

# Status of the Great Miami River watershed in 2024

by

Michael C. Miller

Lisa Link

Carrie Gibbons



The Lower Great Miami Volunteers collected 66 sites through 2024, accumulating 600 samples analyzed for 9 water quality parameters.

This year, 2024, had another long and dry summer lasting from June to November with little rain and many tertiary streams dried up. This made point sources and multifamily septic systems the most likely source of the nutrient excesses.

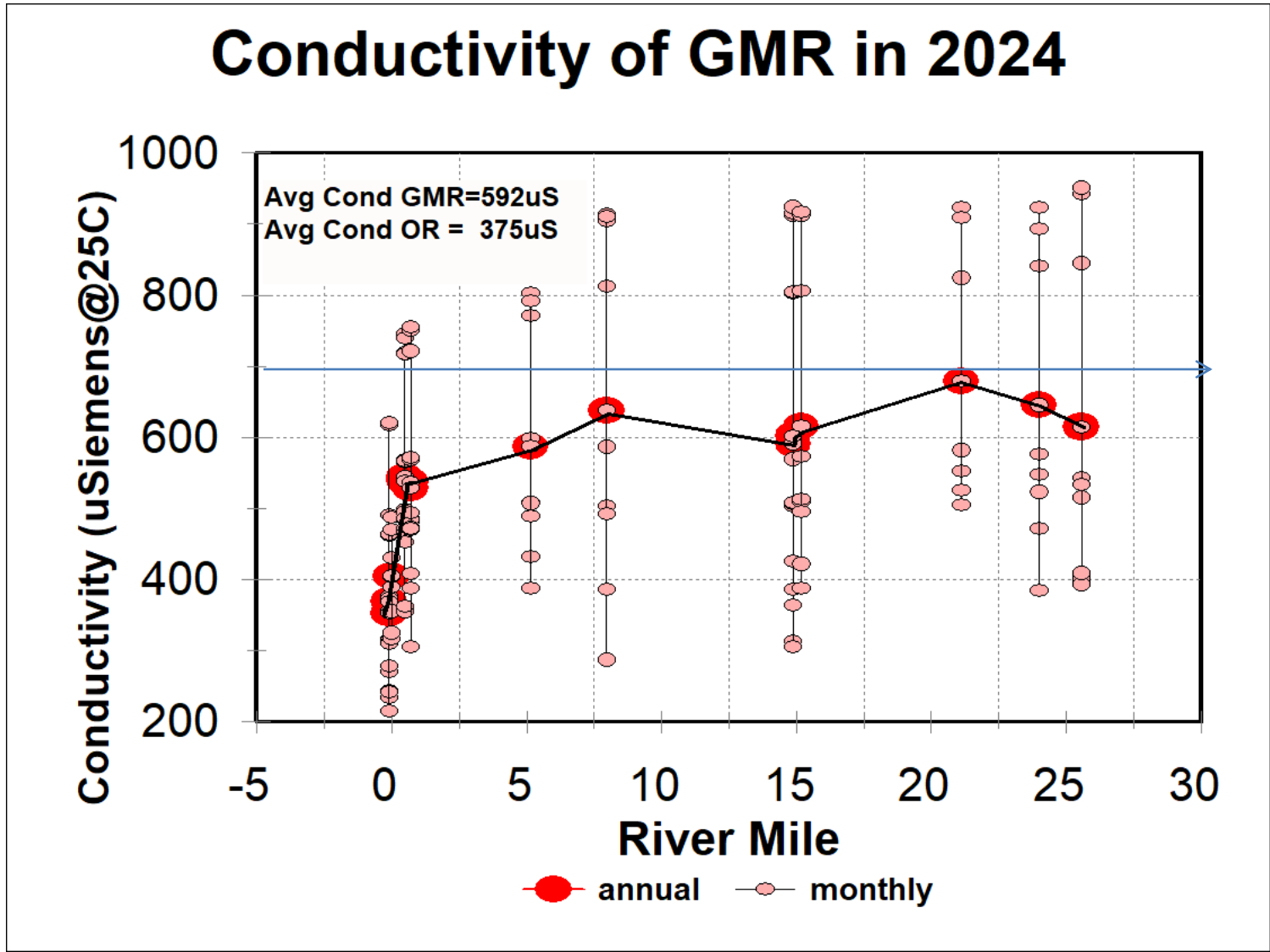
The results were near record algal biomass (measured as suspended chlorophyll) and as turbidity during the low flow period. The photosynthetic response elevated pH to excess of 8.3 much of the summer.

Our subwatersheds show differences in key parameters associated with the dominant impact each was likely to have on water quality. Urbanized Eastern subwatersheds had high TP and E. coli



