

2021 Canandaigua Lake Sampling and Monitoring Program

Report to the Canandaigua Lake Watershed Council
June 1, 2022

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Program Background

- Program in it's 27th year (1996 – 2022)
- FLCC's role
- Lake attributes that are monitored each year since 1996:
 - Water clarity (secchi disk)
 - Lake algal productivity (chlorophyll-a)
 - Lake nutrients (Phosphorus)
 - Water quality profiles: temperature, dissolved oxygen, pH, conductivity

Program Notes

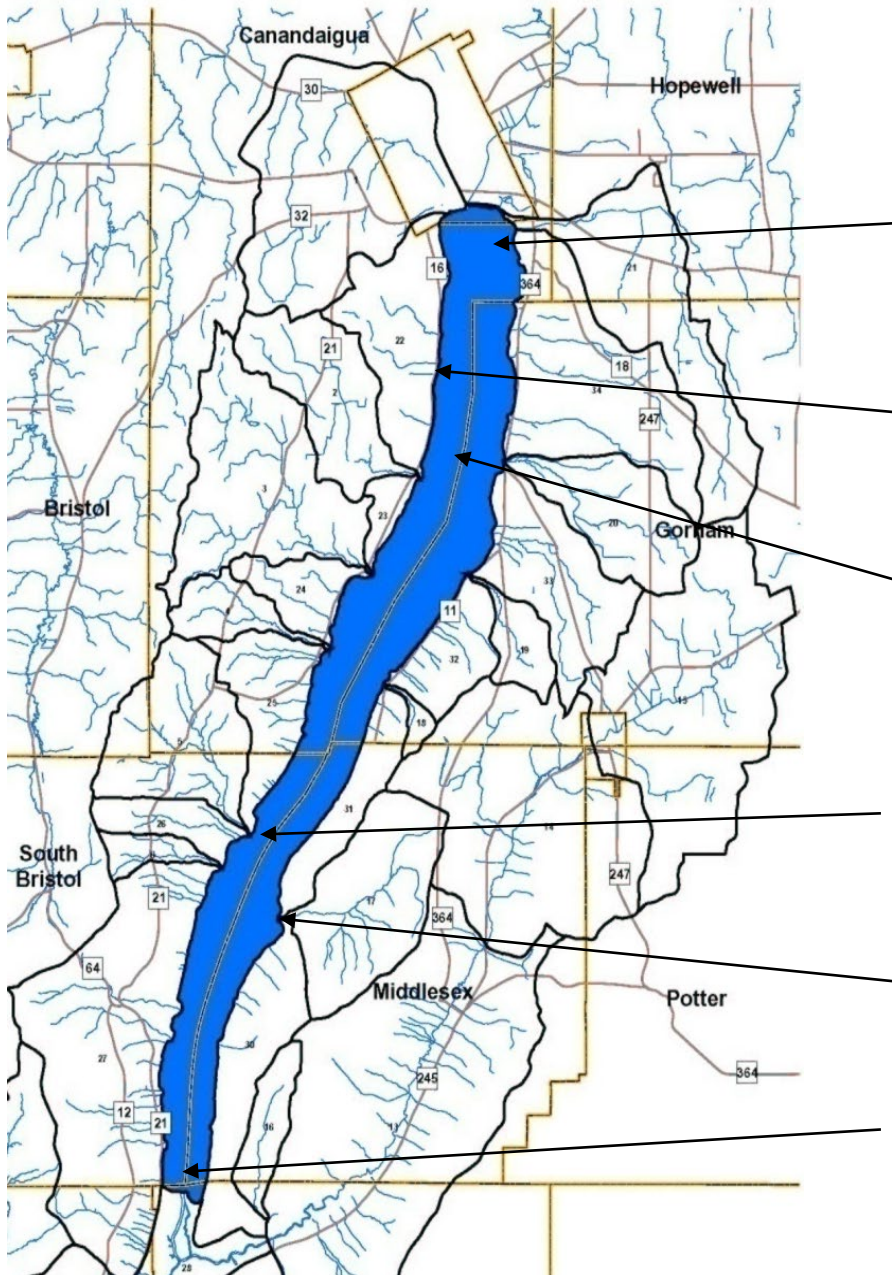
- 2017: Patty joins project
- 2018: Reduced sampling period:
 - From April to November
 - To May to October
- 2019:
 - Increased FLCC student participation
 - QAAP updates
 - Increased profile resolution sampling (2019)
- 2020:
 - April – factory maintained YSI sonde (removed one probe)
 - May – returned sonde after housing leaked and retested in field
 - June – began sampling for this year's grant
- 2021:
 - ~~Put into college budget 30K for a boat and 20K for a new sonde~~
- 2022:
 - Ordered new sonde (added algal sensor), will use it mid-season

YSI EXO 3S sonde

- 66 m cable
- 5 sensor ports
 - pH
 - Dissolved oxygen
 - Temperature / Conductivity
 - Turbidity (new!)
 - Total algae – phycocyanin (new!)
- Sonde weight



Study Sites



Fallbrook (FB)

Hope Point (HP)

Deep Run (DR)

mid-lake locations

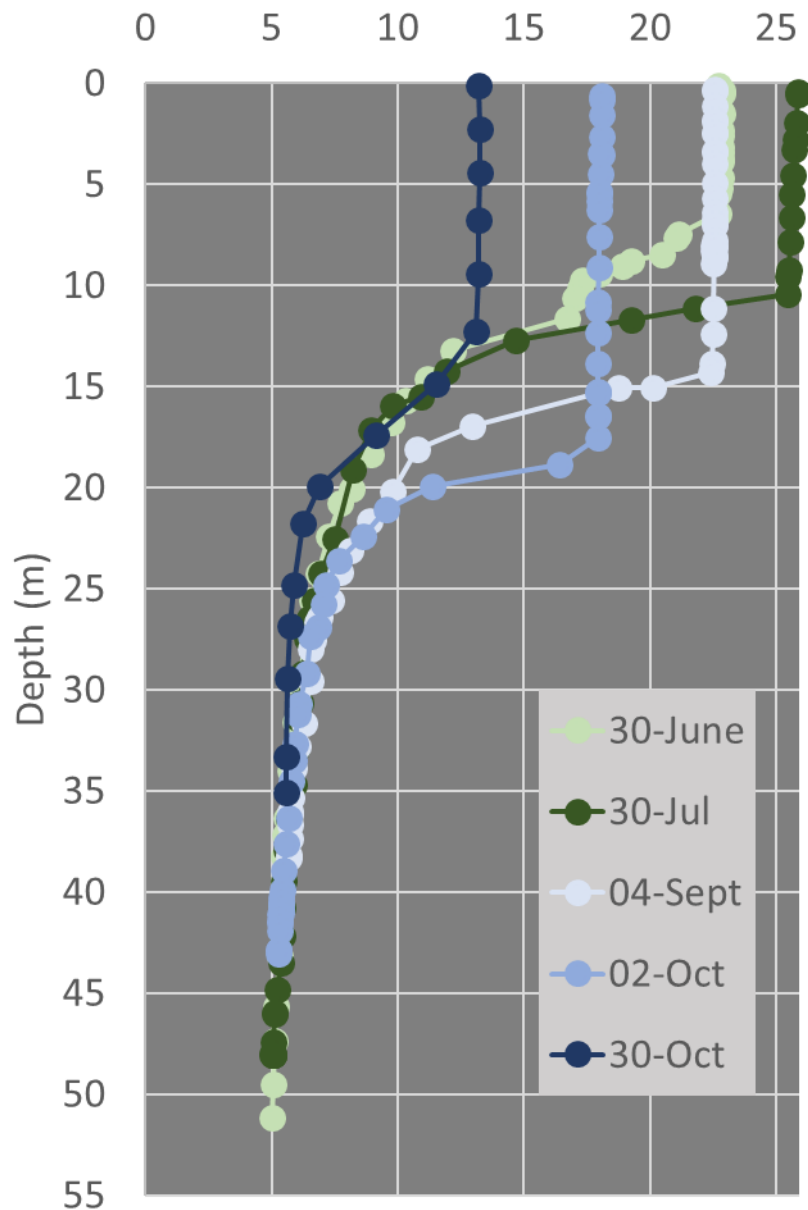
Seneca Point (SP)

Vine Valley (VV)

