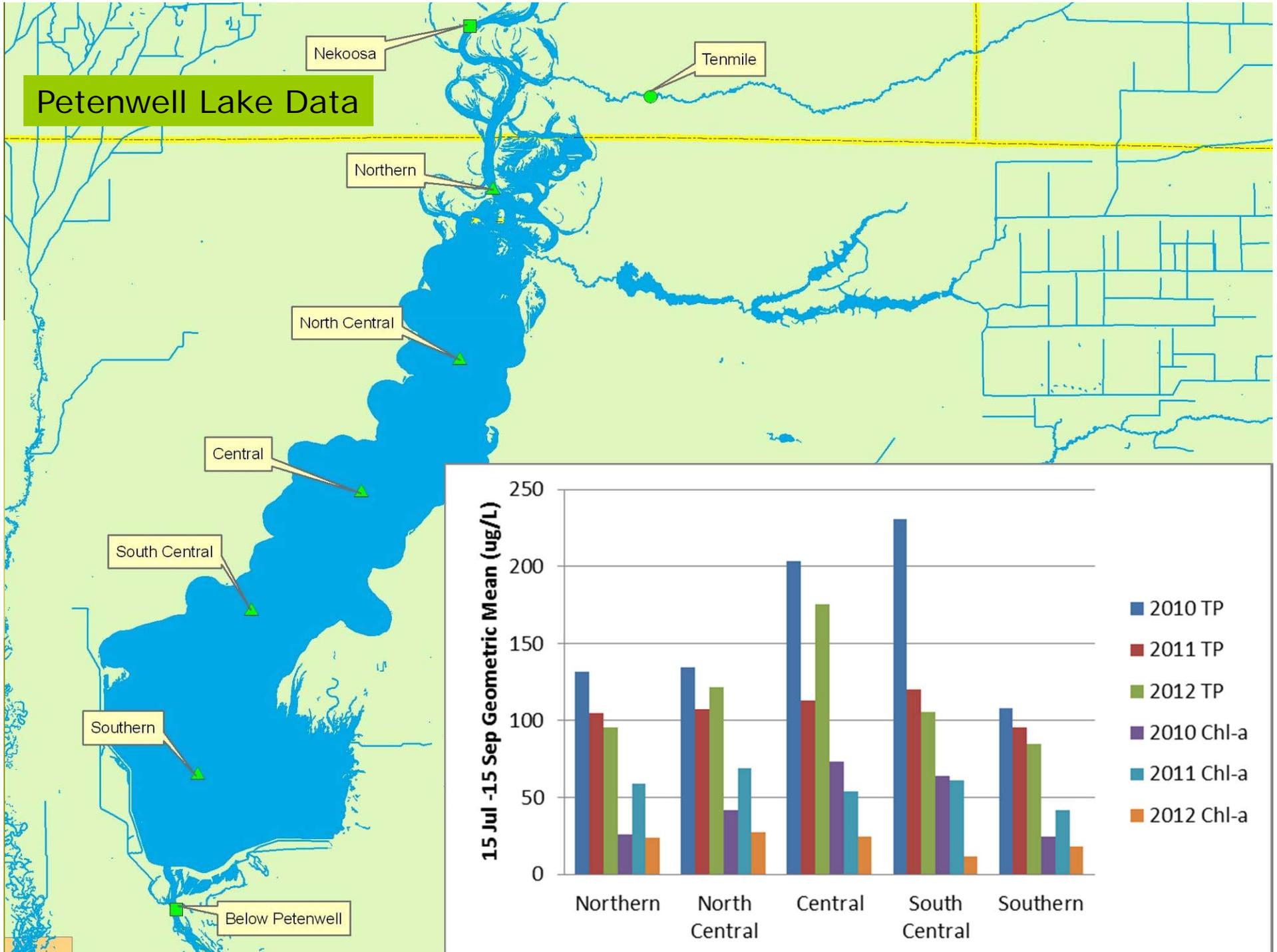
Longer Term Comparisons

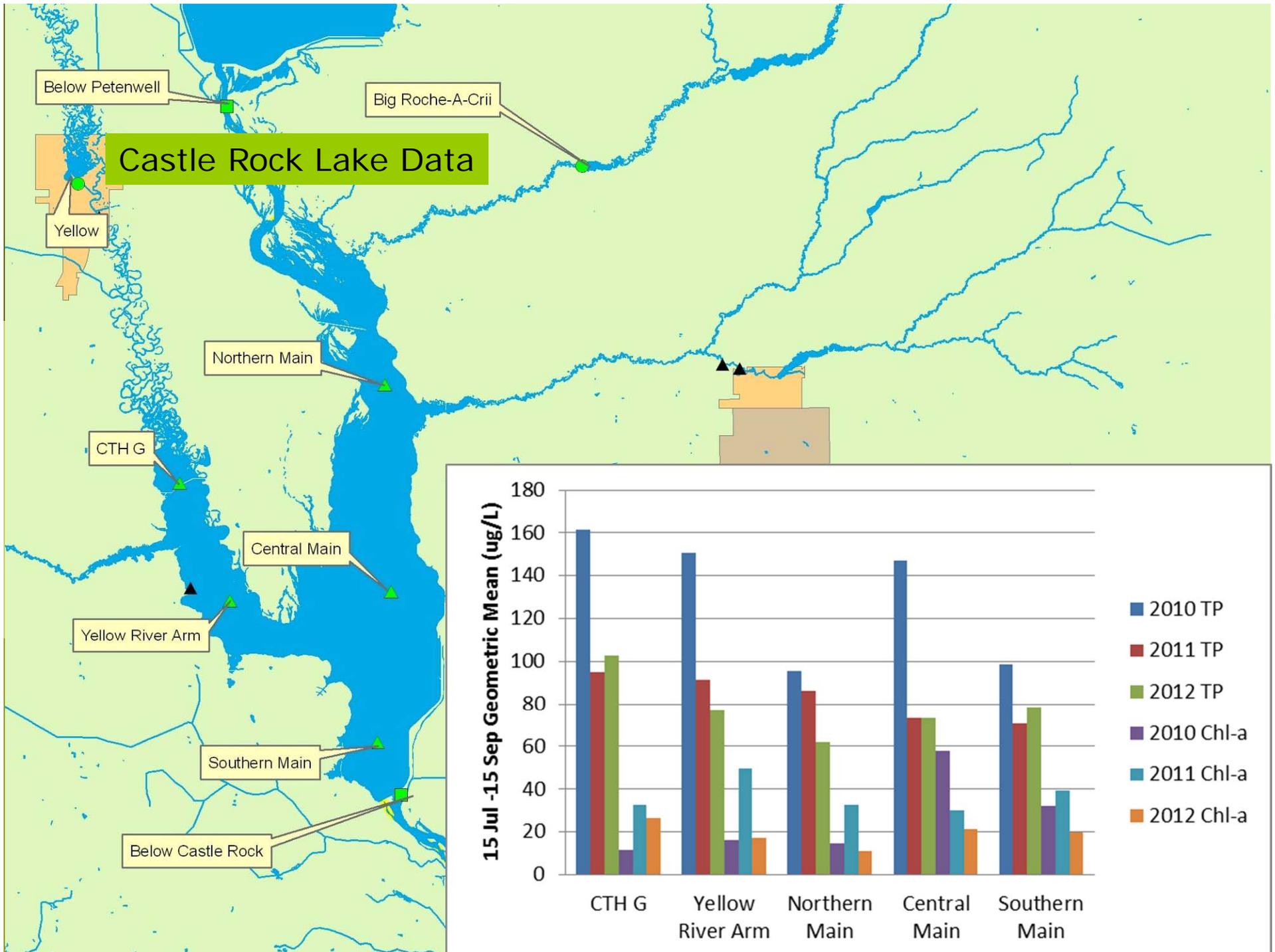


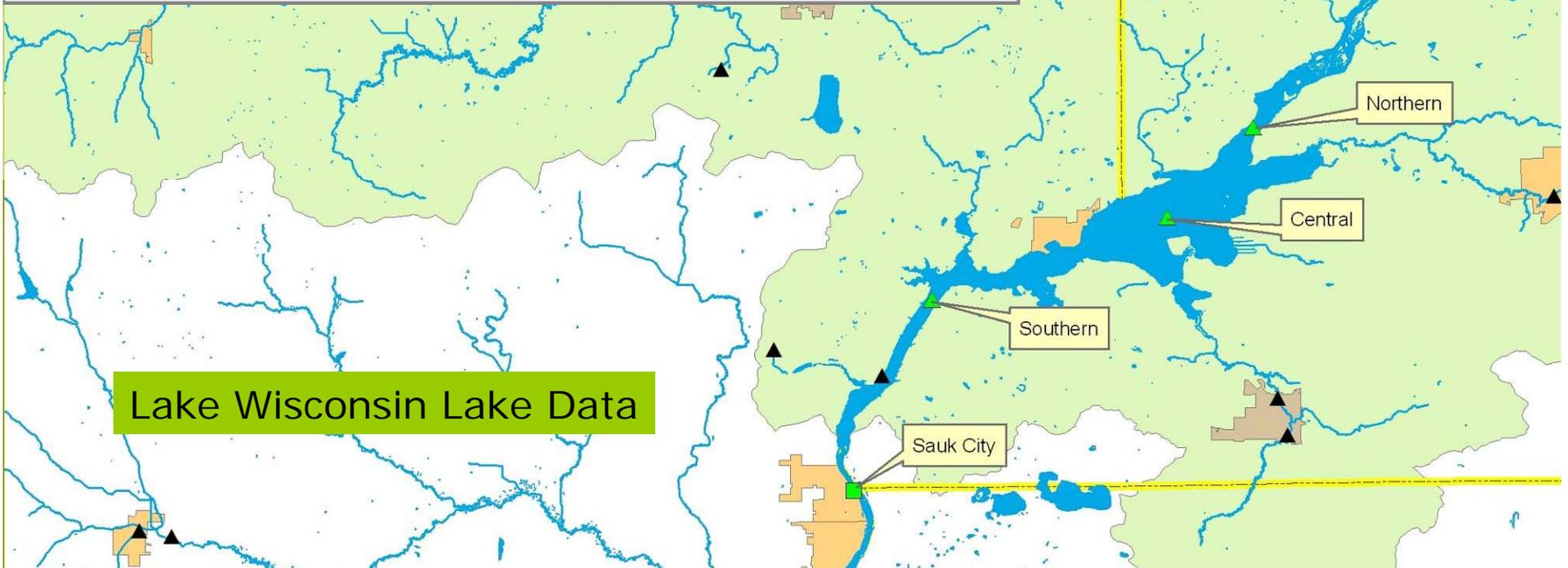
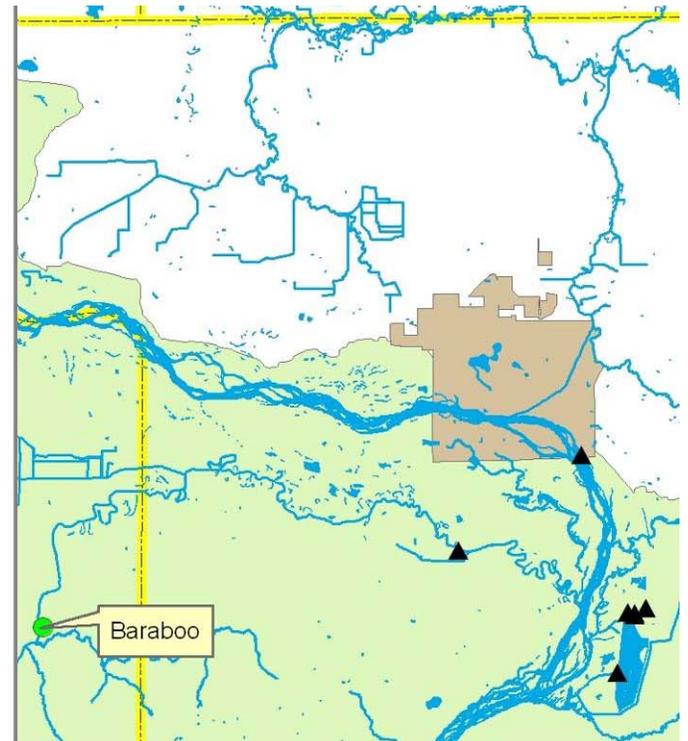