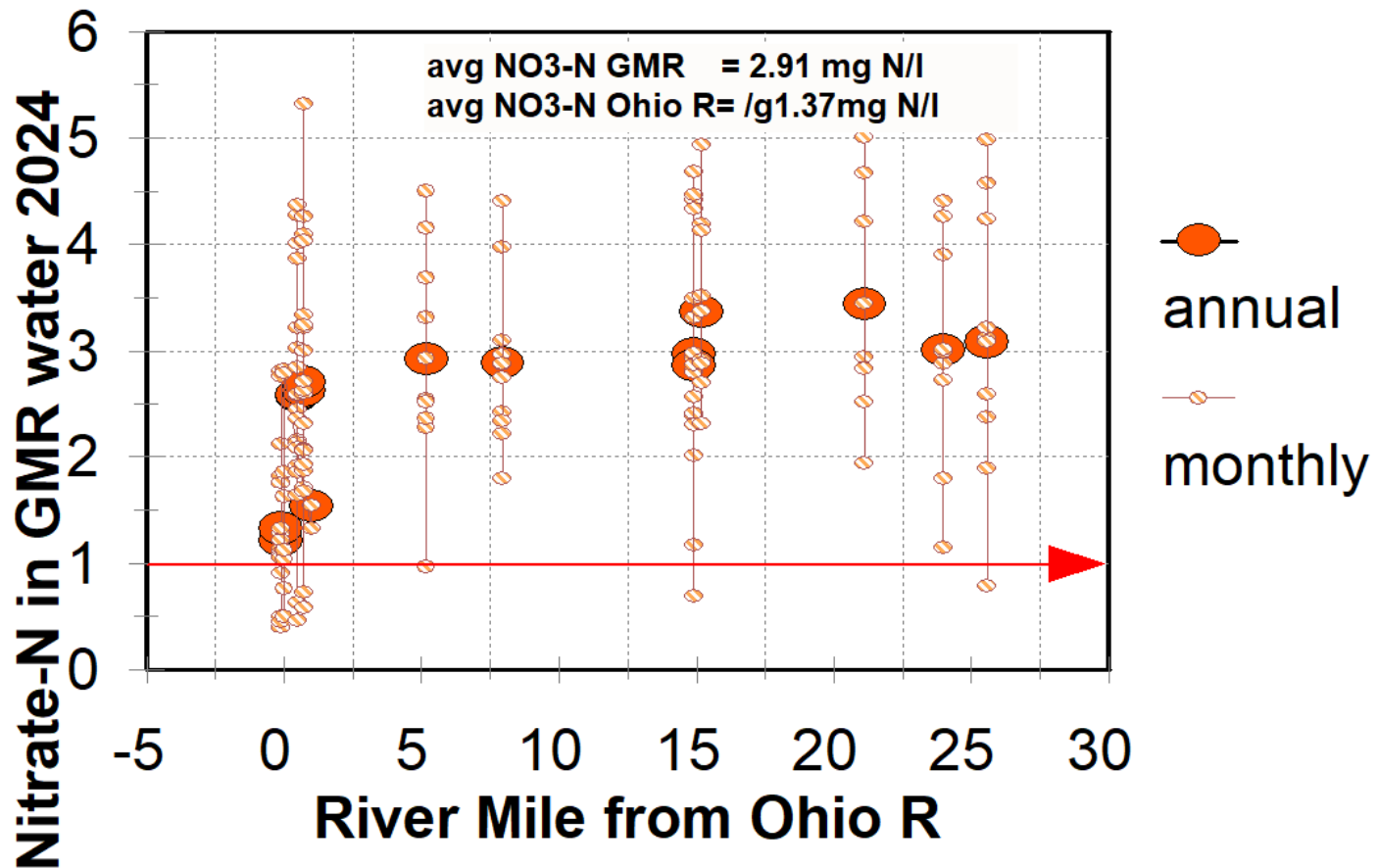
# Conductivity was diluted thru our reach.

Average Conductivity at all sites was less than 700, even in a drought year, but three dates at every site were > 700uS, the limit for Cl<sup>-</sup> in surface waters. Ohio River sites were < 400 and never reached 700uS.



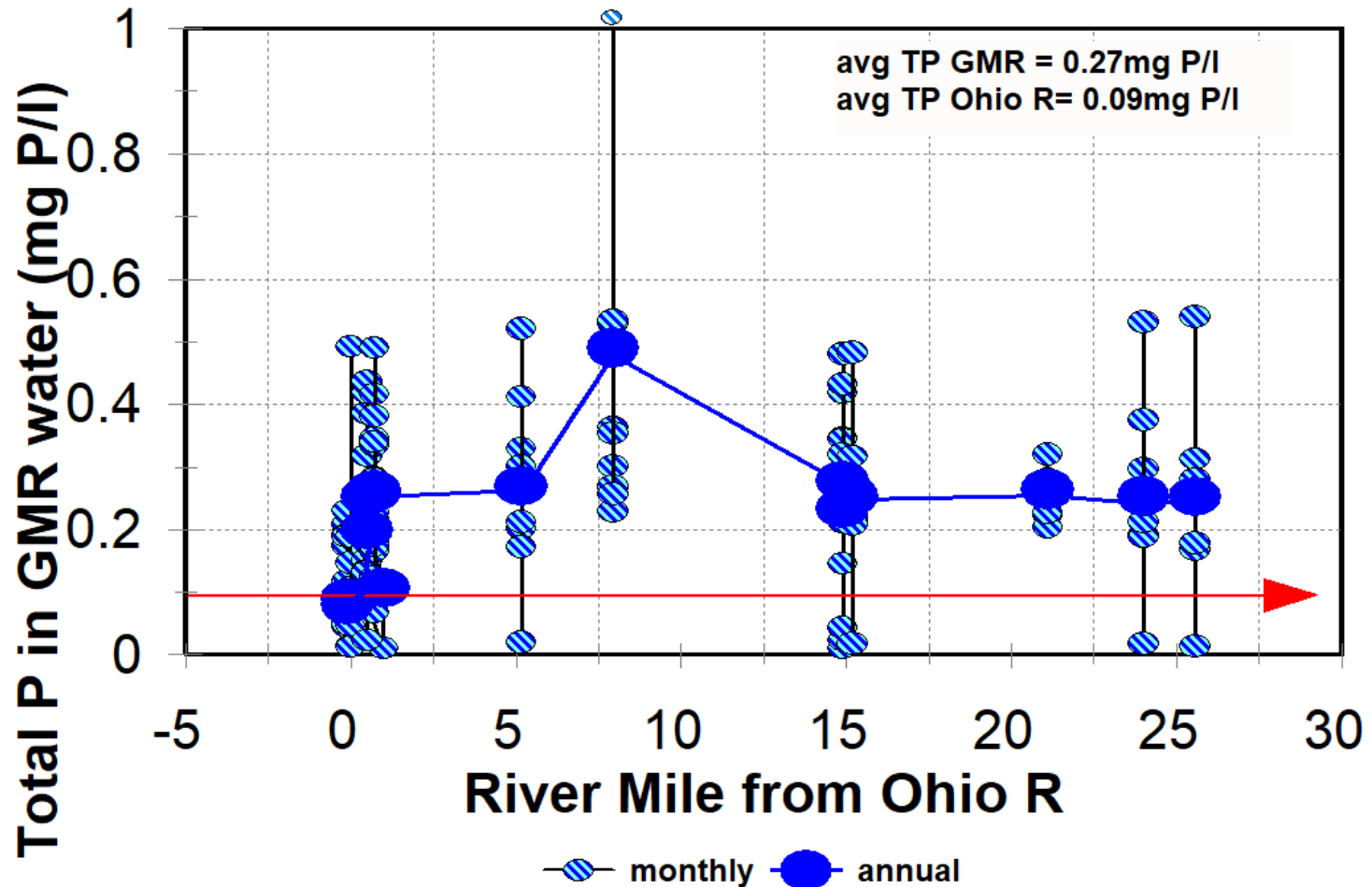
# Nitrate was 3X OEPA goal.