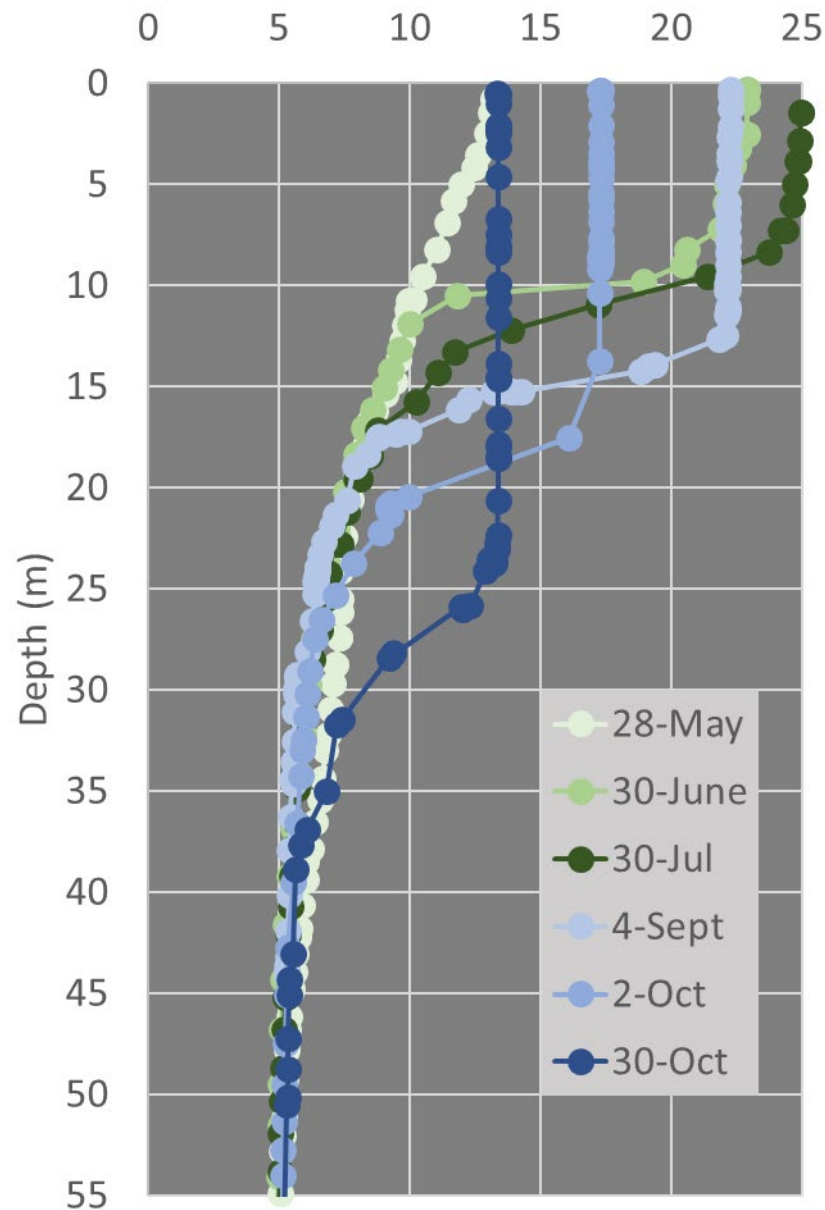
West River (WR)

2020

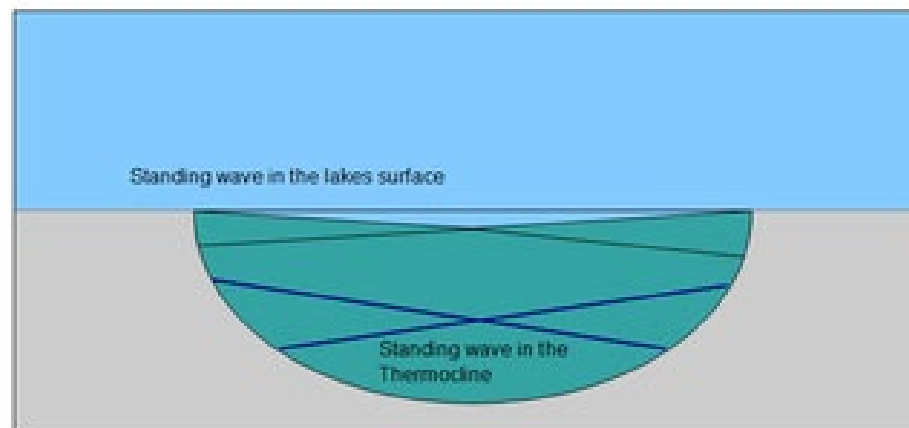
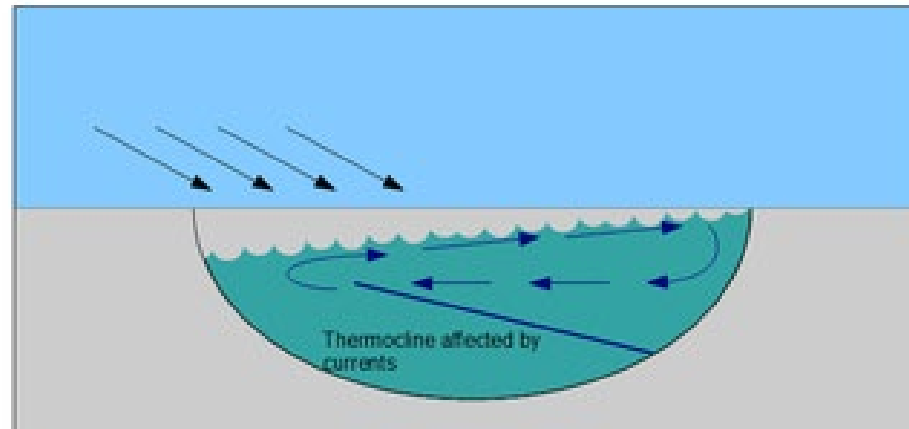
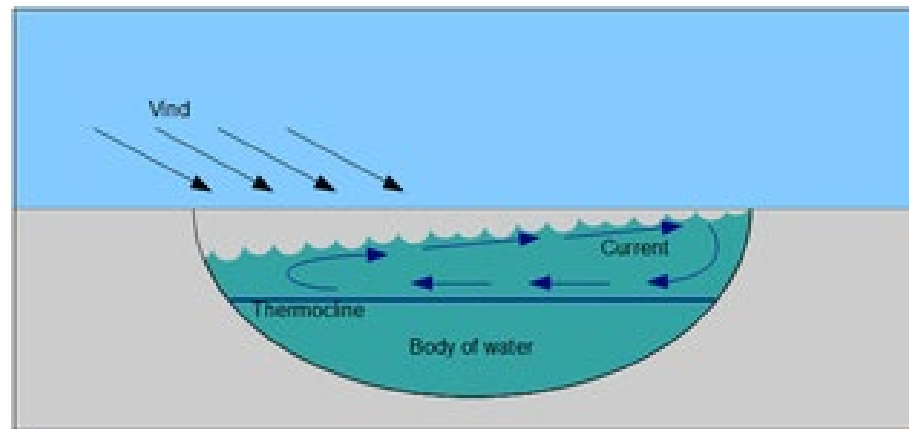
Deep Run Temp. (°C)



Seneca Point Temp. (°C)

