




Recreational Season Bacteria Data
White Clay Creek

2016-2019

Water Quality Standards: Enterococcus (DNREC), E. coli (PADEP)

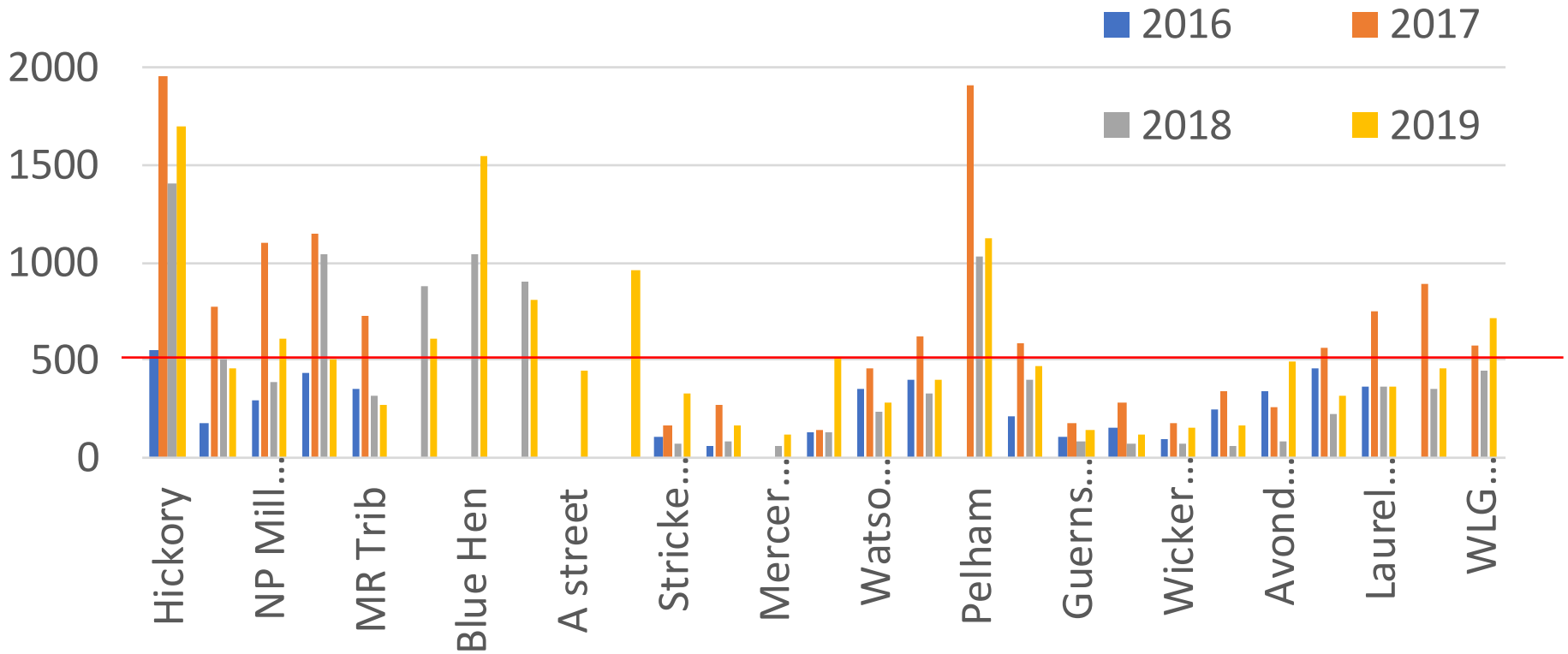
Waterbody Type	Single-Sample Value (Enterococcus Colonies/100ml)	Geometric Mean (Enterococcus Colonies/100ml)
Primary Contact Recreation Fresh Waters	185	100 
Primary Contact Recreation Marine Waters	104	35
Secondary Contact Recreation Fresh Waters	925	500 
Secondary Contact Recreation Marine Waters	520	175

DELAWARE

Criteria Elements	Estimated Illness Rate (NGI): 36 per 1,000 primary contact recreators	
	Magnitude	
Indicator	GM (cfu/100 mL) ^a	STV (cfu/100 mL) ^a
Enterococci – marine and fresh	35	130
OR		
<i>E. coli</i> – fresh	126 	410

PENNSYLVANIA

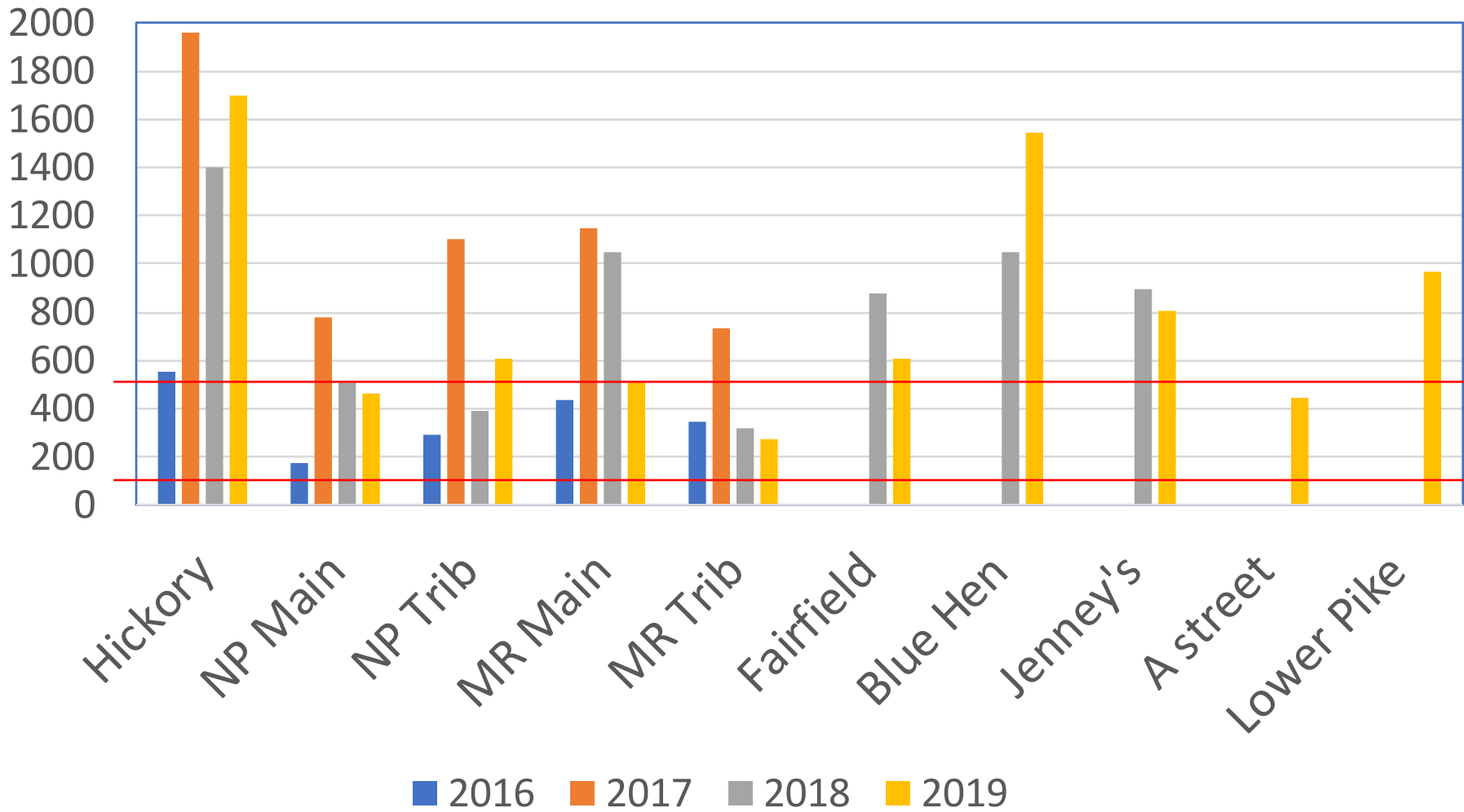
Enterococci Geometric Means Recreational Season White Clay Creek 2016-2019