## Nitrate-N in GMR 2024



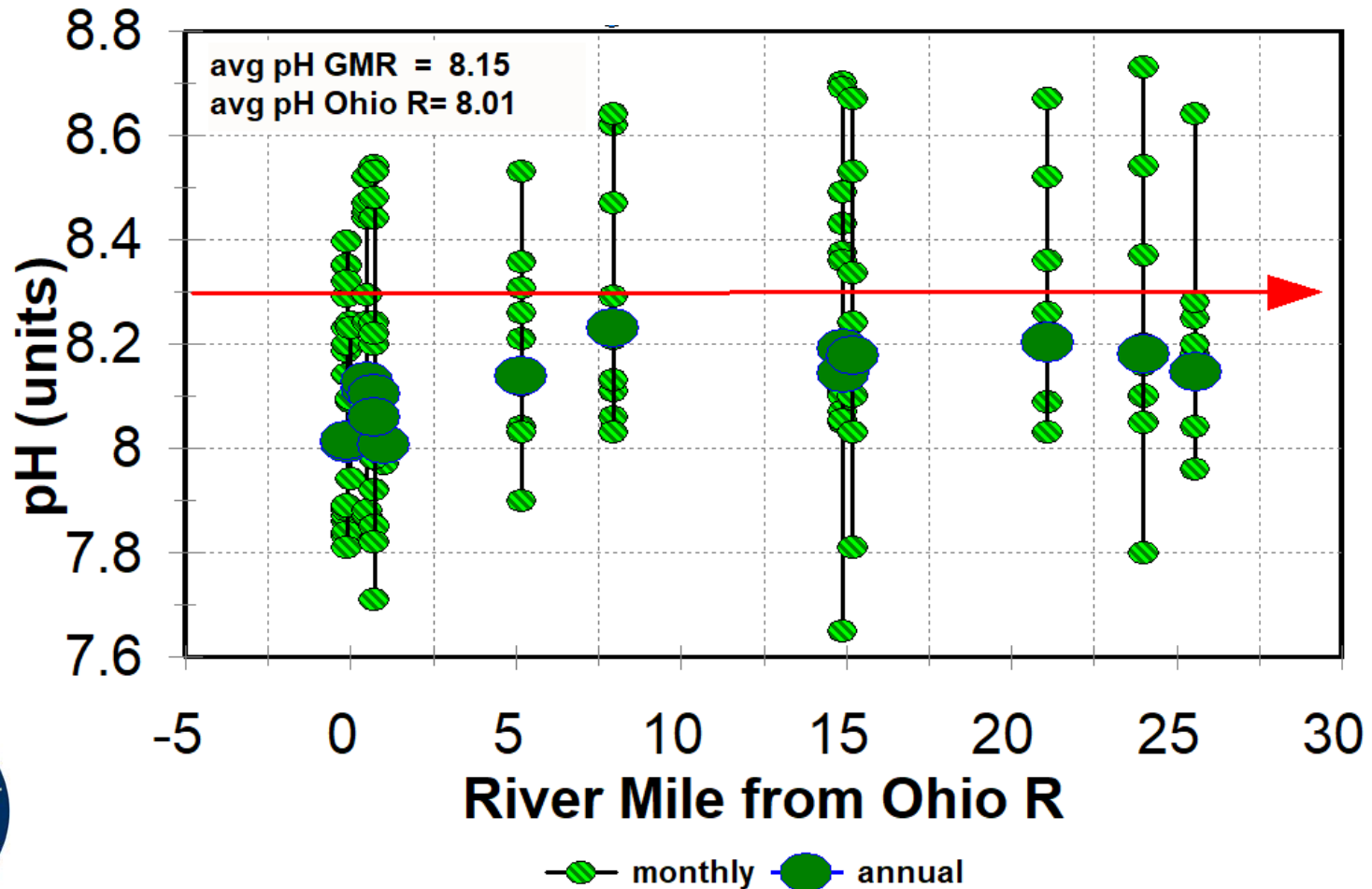
TP is elevated below Taylor Ck and exceeds OEPA goal by 3.5X