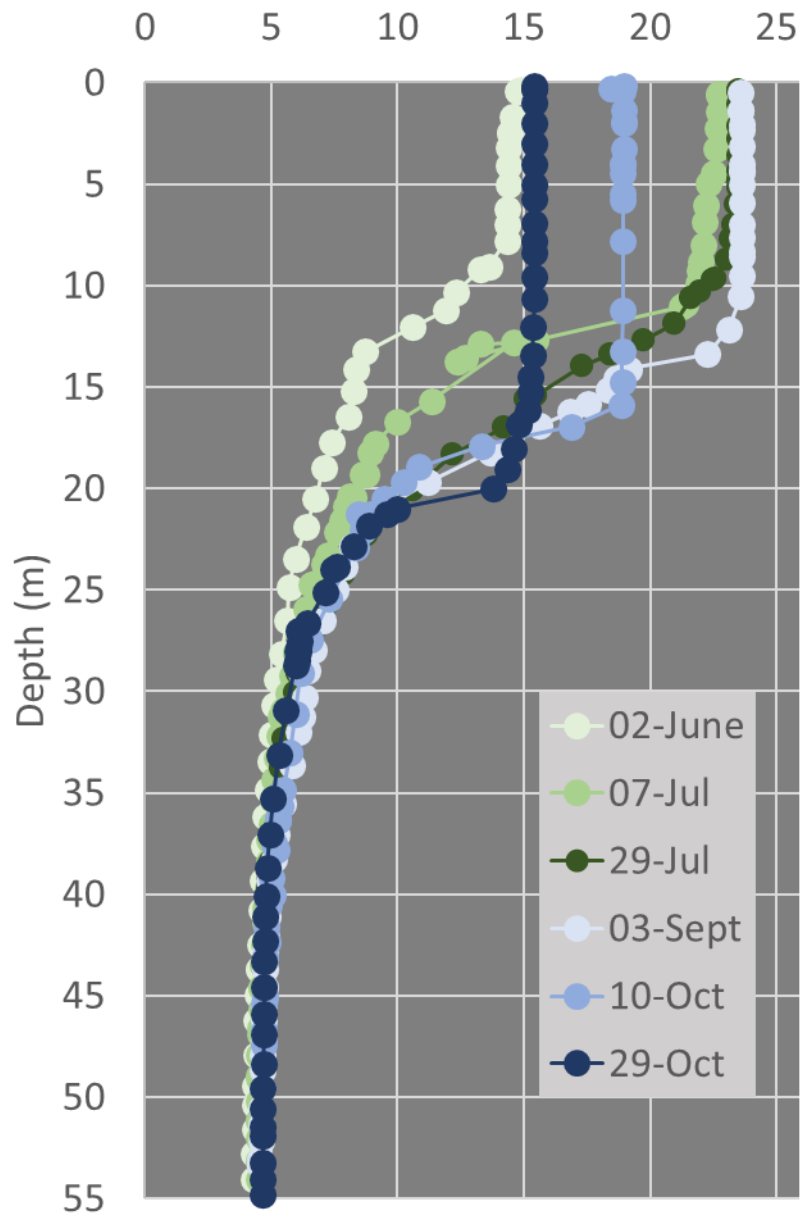


Seiche

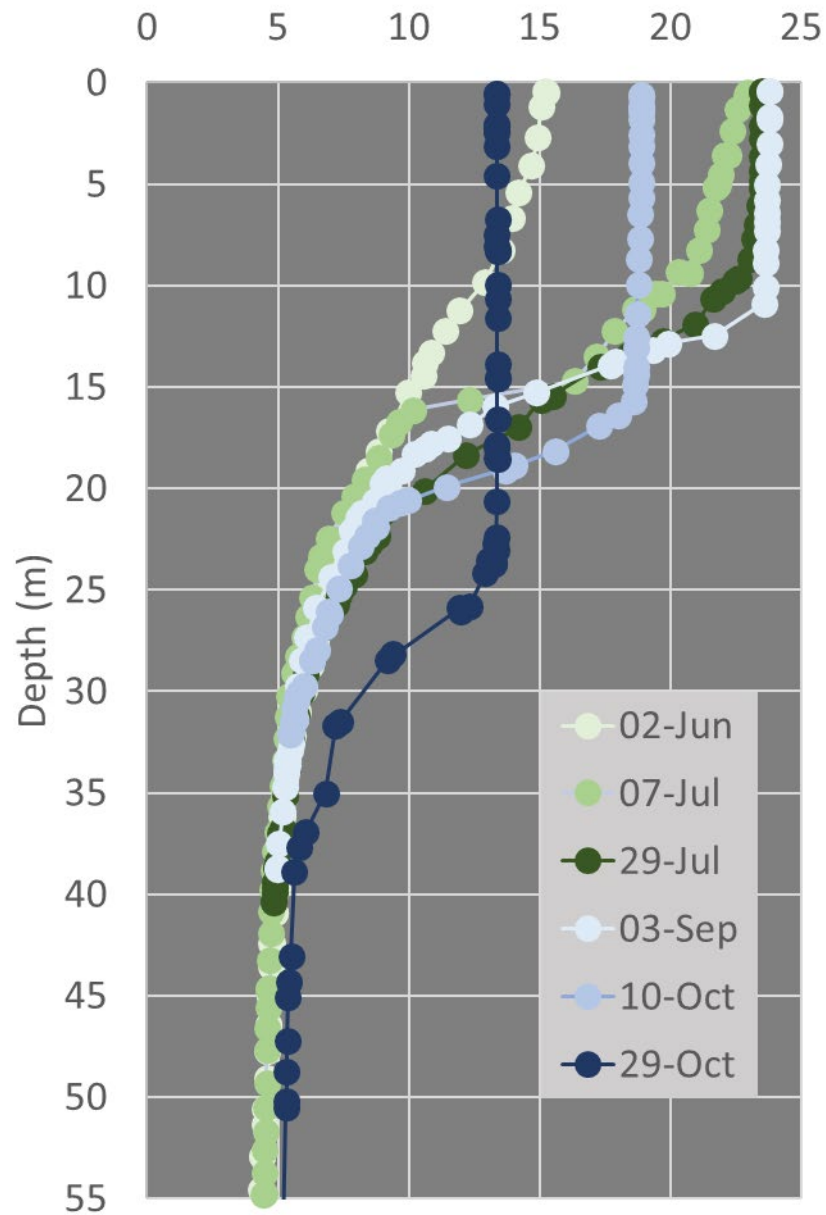


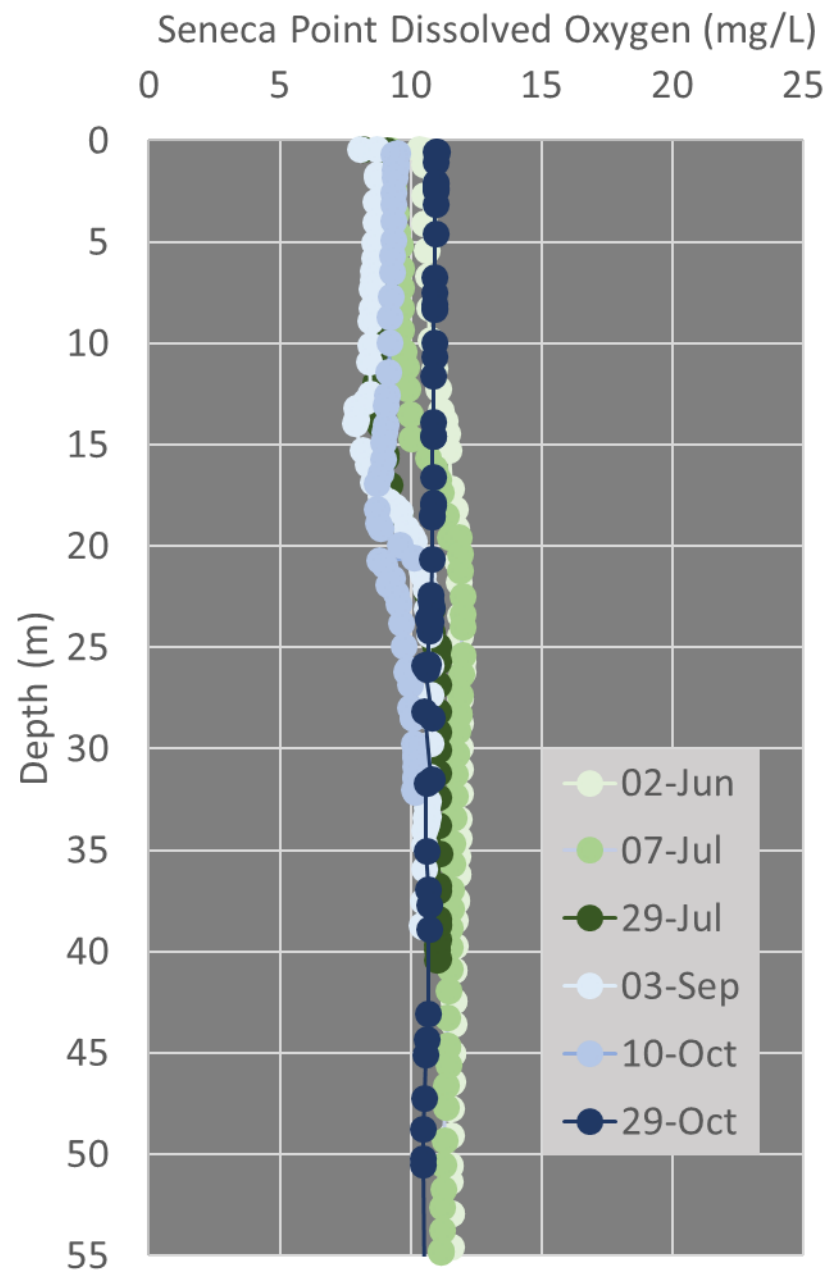
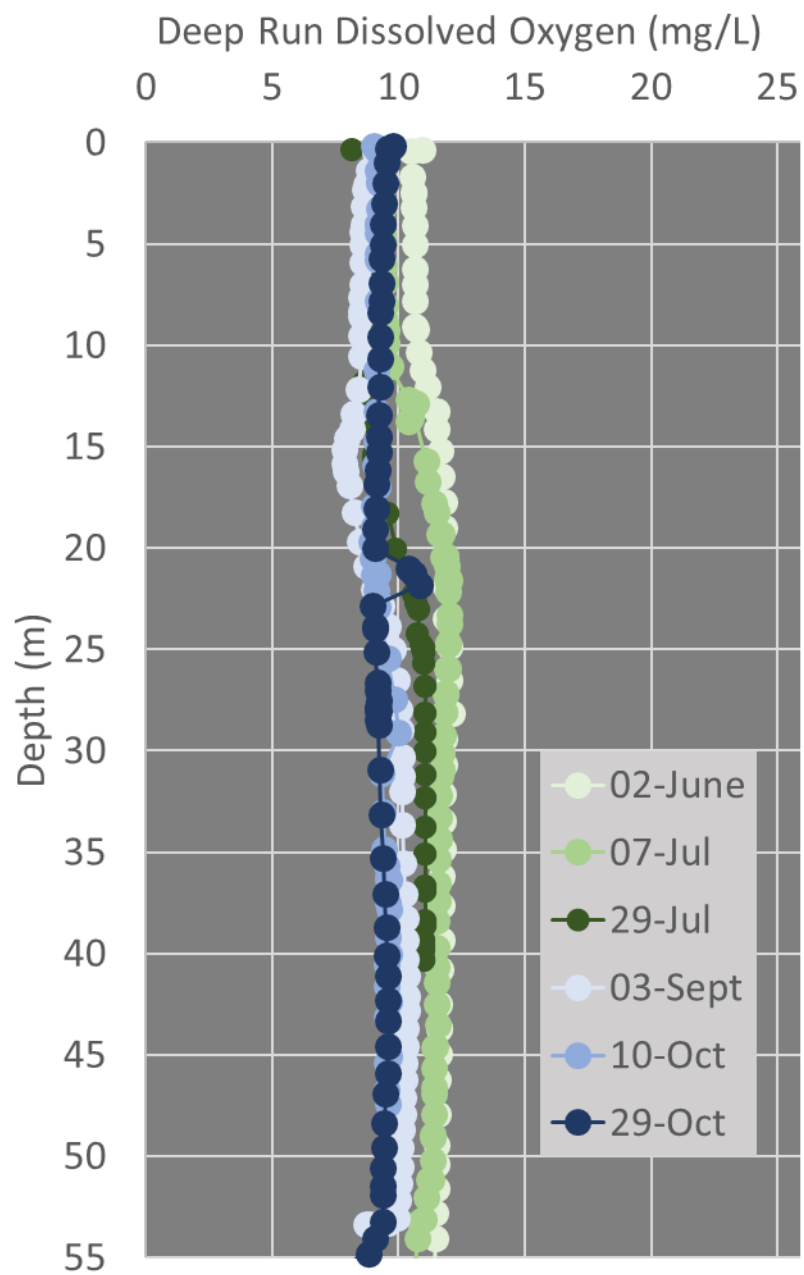
2021