Generally Higher Readings in Delaware

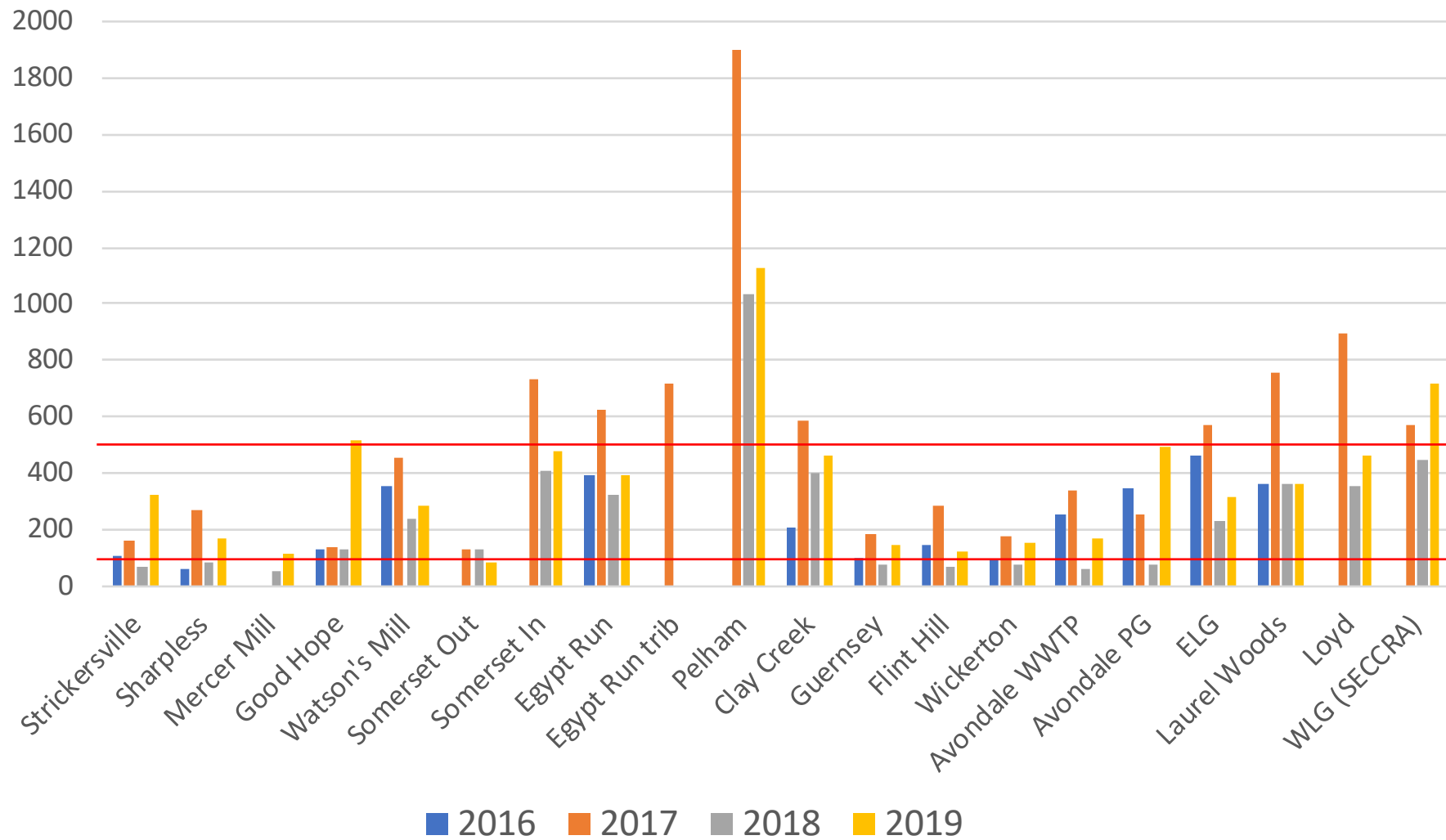
Delaware Recreational Bacteria Sampling Sites

Enterococcus Geometric Mean (MPN/100ml)