## Total P in GMR 2024

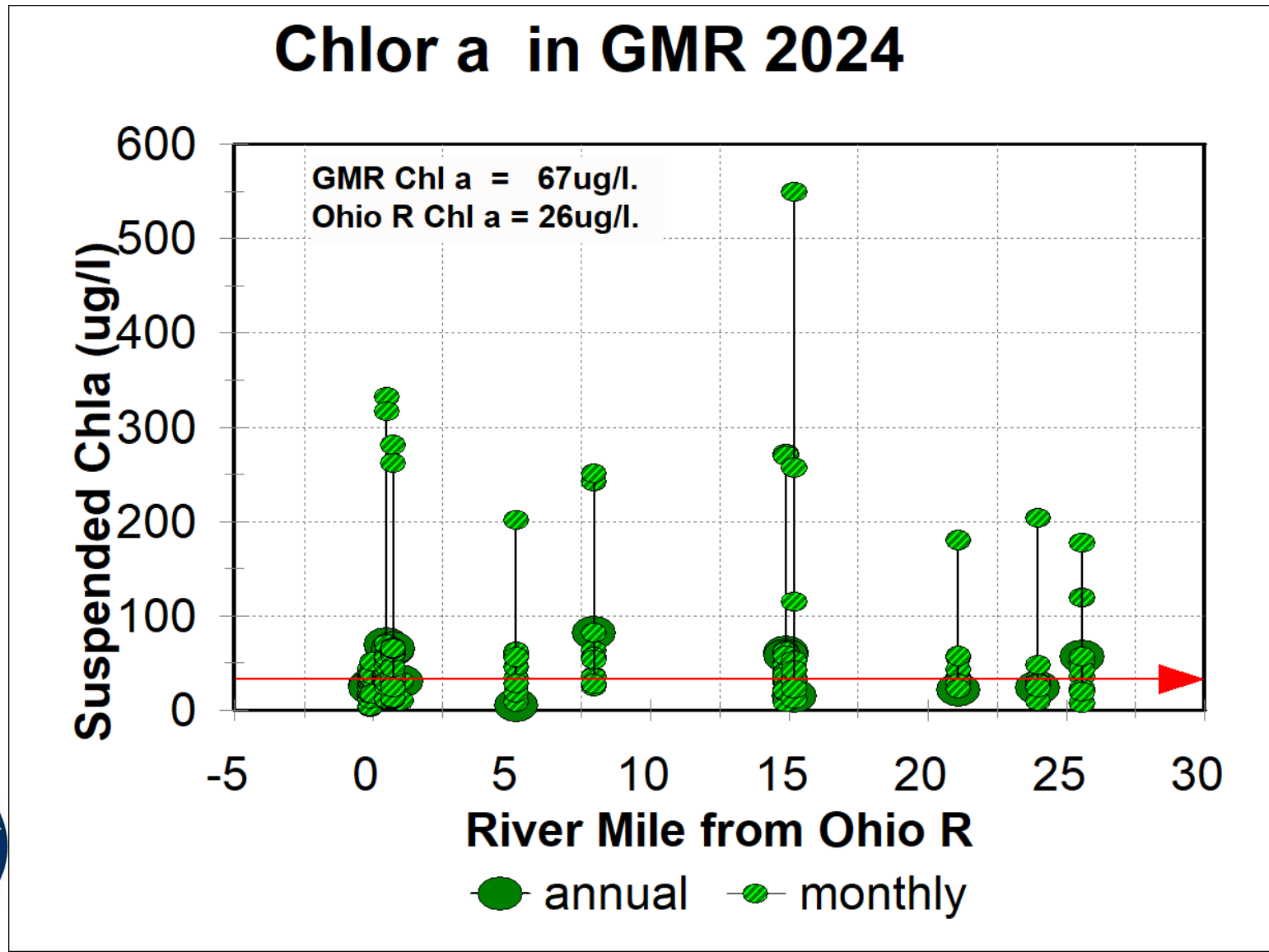


pH was elevated by photosynthesis  
much of the year above 8.3

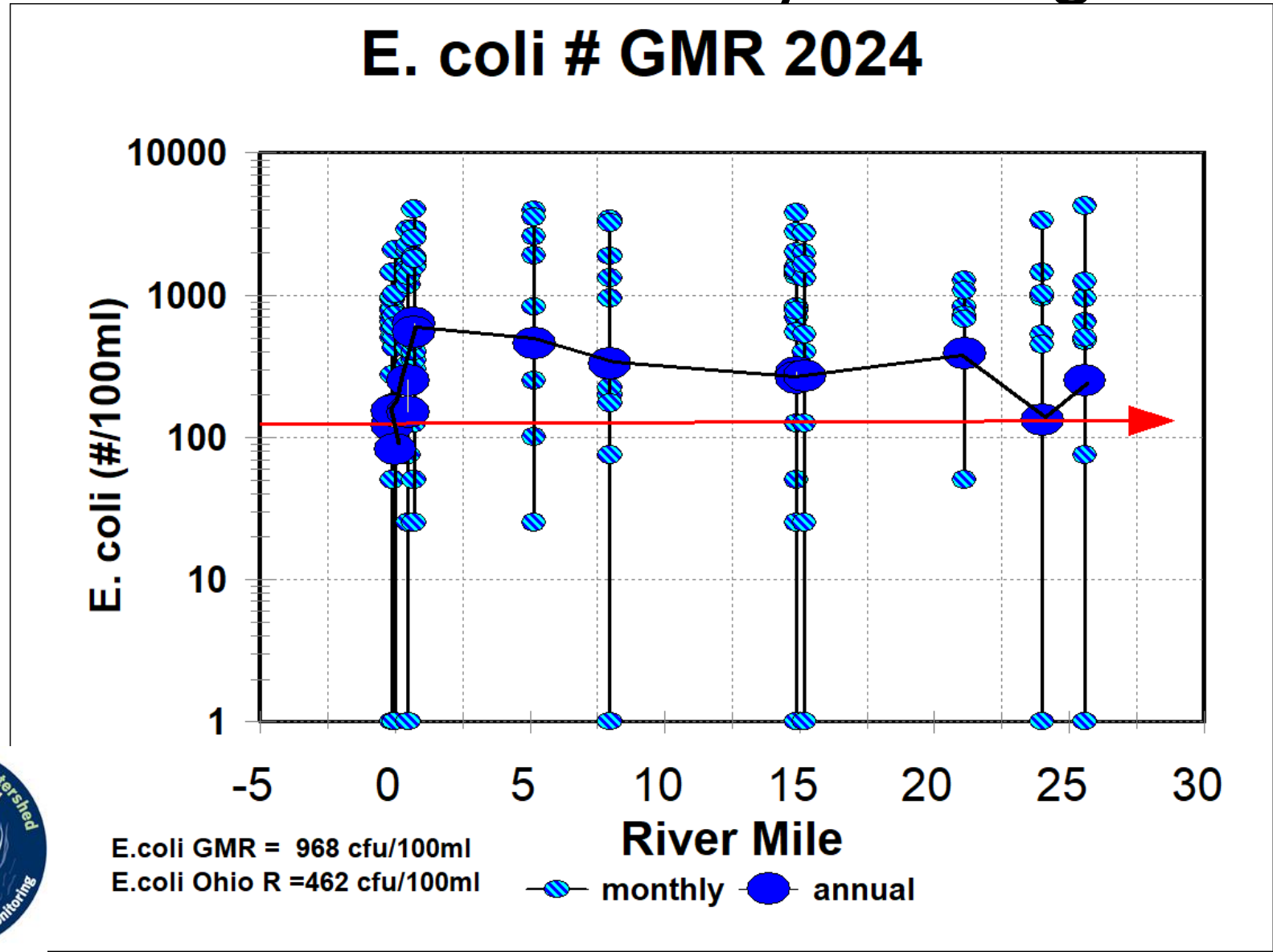
## pH of GMR 2024



Algal biomass was excessive during this drought year. Hypereutrophic at all sites.