Deep Run Temp. (°C)

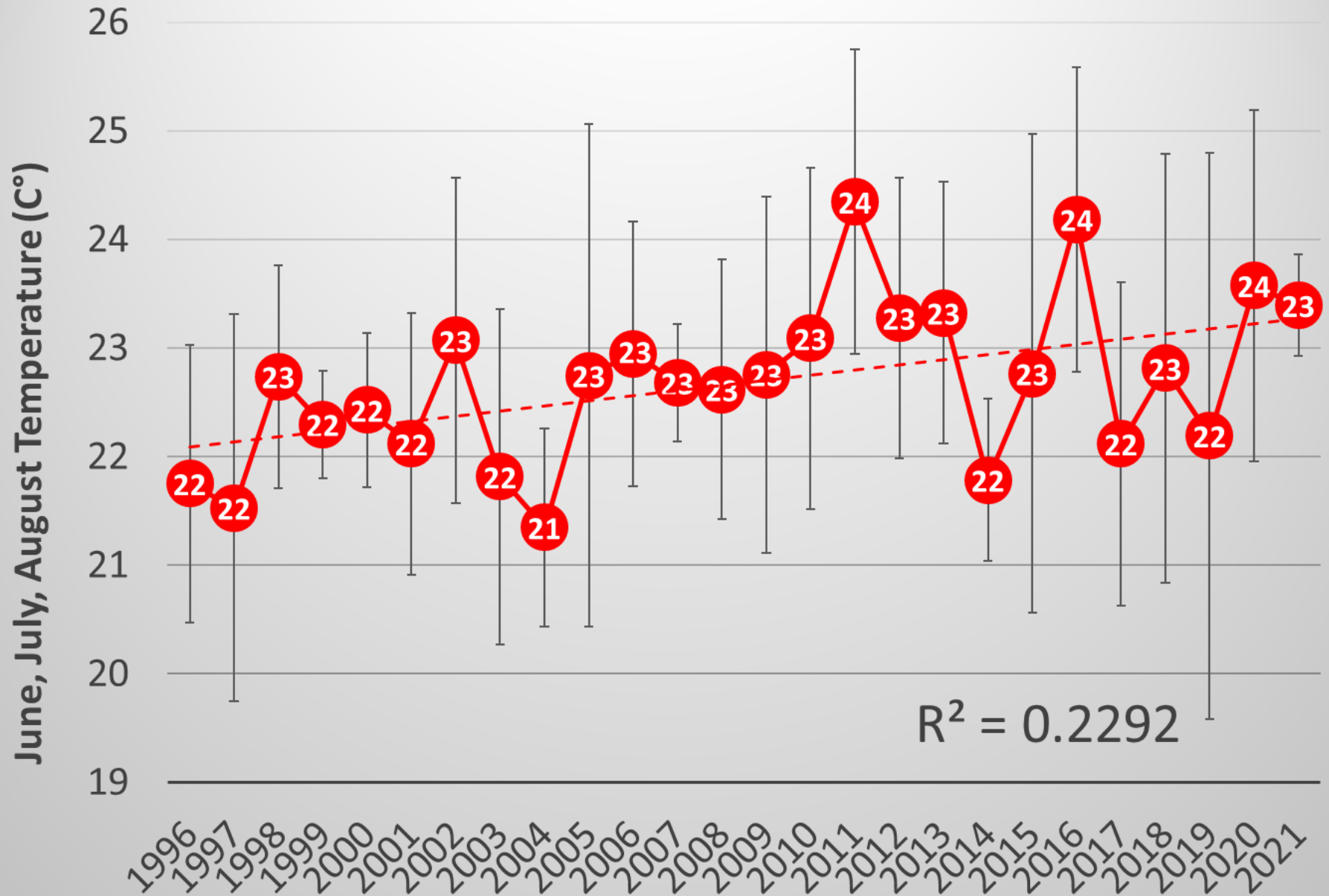


Seneca Point Temp. (°C)



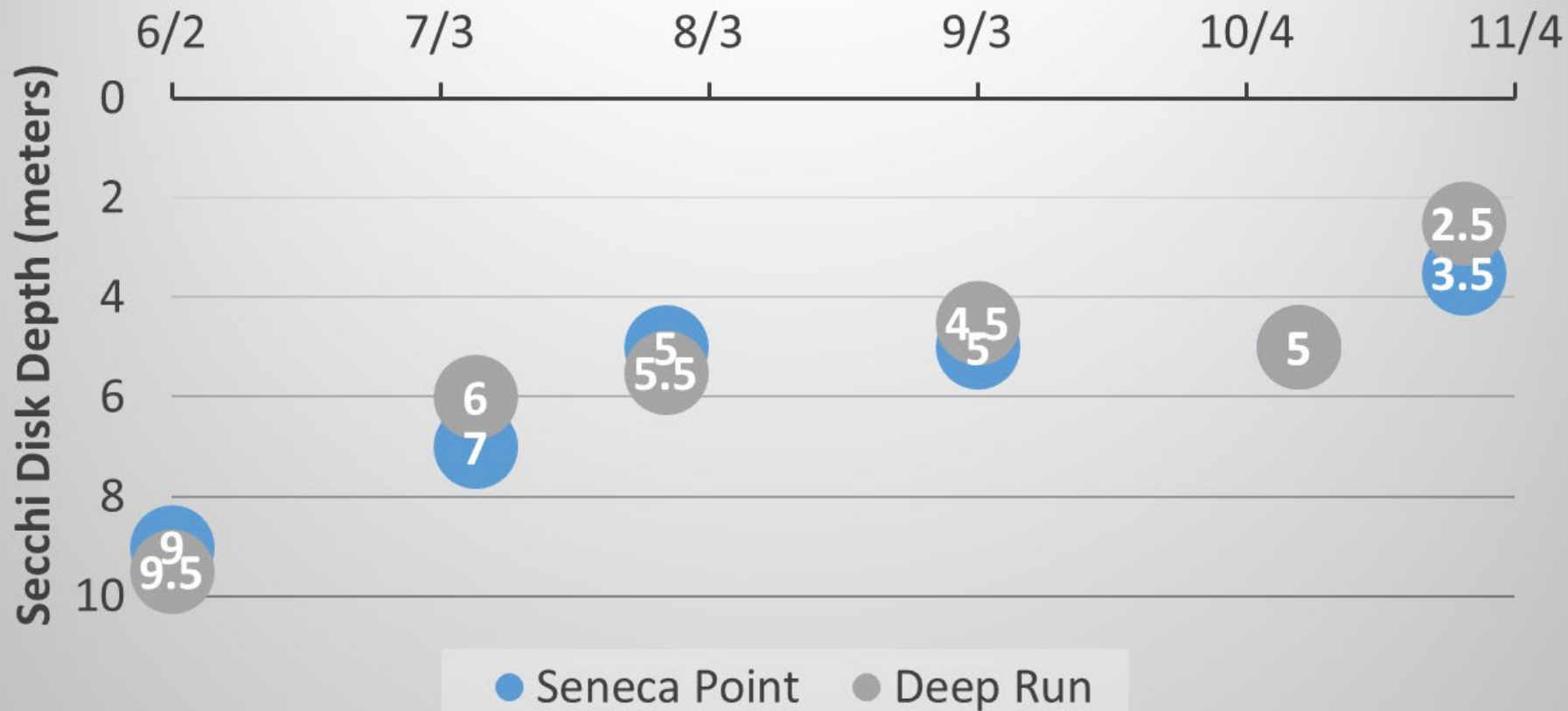


Summer Surface Temperatures (1996 - 2021)