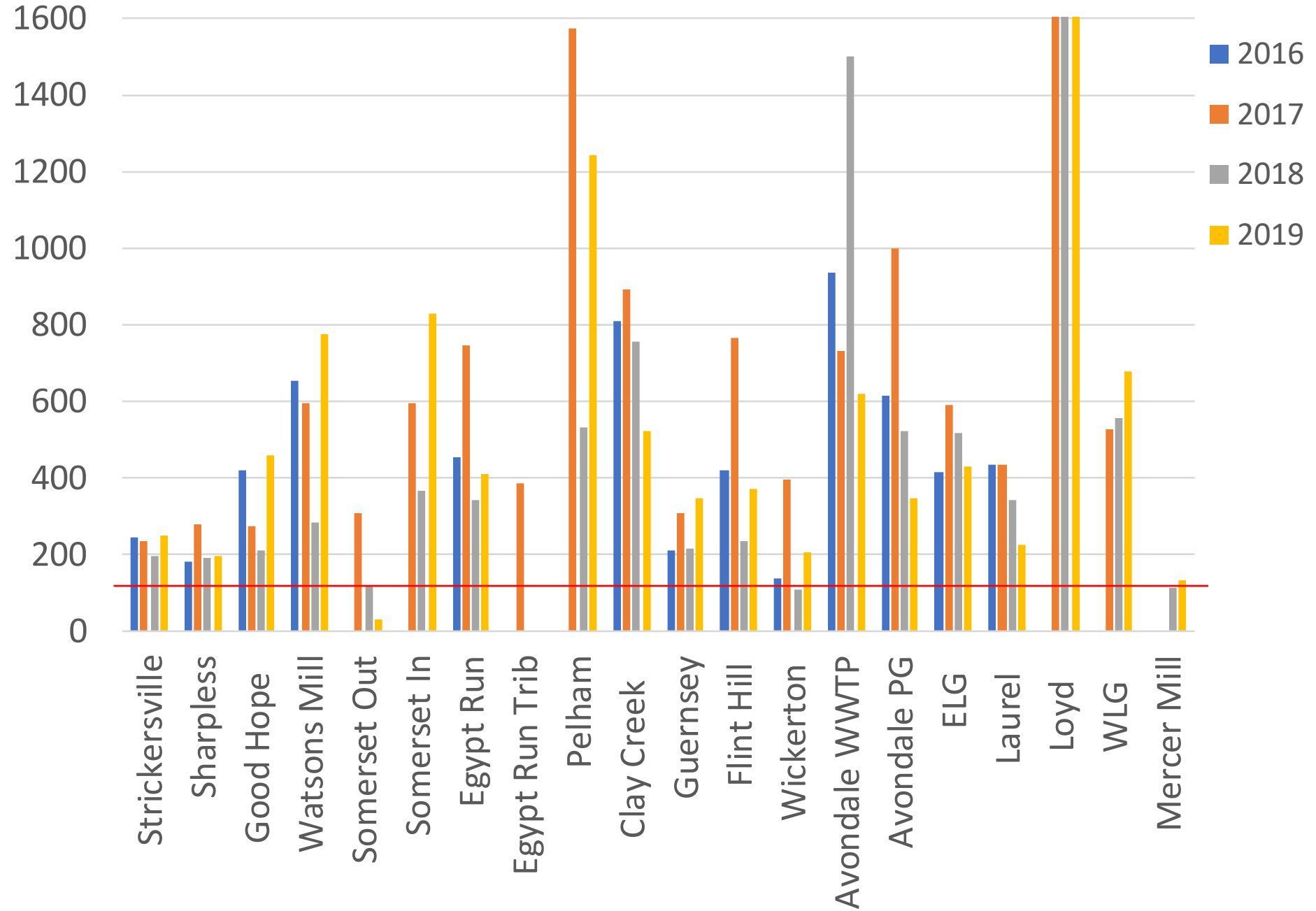


Pennsylvania Enterococci (geometric means) Recreational Bacteria Season

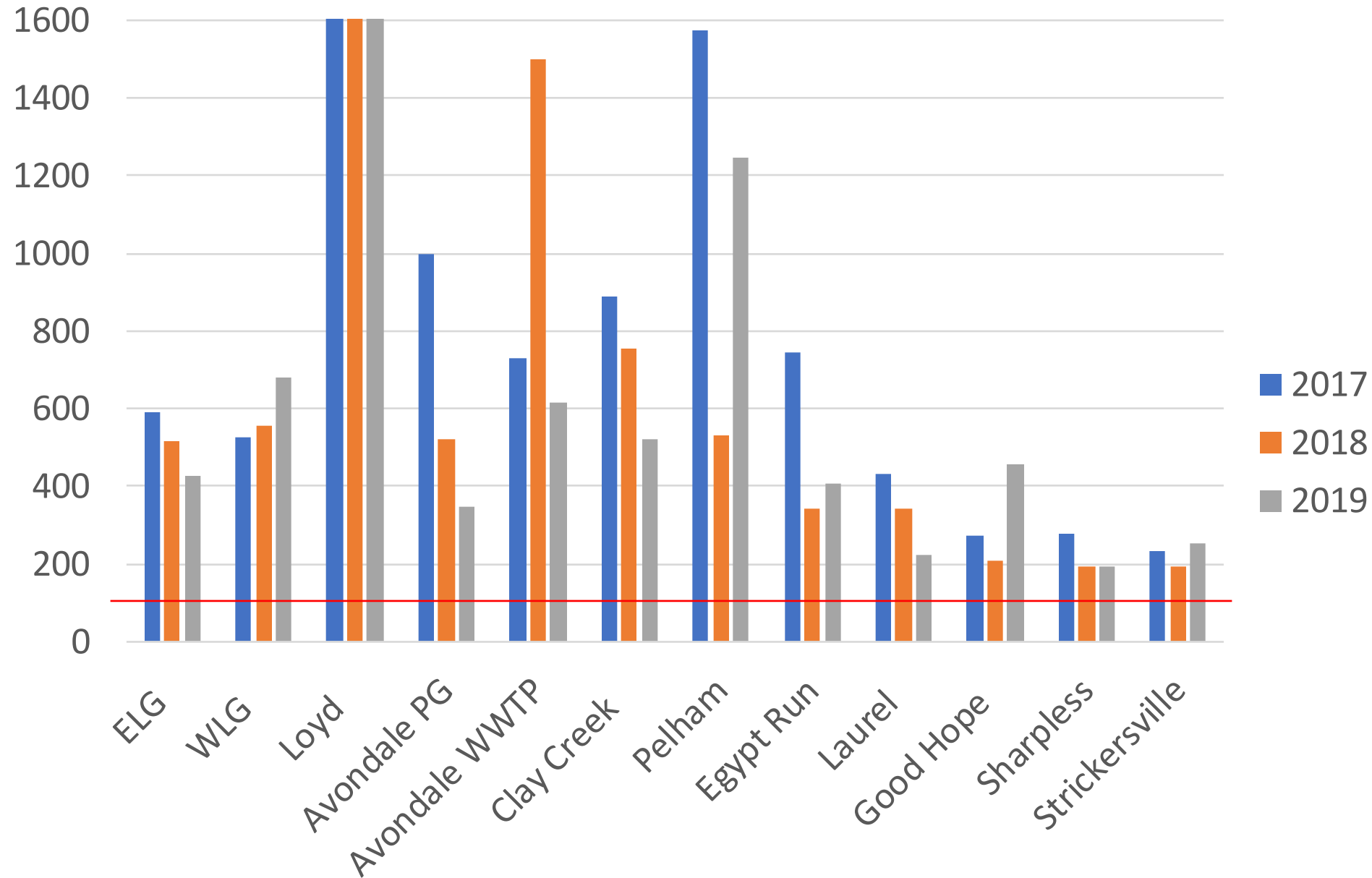
Enterococcus Geometric Mean (MPN/100ml)