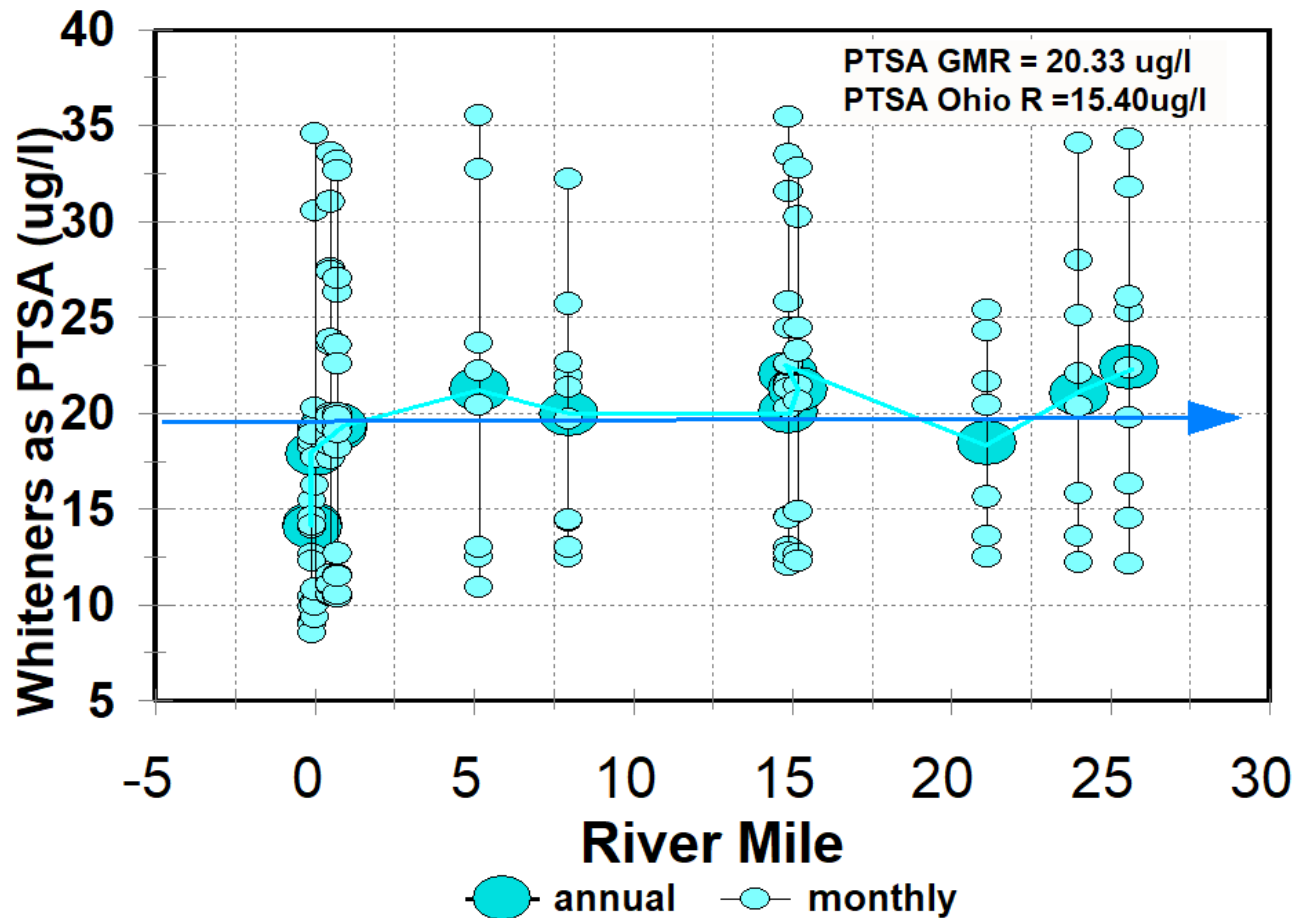
E. coli densities were above swimming levels but safe for dry boating.





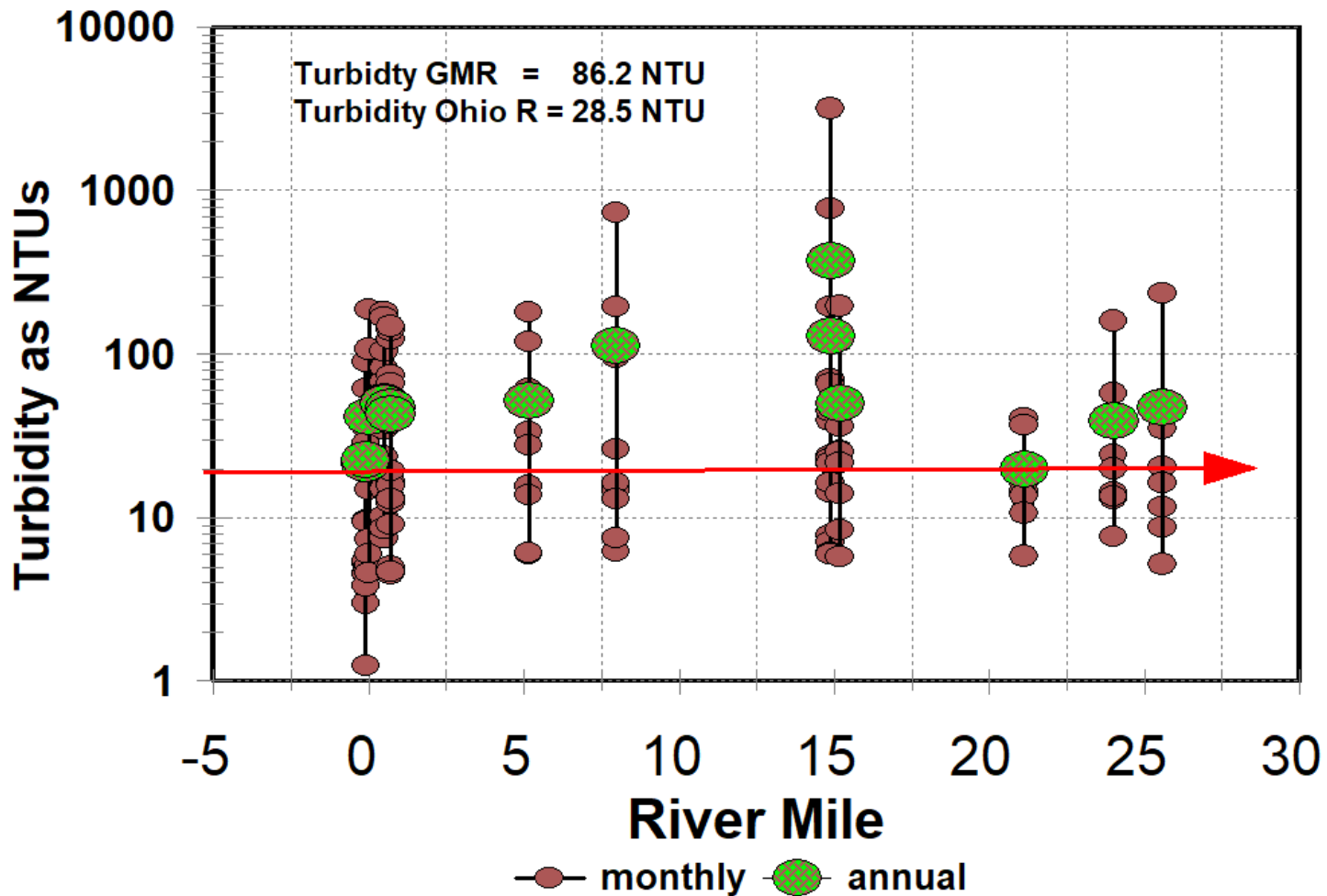
Detergent whiteners were at the upper limit of acceptable.