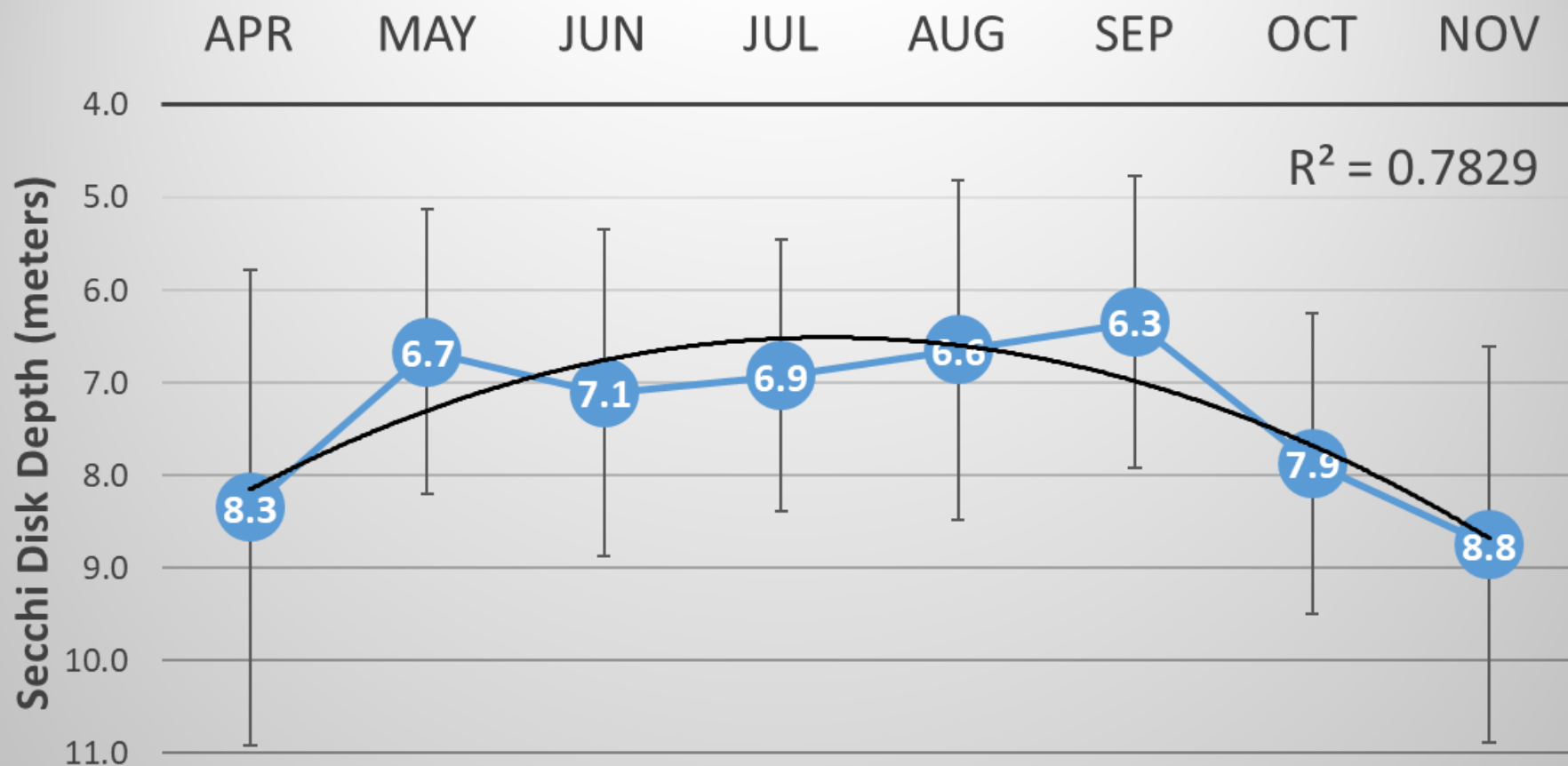


Lake Clarity

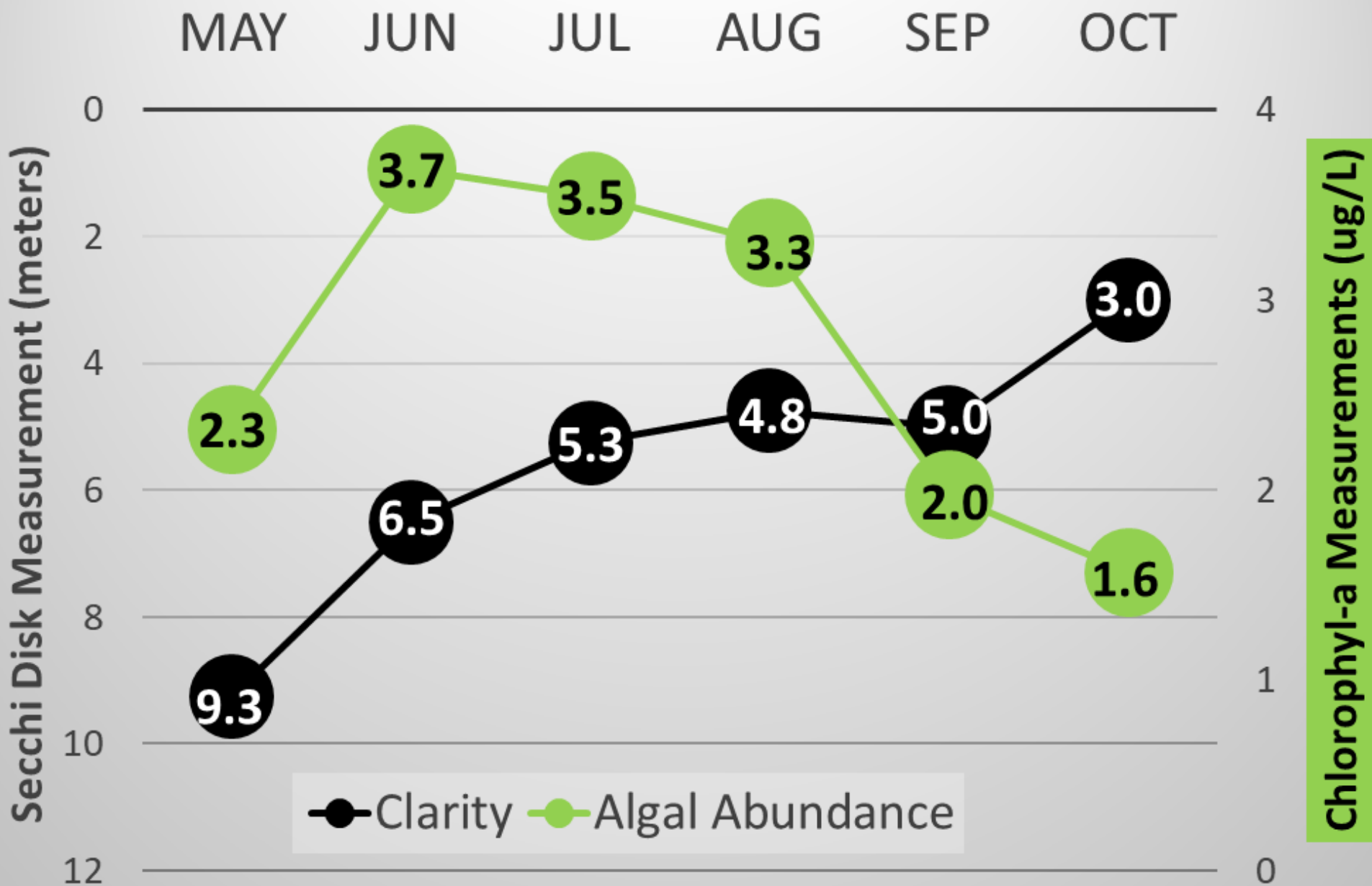
2021 Secchi Disk Measurements (meters)



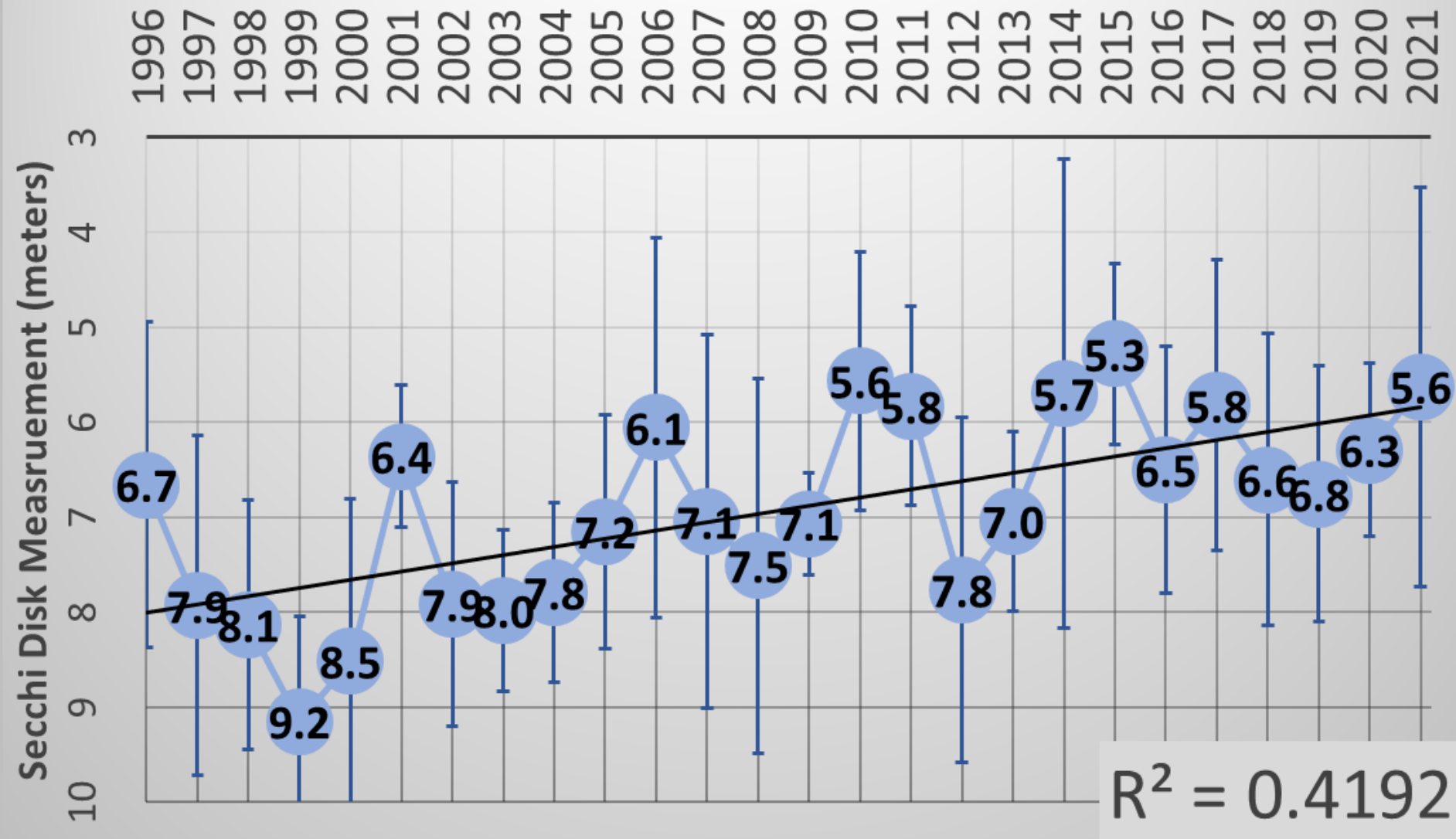
Seasonal Mean Lake Clarity (1996-2021)