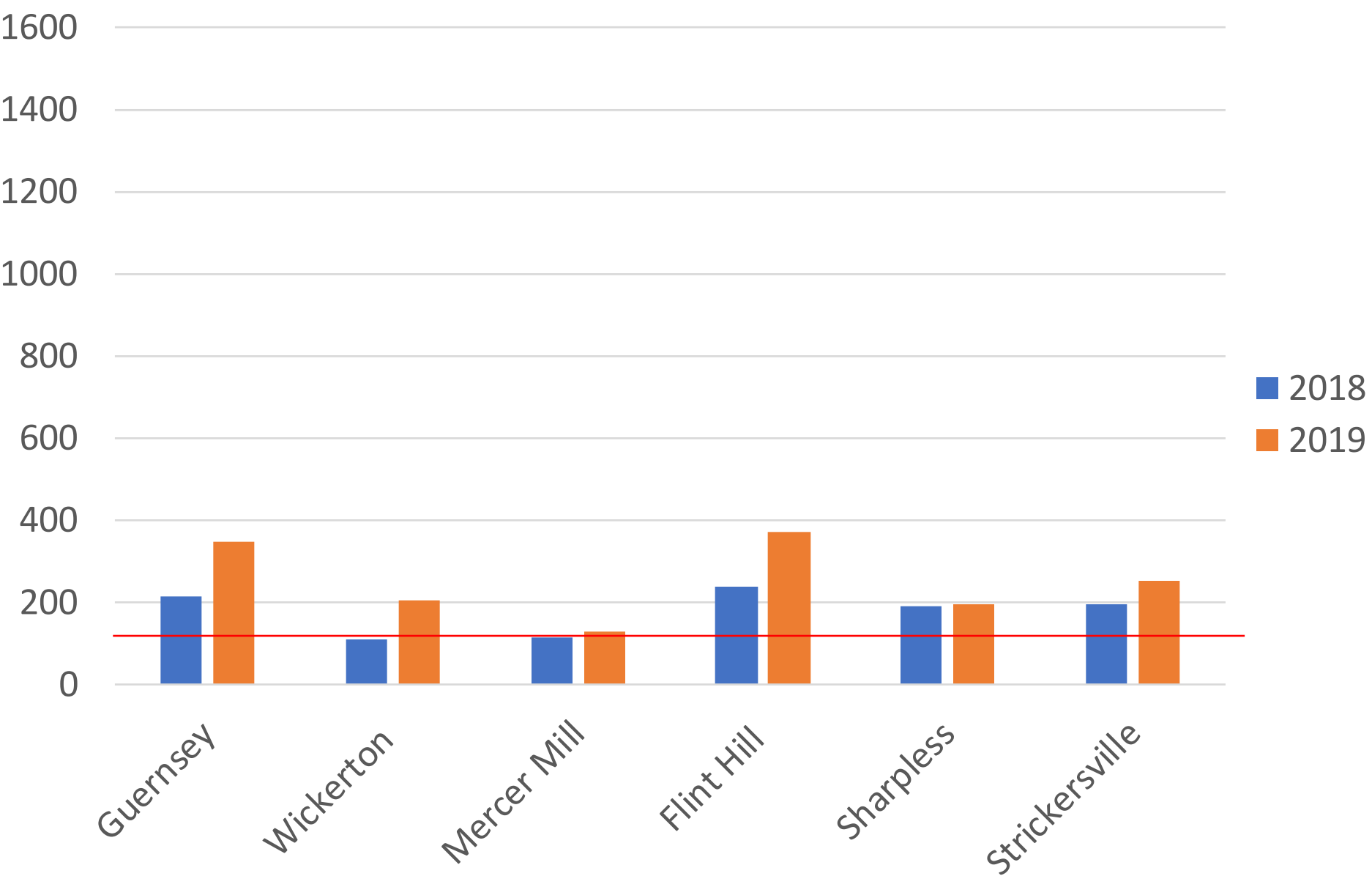
PA ECOLI geomeans 2016-19



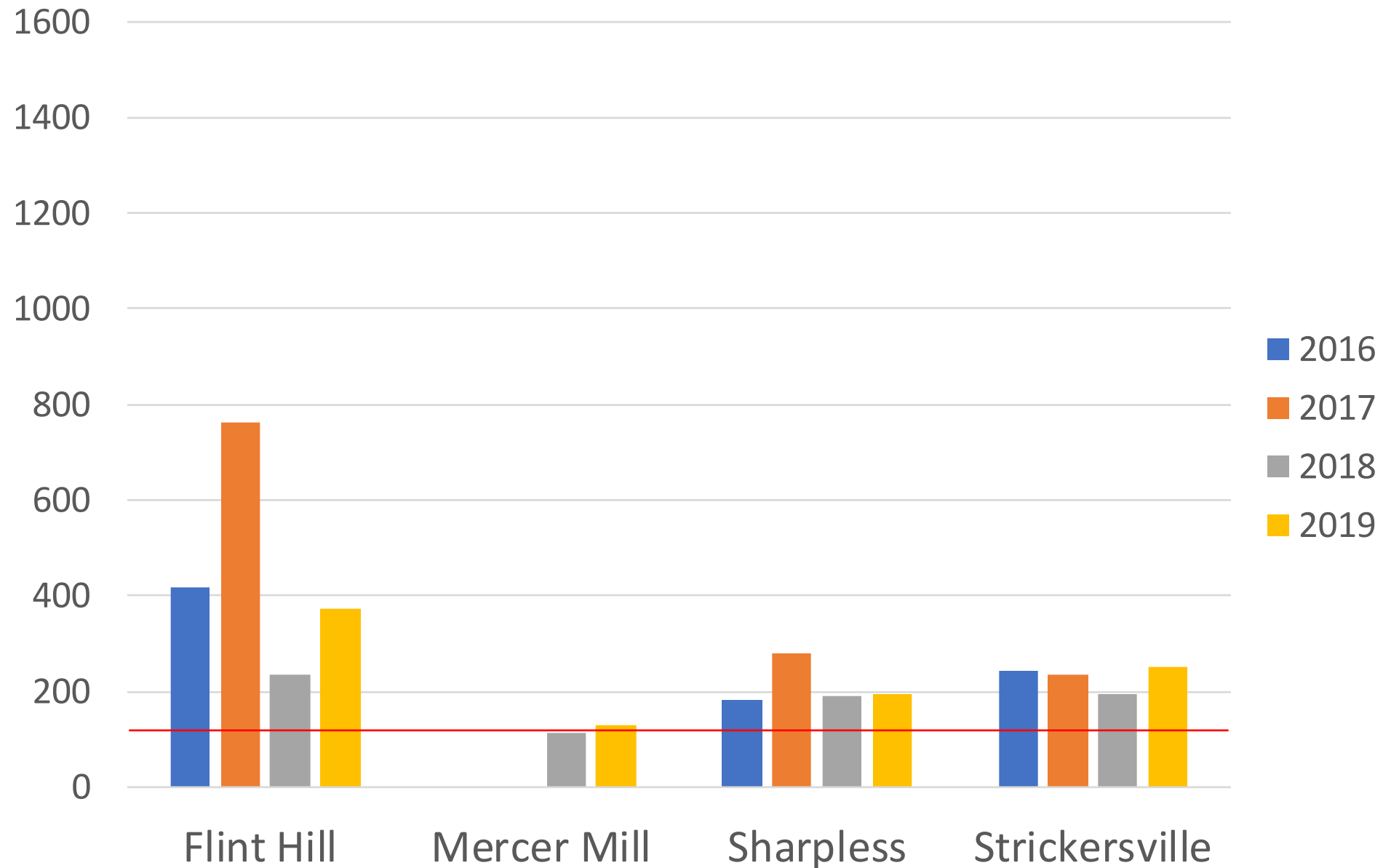
East Branch E. coli Geometric Means Recreational Season



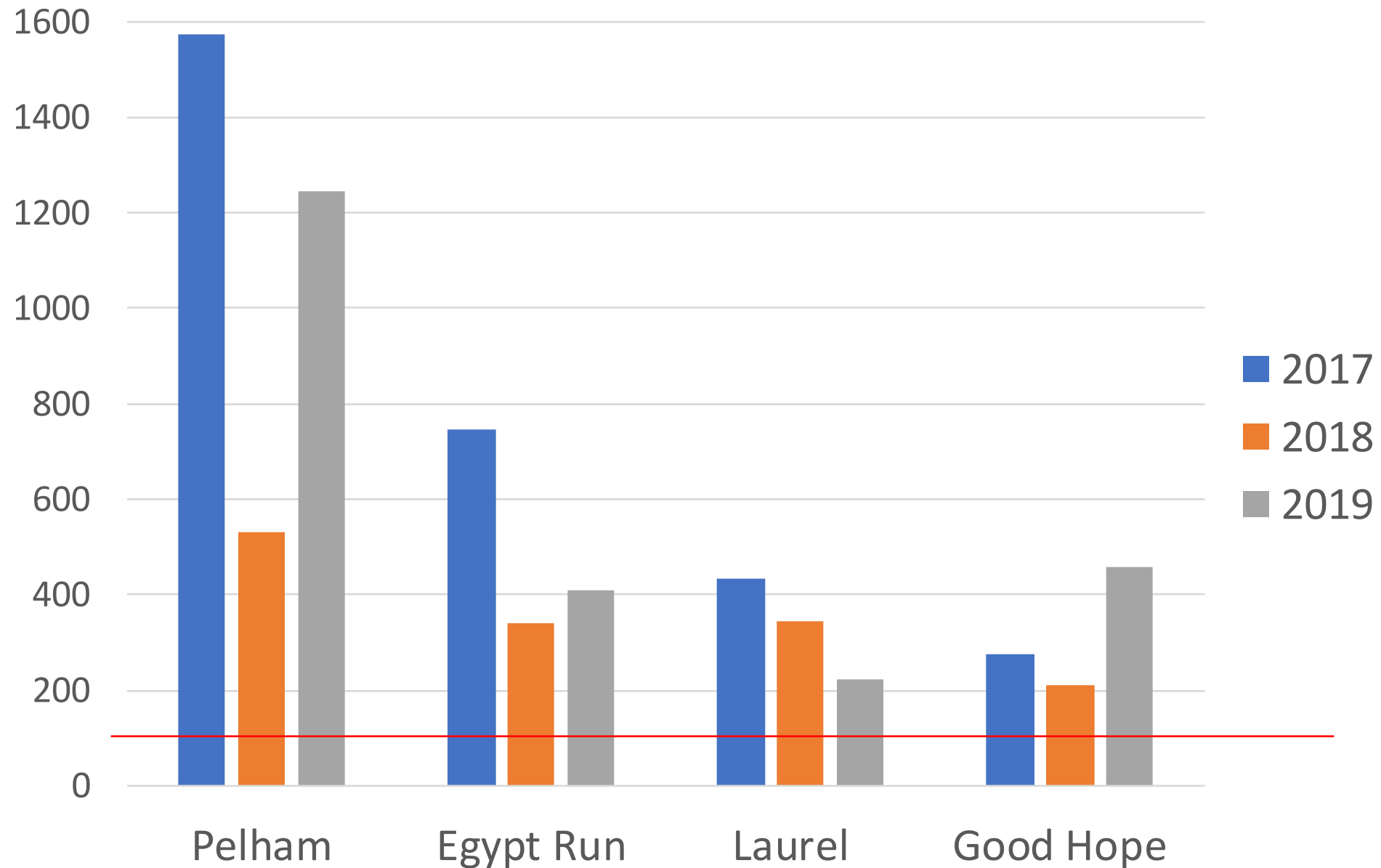
Middle Branch E. coli Geometric Means Recreational Season



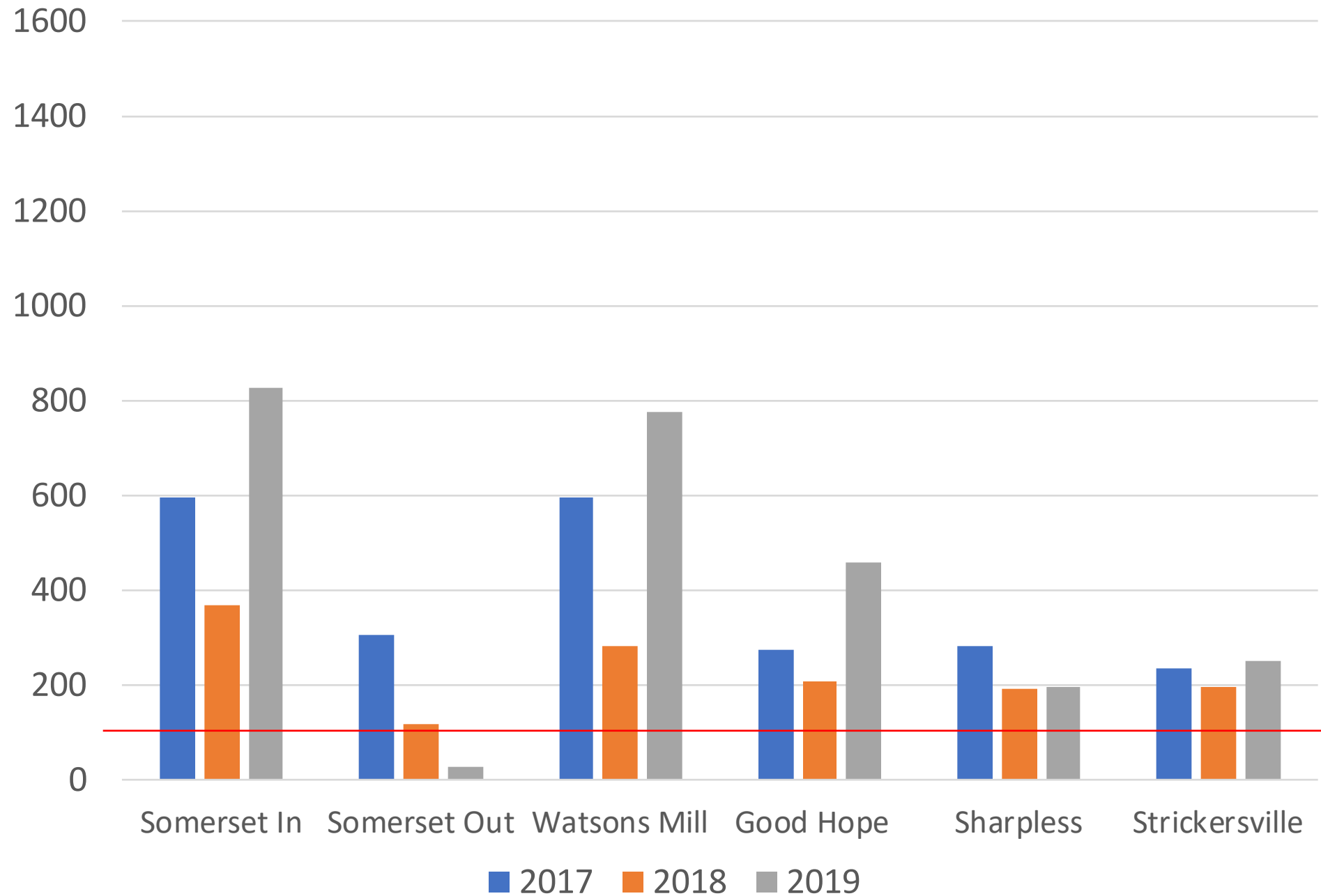
West Branch E. Coli Geometric Means Recreational Season