## Whiteners GMR 2024

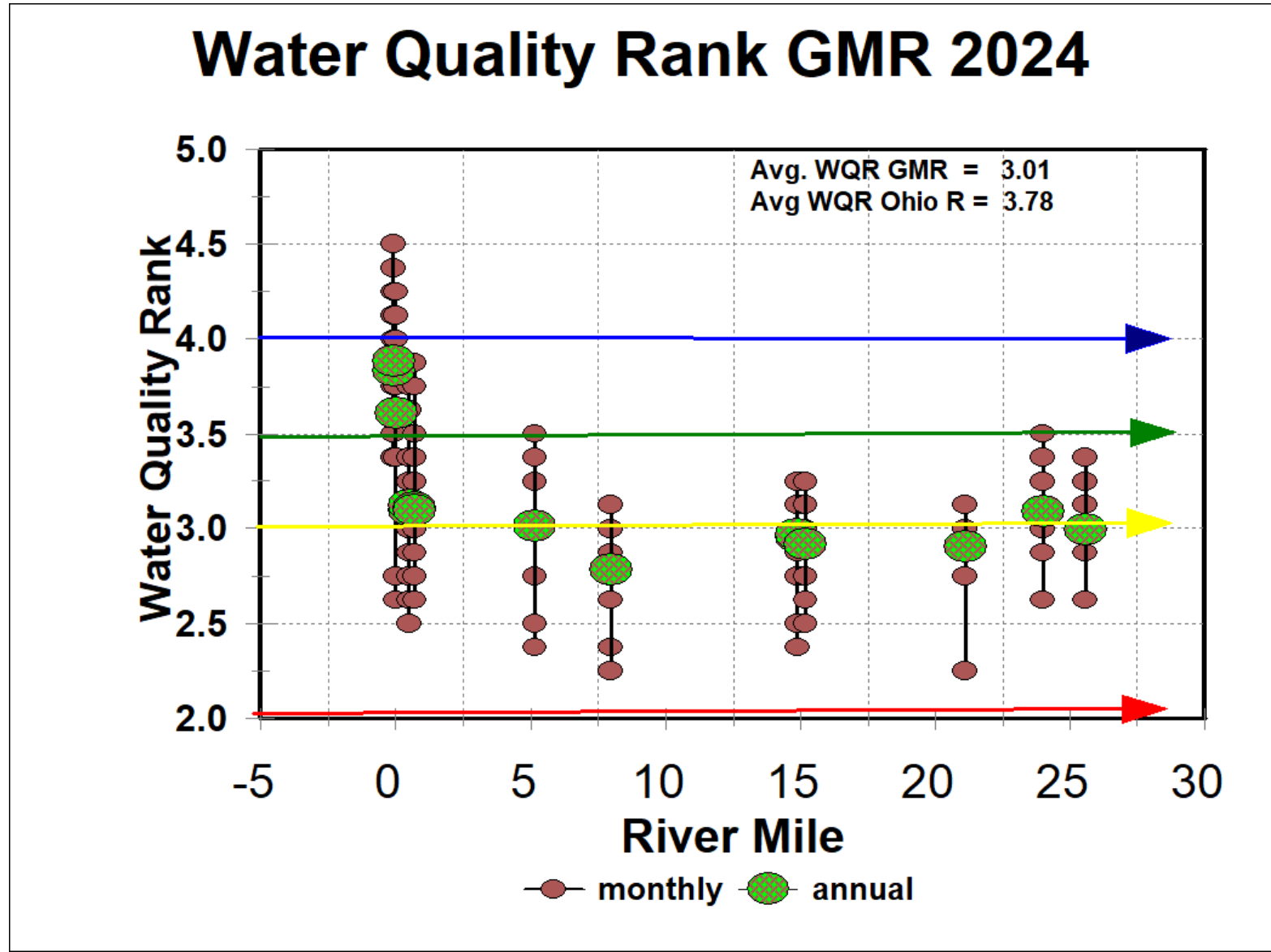


Turbidity which is algal & sediment in suspension was very high this year.