Clarity versus Algal Abundance (2021)

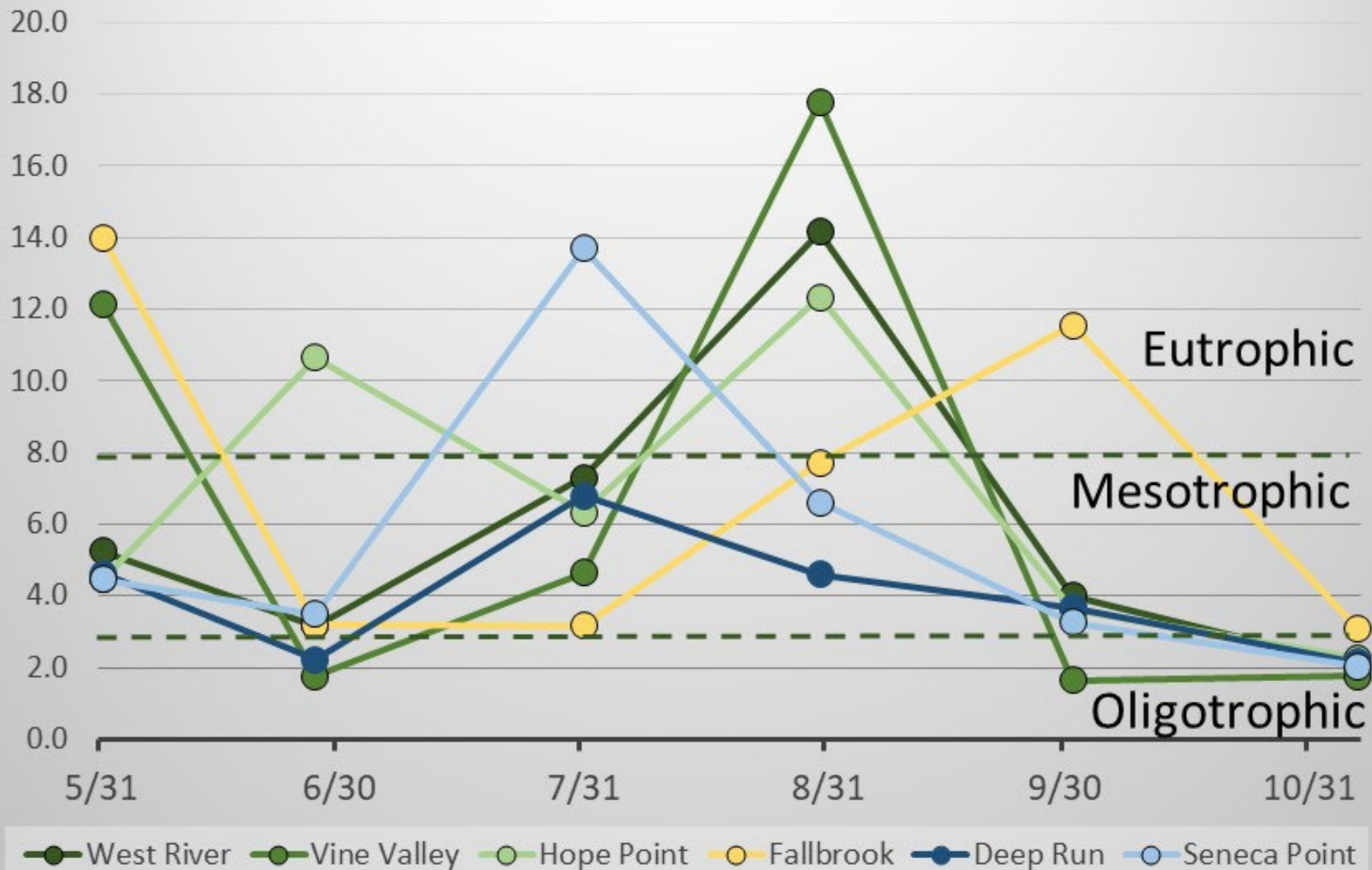


Summer Mean Lake Clarity (1996 - 2021)



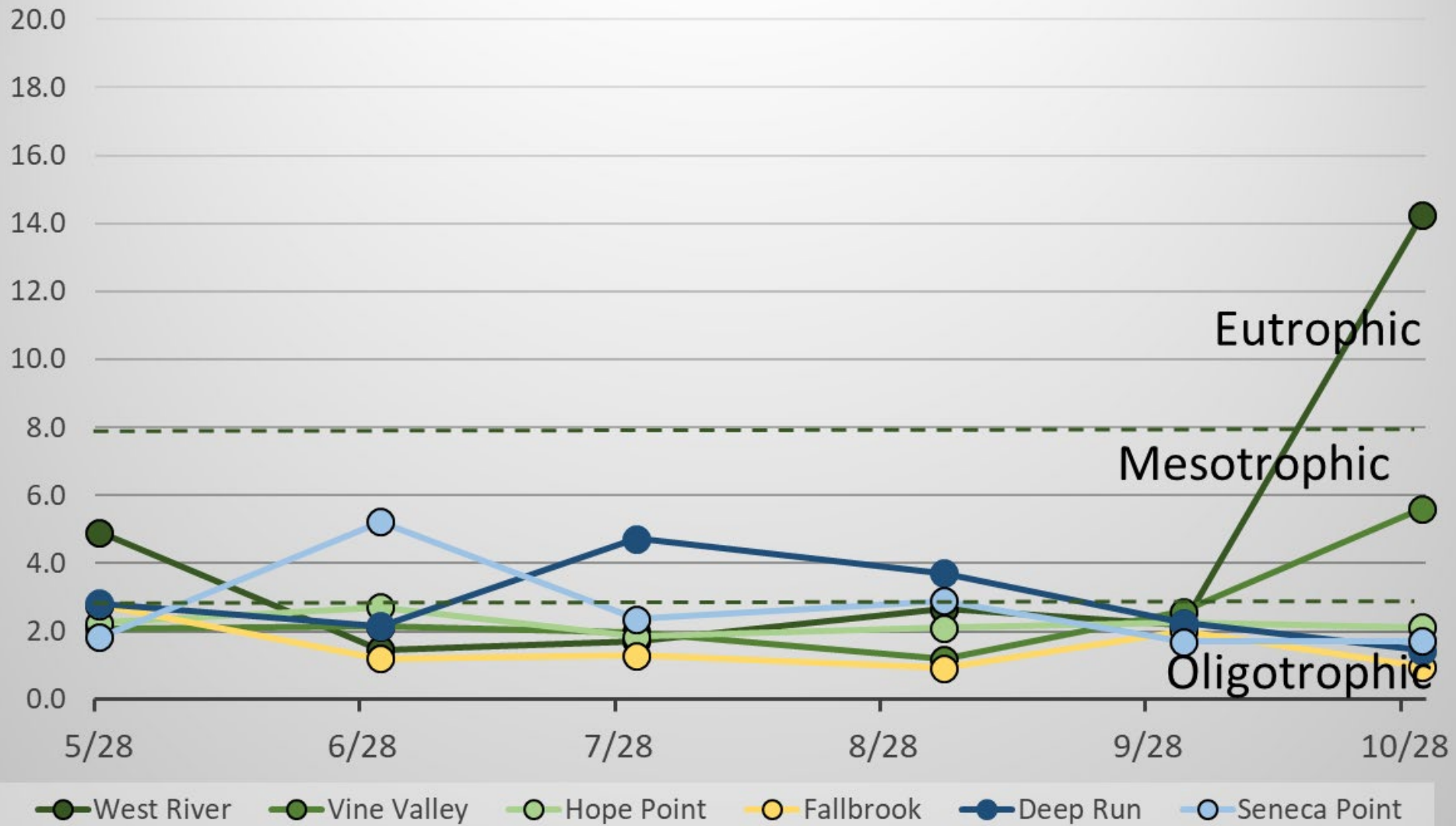
2019 Seasonal Algal Abundance

Chlorophyll-a (ug/L)