Egypt Run E. coli Geometric Means Recreational Season

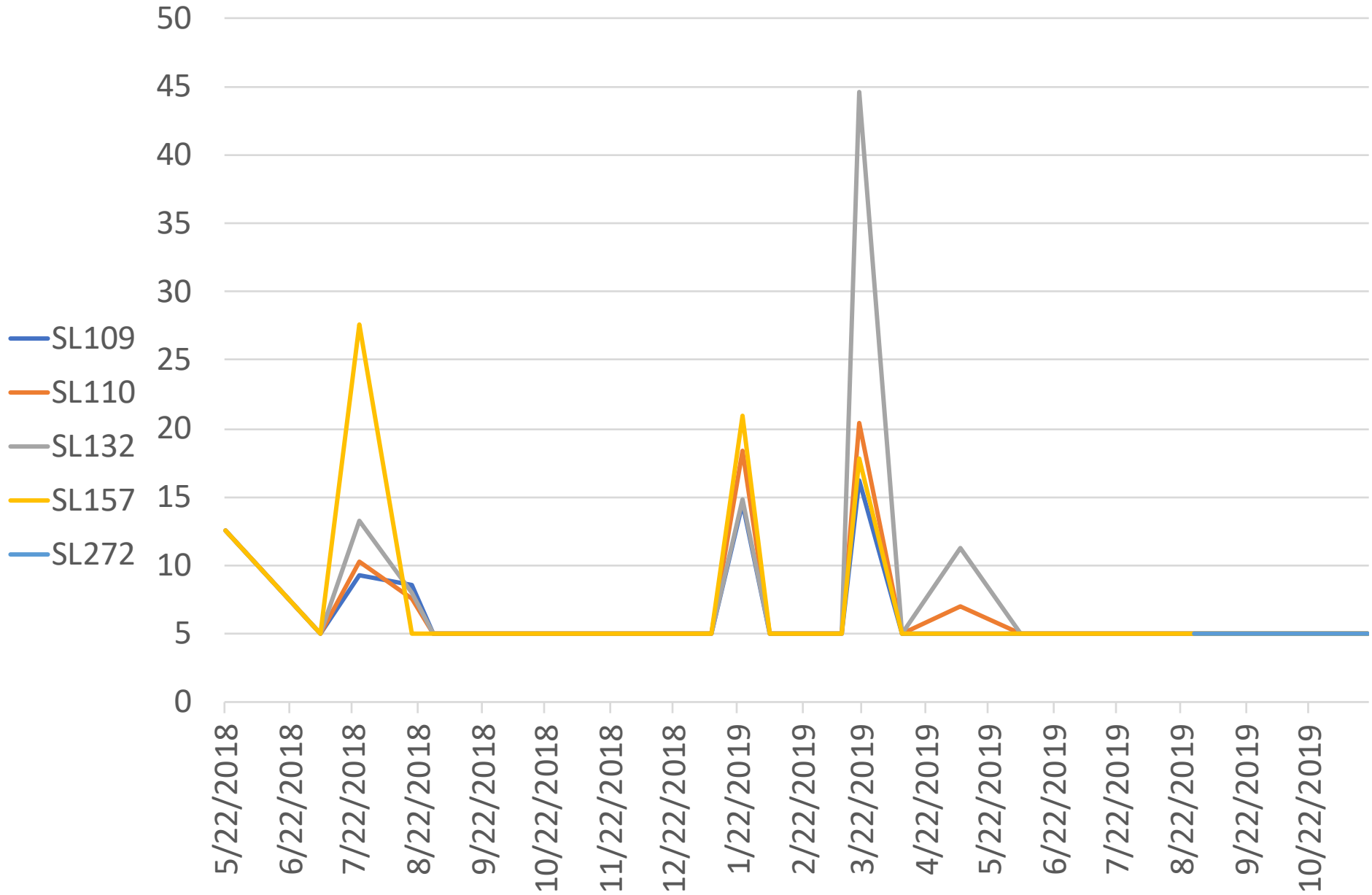


Broad Run E. coli Geometric Means Recreational Season

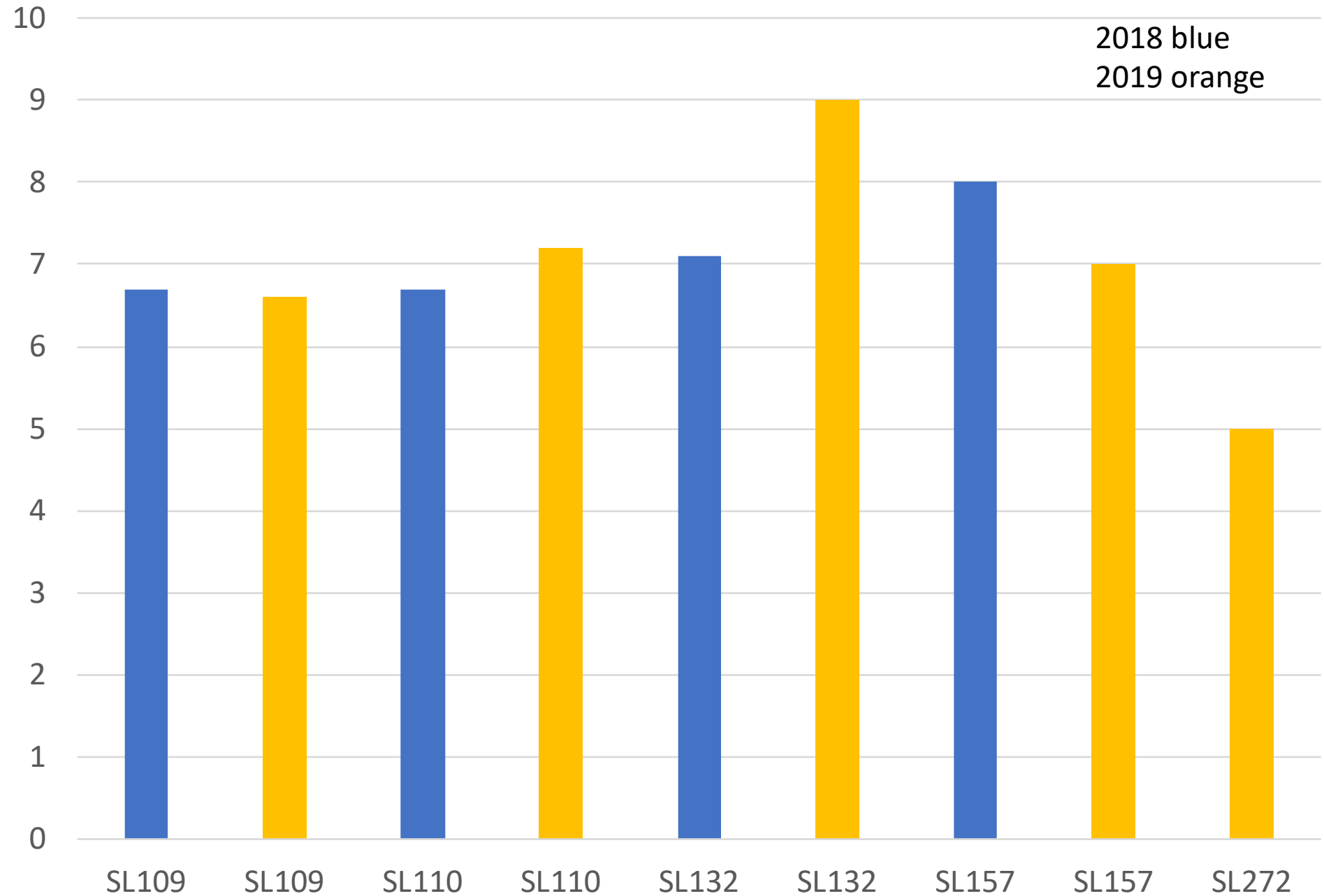


Overview of Grab Sample Analysis at
5 Sensor Sites in White Clay Creek
May 2018-November 2019