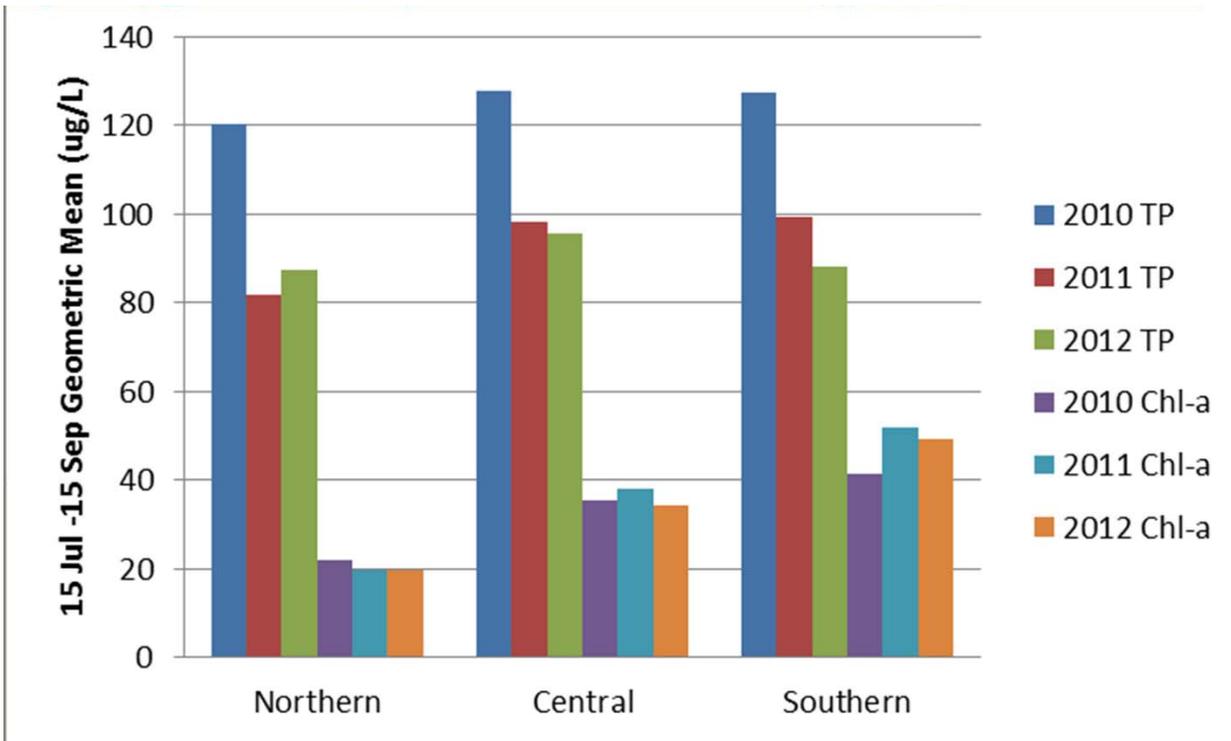




Petenwell Lake Data







Lake Wisconsin Lake Data

Conclusions

- Wisconsin River phosphorus concentrations generally increase north to south
 - Big Eau Pleine, Petenwell and Castle Rock appear to act as net sinks for phosphorus
 - Lake Dubay and Lake Wisconsin less clear
- Western tributaries exhibit much higher phosphorus concentrations and unit area loads than eastern tributaries
- Flowages generally exhibit poor water quality (Chlorophyll > 25 $\mu\text{g}/\text{L}$)
 - Algae blooms are variable and heterogeneous