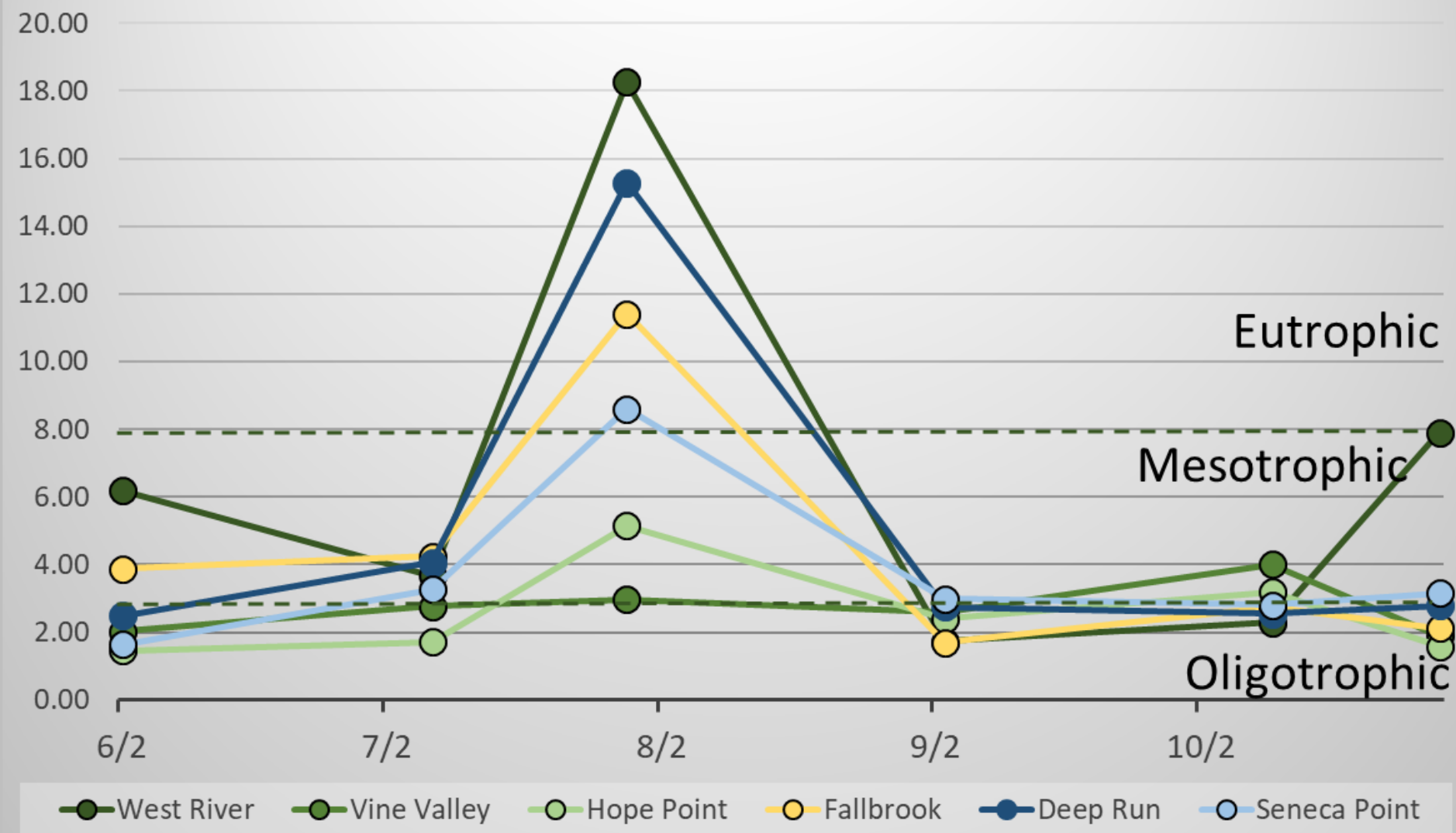
2020 Seasonal Algal Abundance

Chlorophyll-a (ug/L)

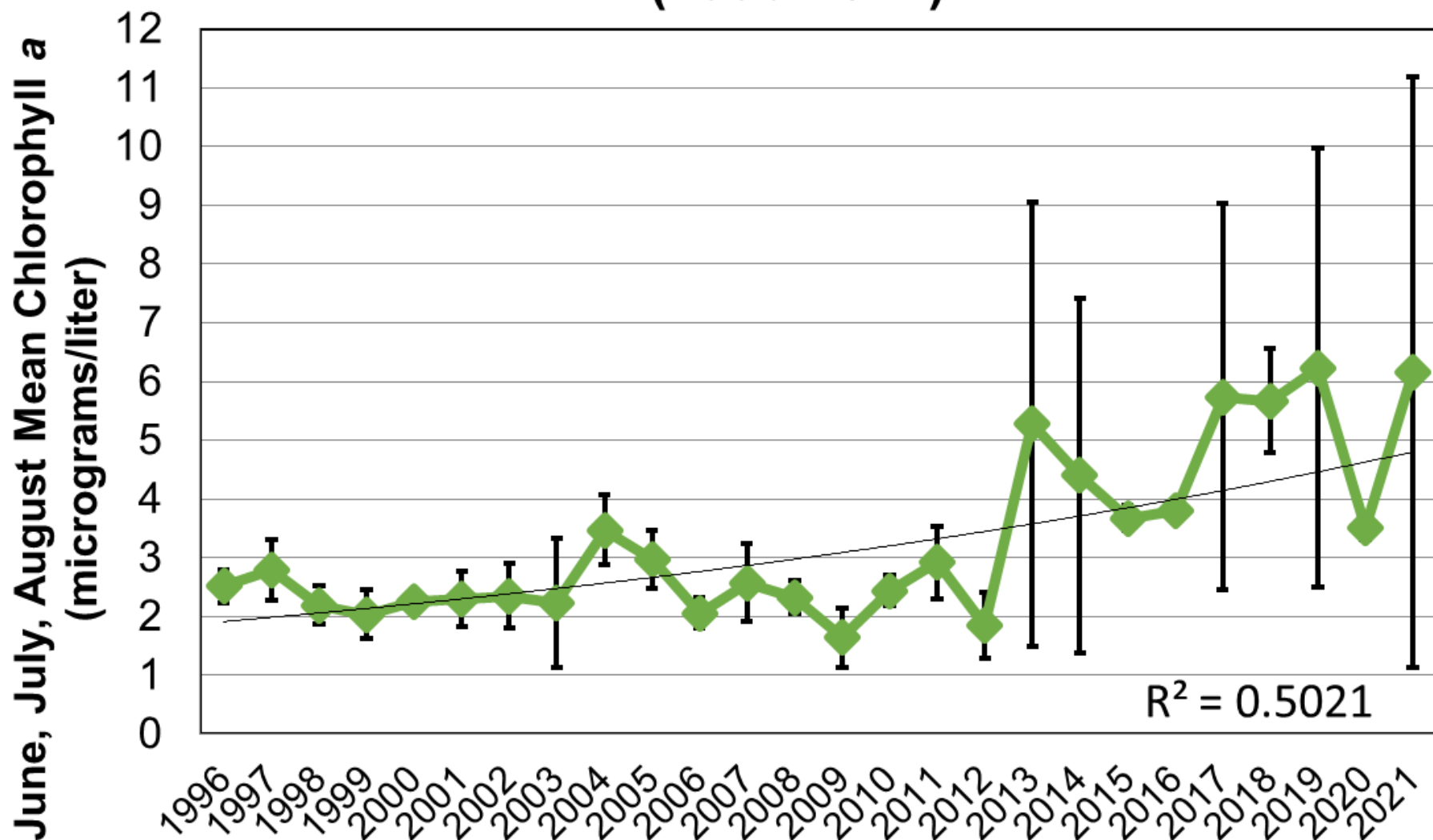


2021 Seasonal Algal Abundance

Chlorophyll-a (ug/L)



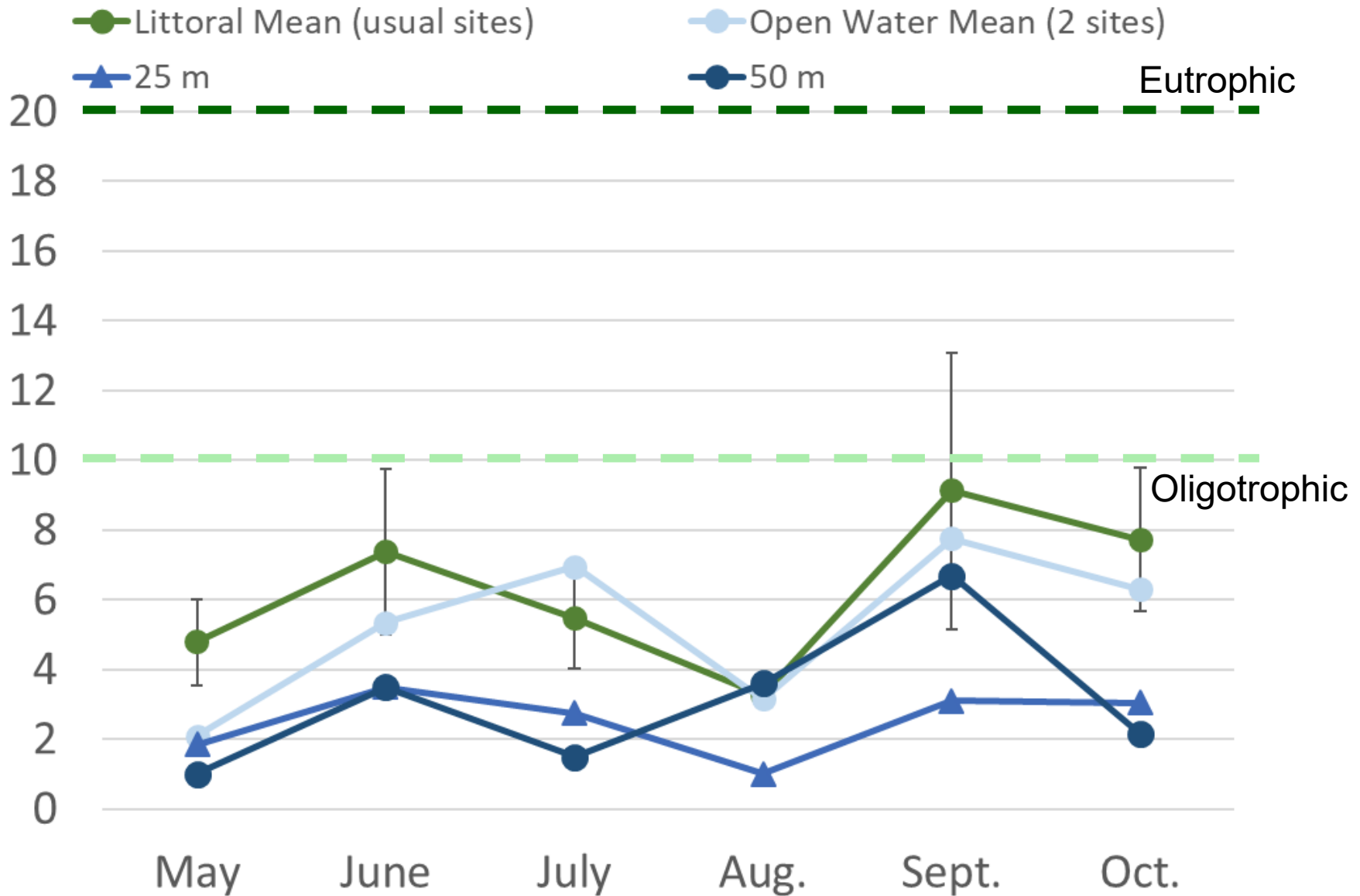
Long-term Summer Mean Algal Abundance (1996-2021)