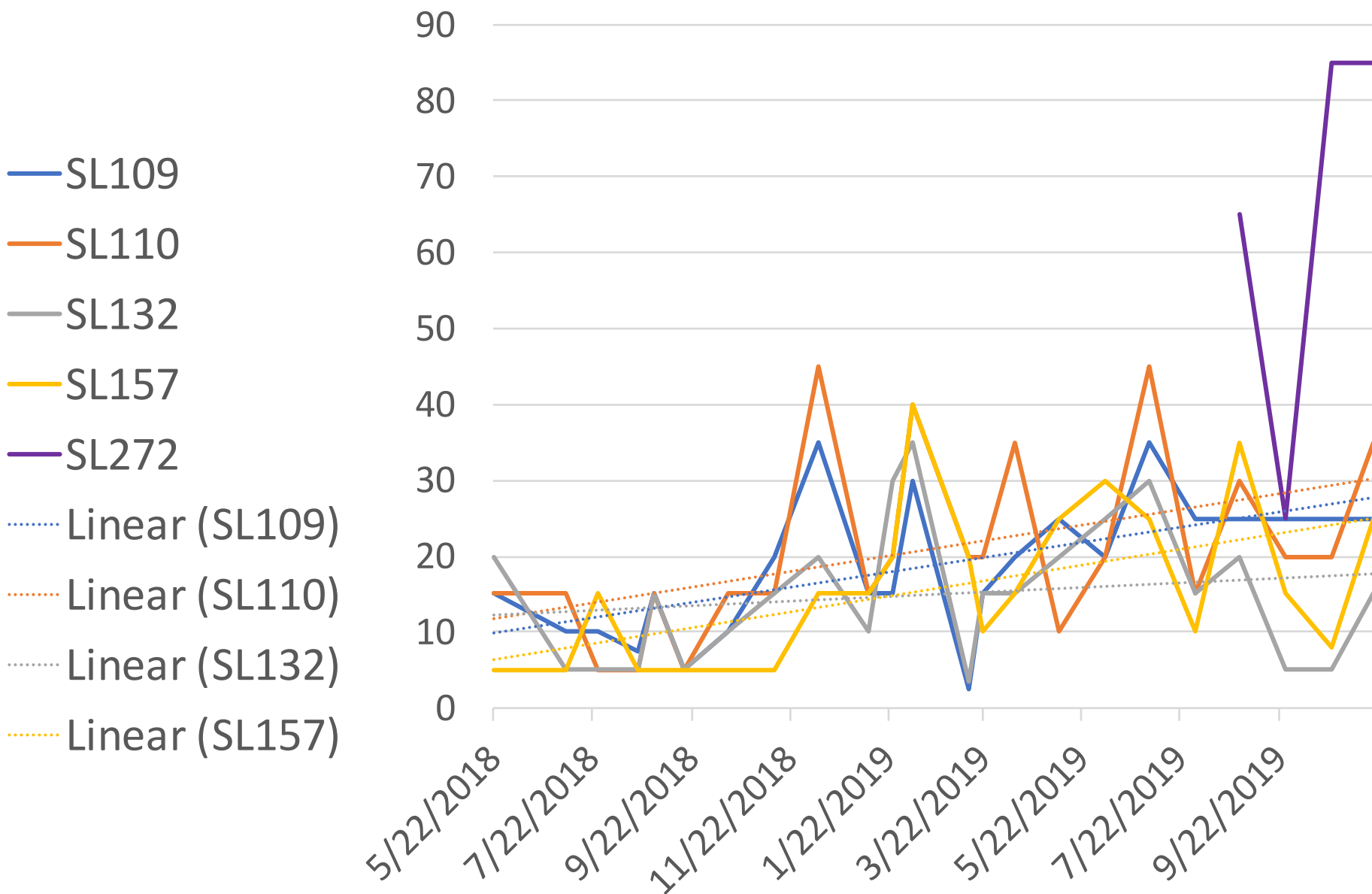
TSS base flow at 5 Sensor Stations in White Clay (May 2018-November 2019)



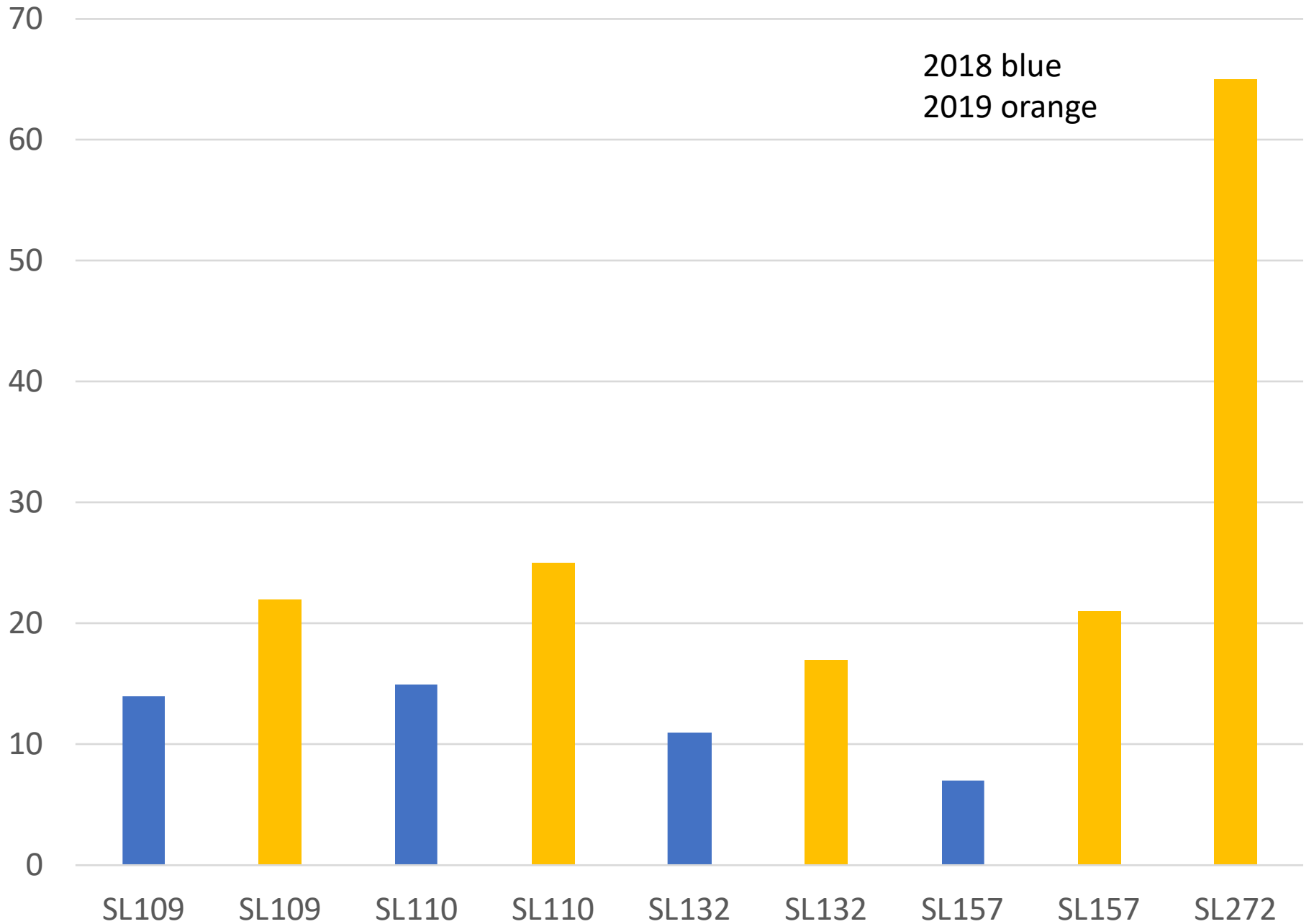
Average Annual TSS at Base Flow 2018 & 2019