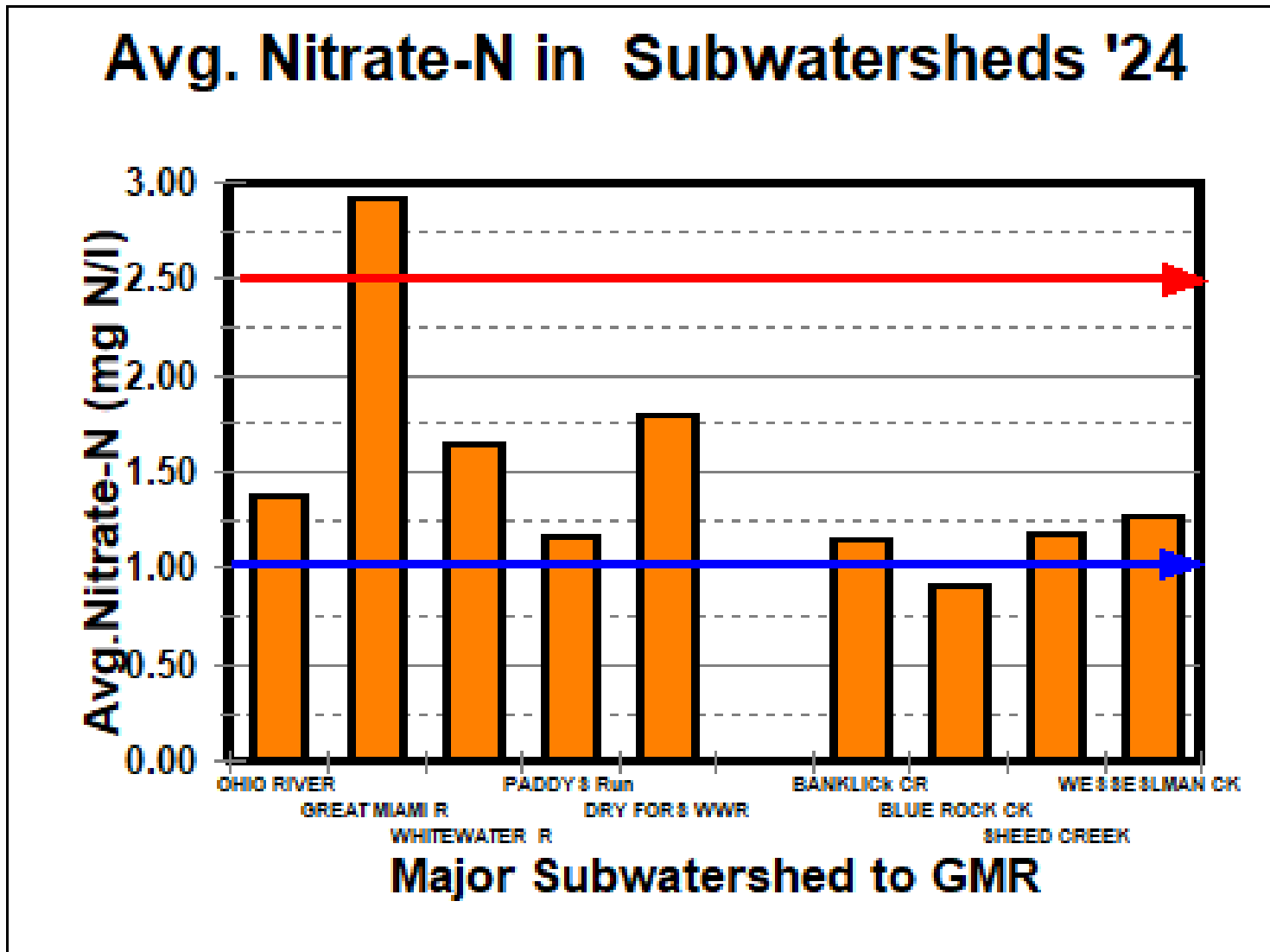
## Turbidity of GMR 2024



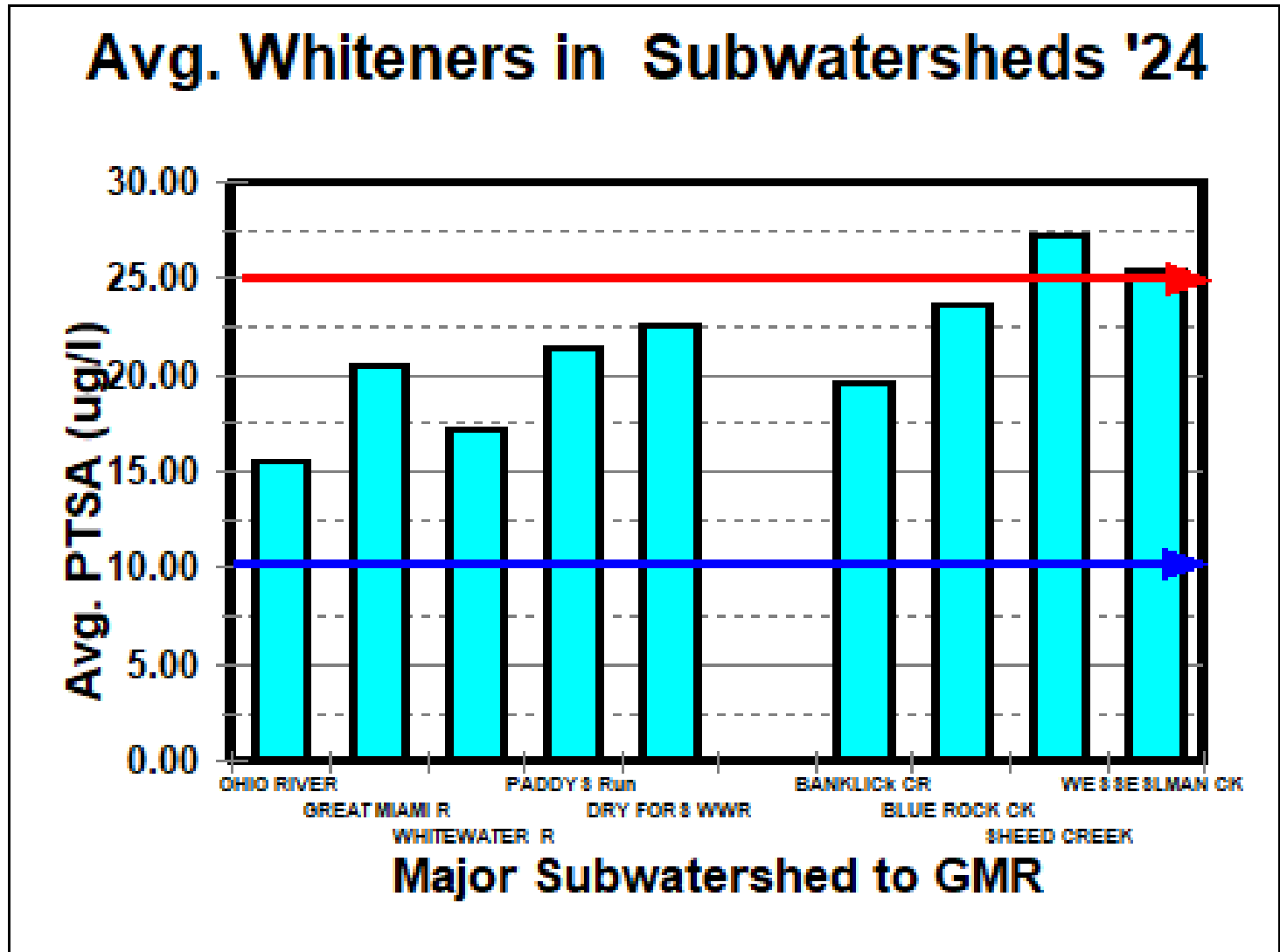
Our Water Quality Index showed all sight impaired below CWA standard.