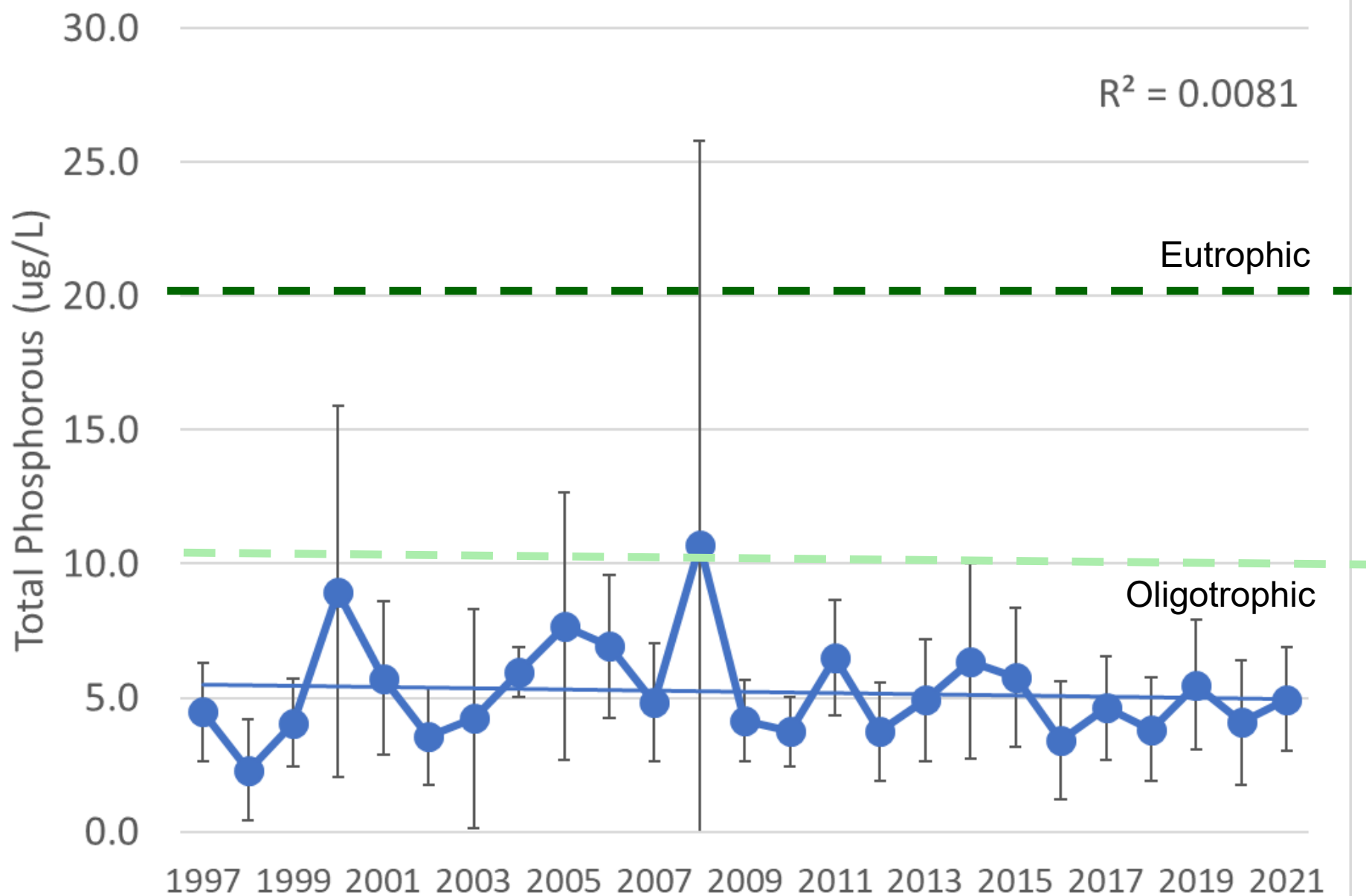
Total Phosphorous

- Includes ortho-phosphate and the phosphorus in suspended plant and animal fragments
- New York State's trophic assessments
 - Eutrophic: total phosphorus readings exceeded 20 ug/l
 - Mesotrophic: between the two categories
 - Oligotrophic: total phosphorus readings below 10 ug/l

2021 Total Phosphorus (ug/L)

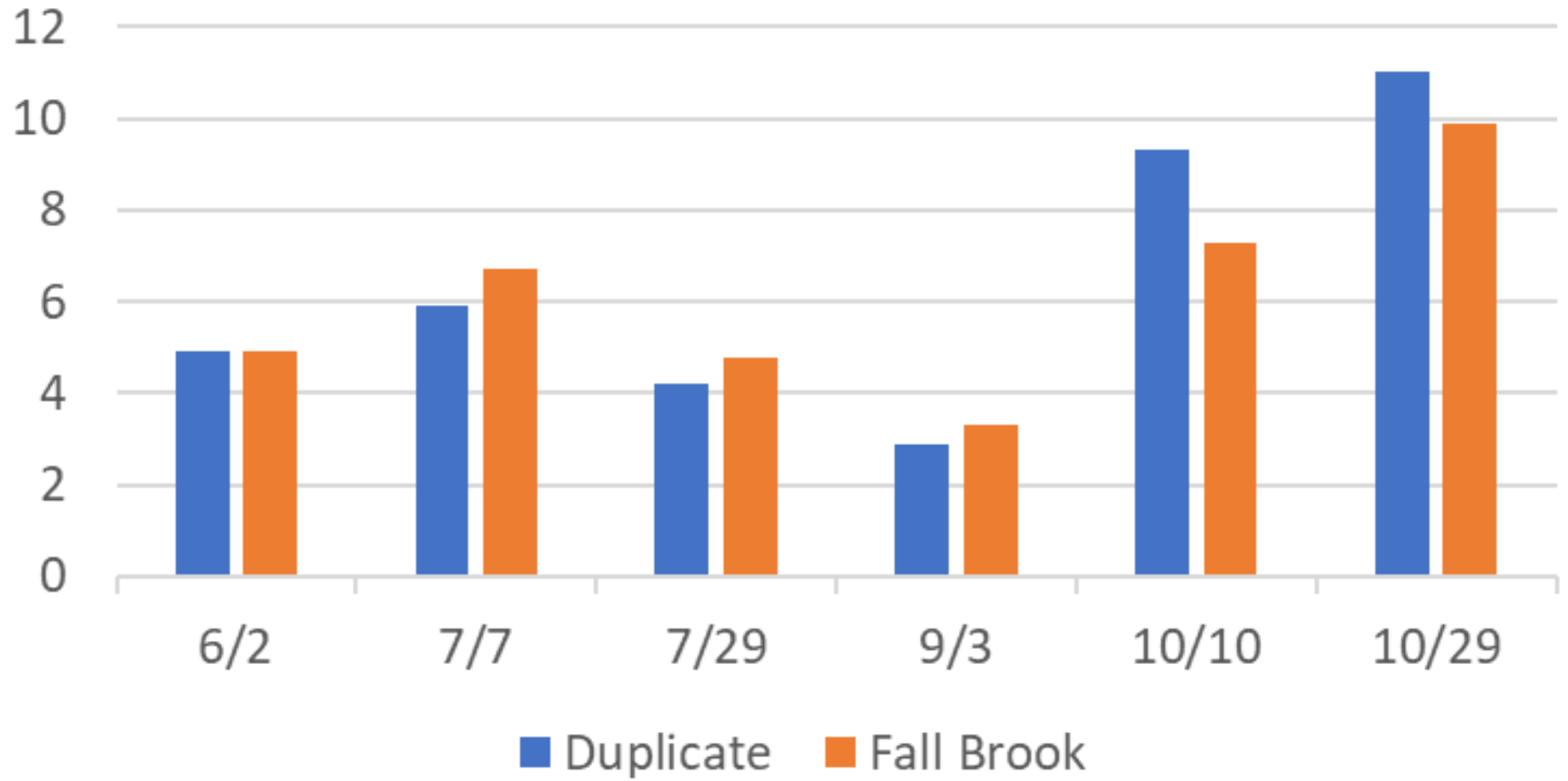


Mean TP (ug/L) May to October at Deep Run (2 m)



QAQC results

2021 Duplicates versus Site Samples



Special thanks to ... John Pfeffer
Research Assistant



Thank you! Questions?

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