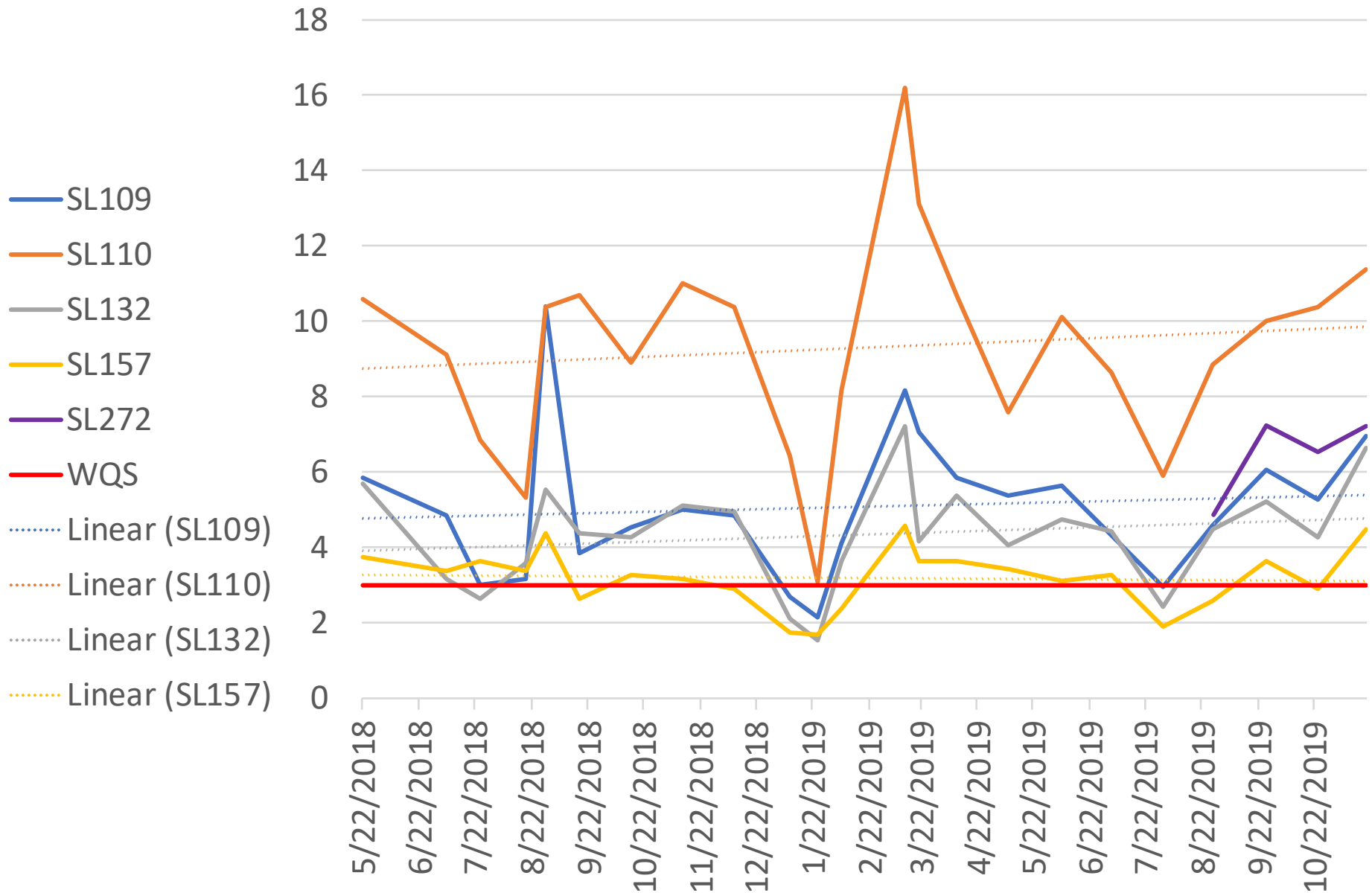
Chlorides (mg/ml) at base flow at 5 sensor stations in WCC May 2018- November 2019



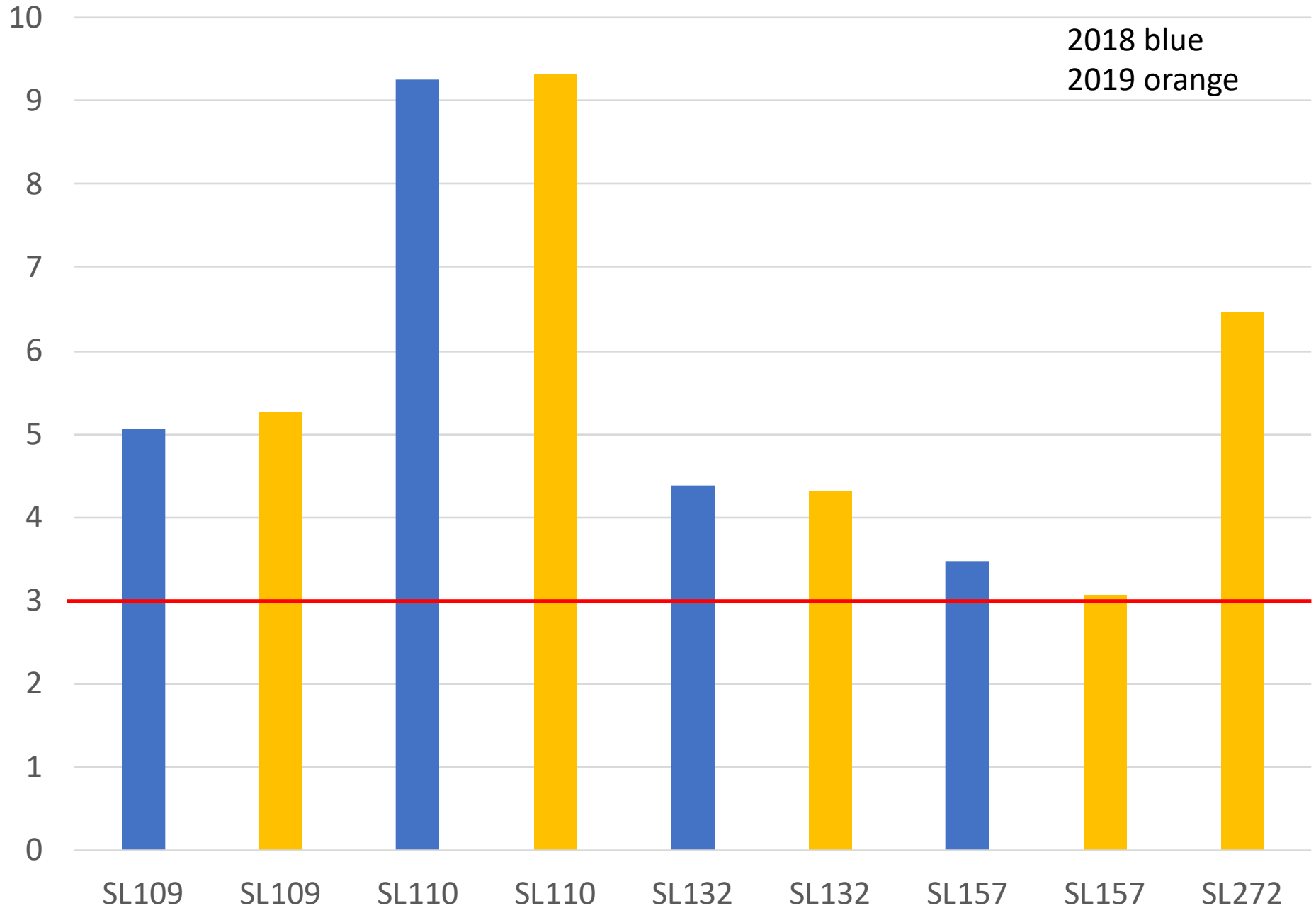
Average Annual Chlorides (mg/ml)