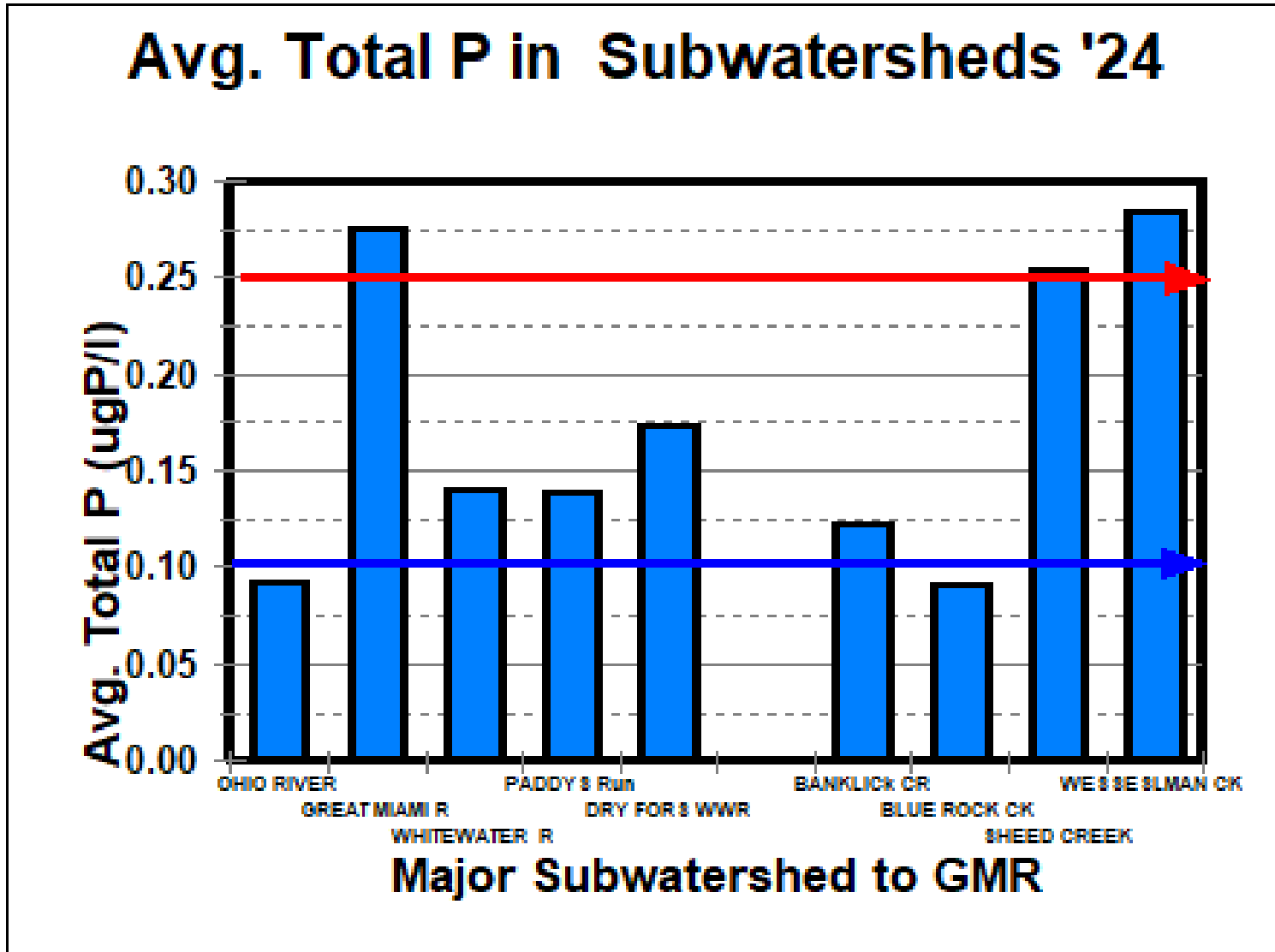
Nitrate-N was highest in the western agricultural watershed & the GMR.



Detergent whiteners were higher in the eastern urban subwatersheds.

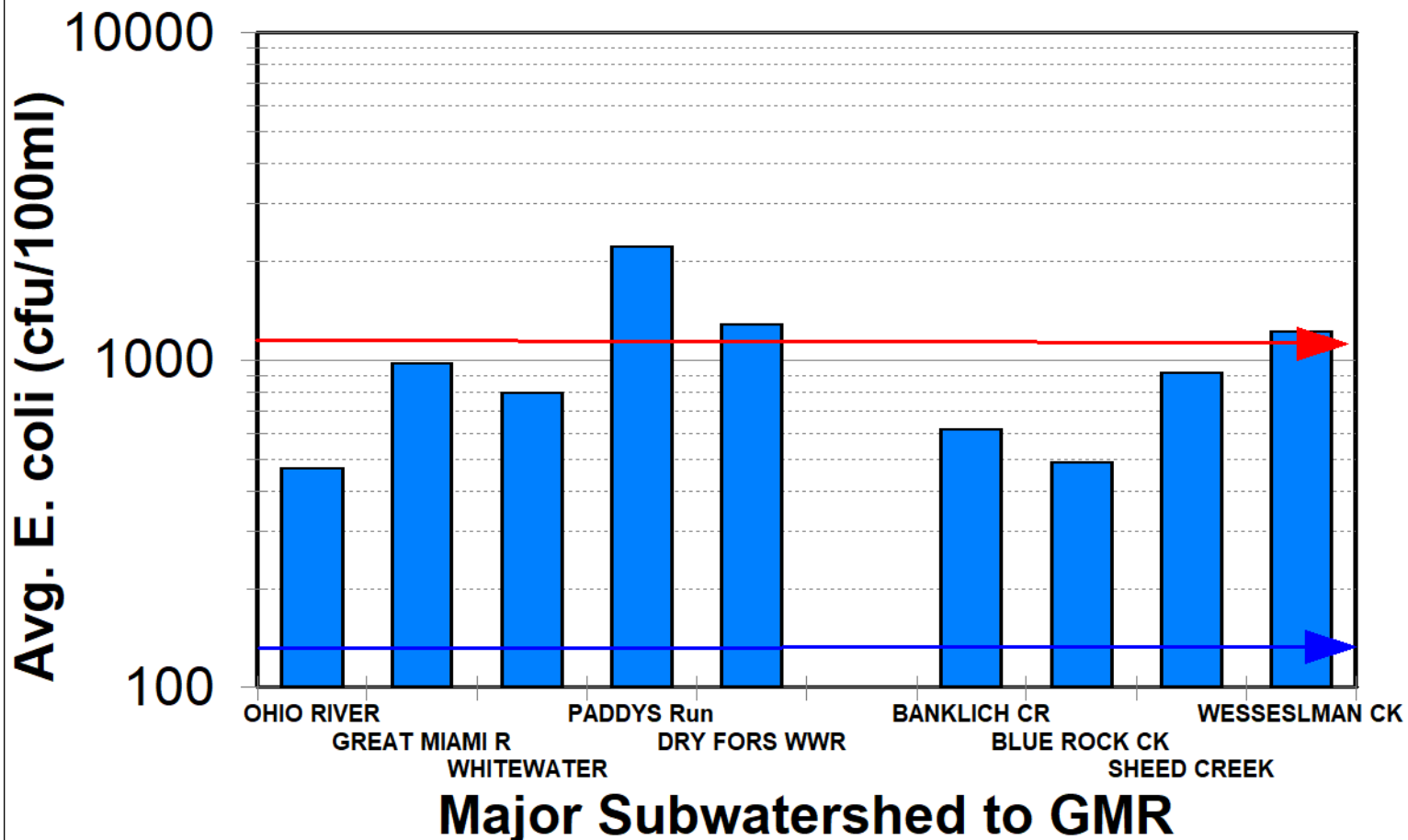


Total-P was highest in urban watersheds & GMR from up river.



**Average E. coli densities were highest in urban and aq-dominated subwatersheds.**

## Avg. E. coli in Subwatersheds '24



Water Quality Rank was lowest on the urbanized watersheds & the mainstem

## Water Quality Rank of Subwatersheds