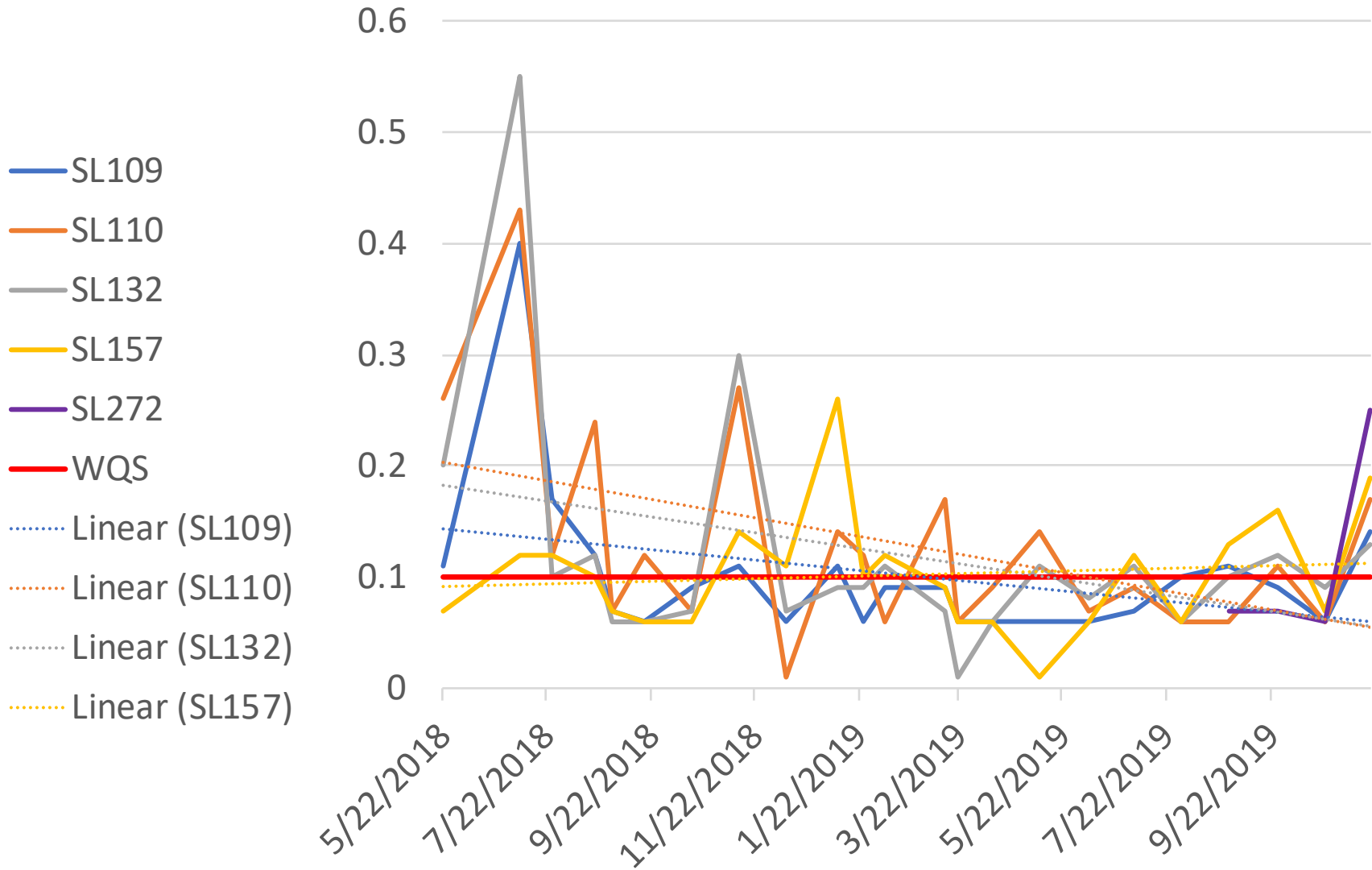
NO3N (mg/ml) at baseflow at 5 Sensor Sites in WCC May 2018-Nov 2019



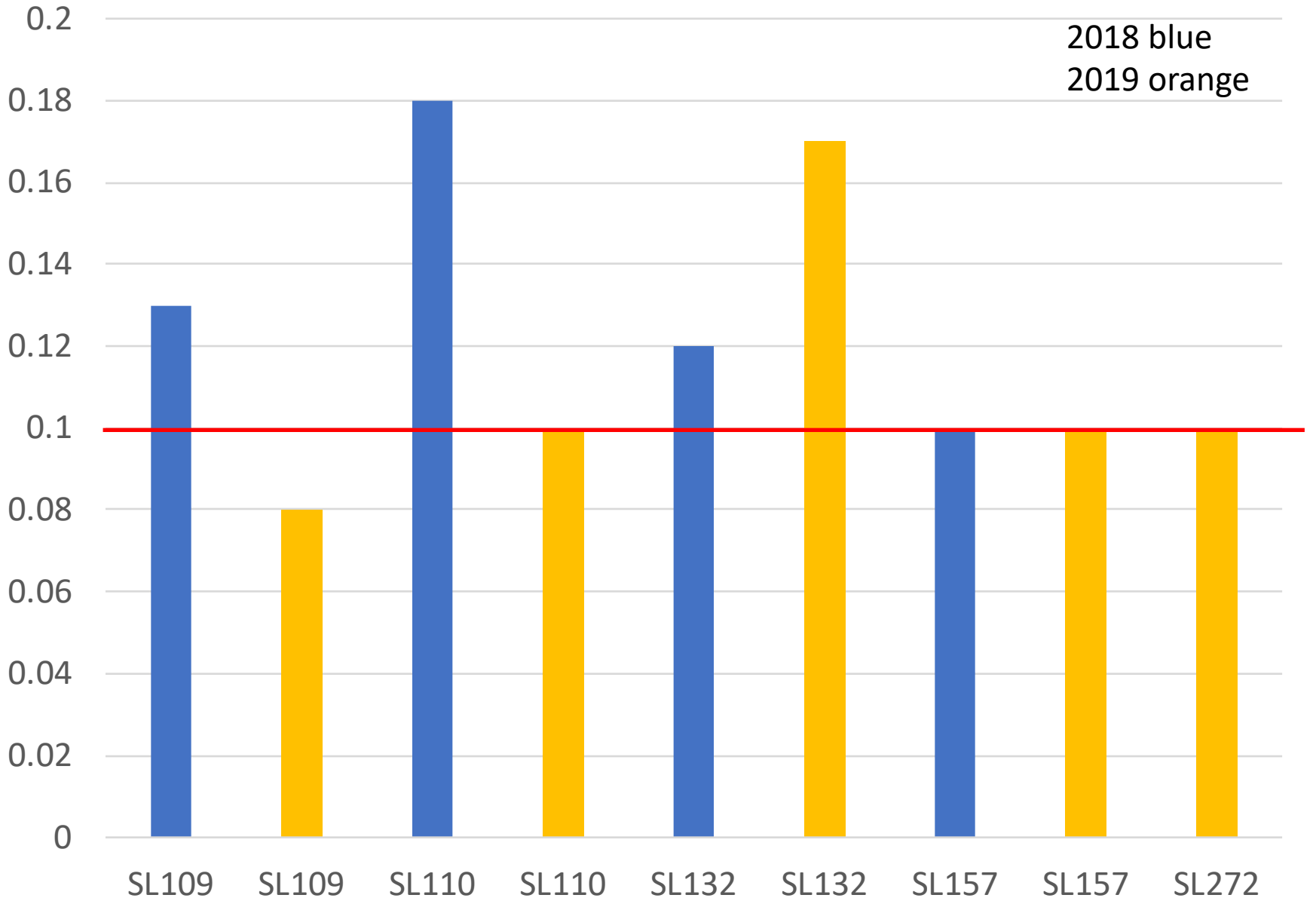
NO3N Averages per Year



Orthophosphate (mg/ml) at base flow at 5 Sensor Stations in the White Clay (May 2018- November 2019)



Average Annual Orthophosphate (mg/ml)



Where to go from here (2020) and beyond...

- Continue with Nitrate monthly at base flow all sites
- Continue with Orthophosphate monthly another year, then annually at sites below standard (Summer Rec sampling only/July)
- Continue with TSS but only during storm events (difficult) – SR DESIGN PROJECT
- Continue with Chloride (annually at baseflow – October/November?) and storm events (difficult)
- I could take readings from all sites during the rec season when I go out for first bacteria grab to get an annual number (\$\$\$)
- 1 year left of MST work (Stroud)
- 1 year left of Seasonal sampling (year round at 4 sites)
- Continue with Recreational Sampling of bacteria at all 30 watershed sites.
- Costs \$16-20 per test.