

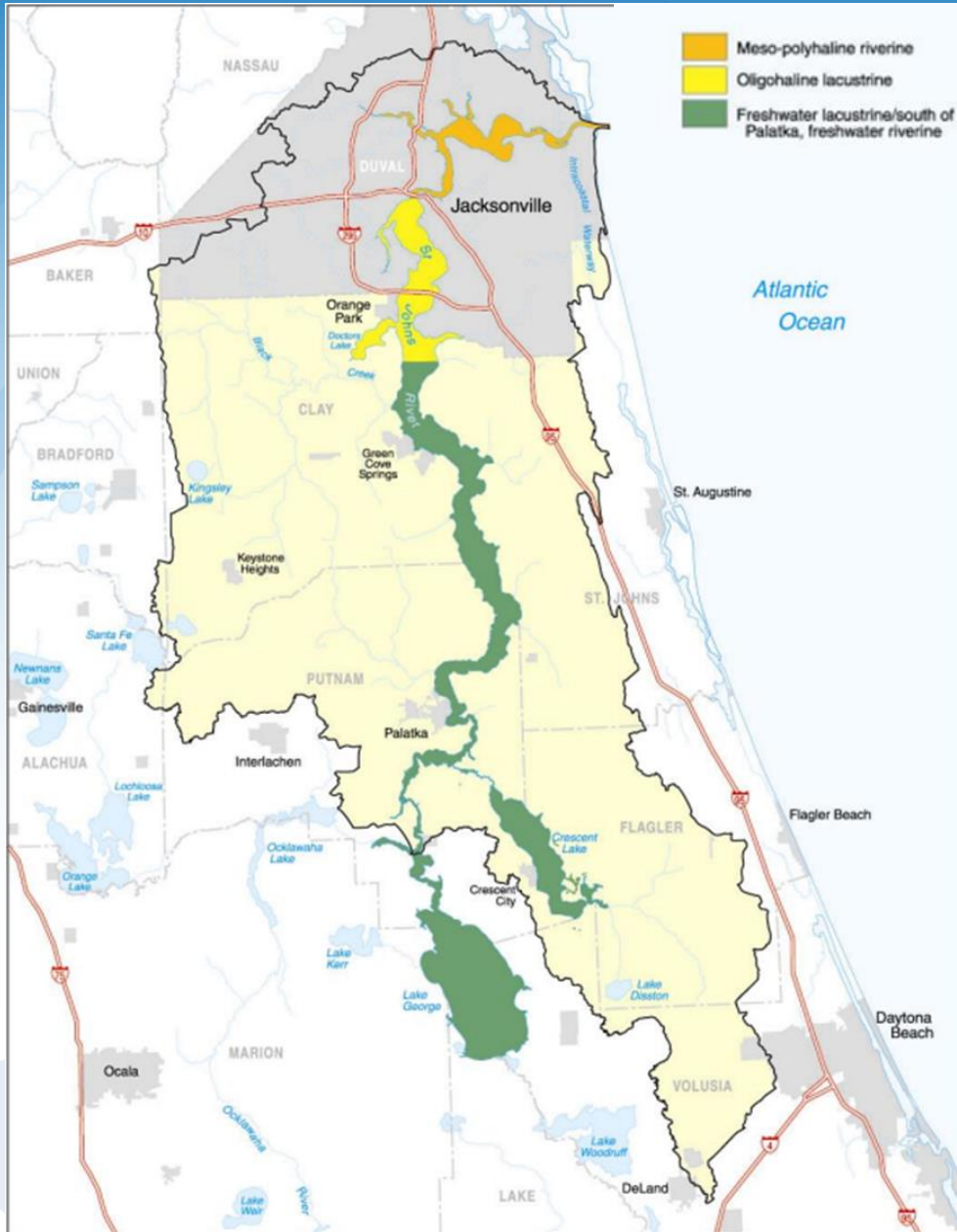
2023 Lower St. Johns River Basin Management Action Plan (BMAP) Update

Riley Timbs
Environmental Scientist IV
Bureau of Environmental Sciences
Water Quality Section



St. Johns River
Water Management District

Lower St. Johns River Freshwater Goal

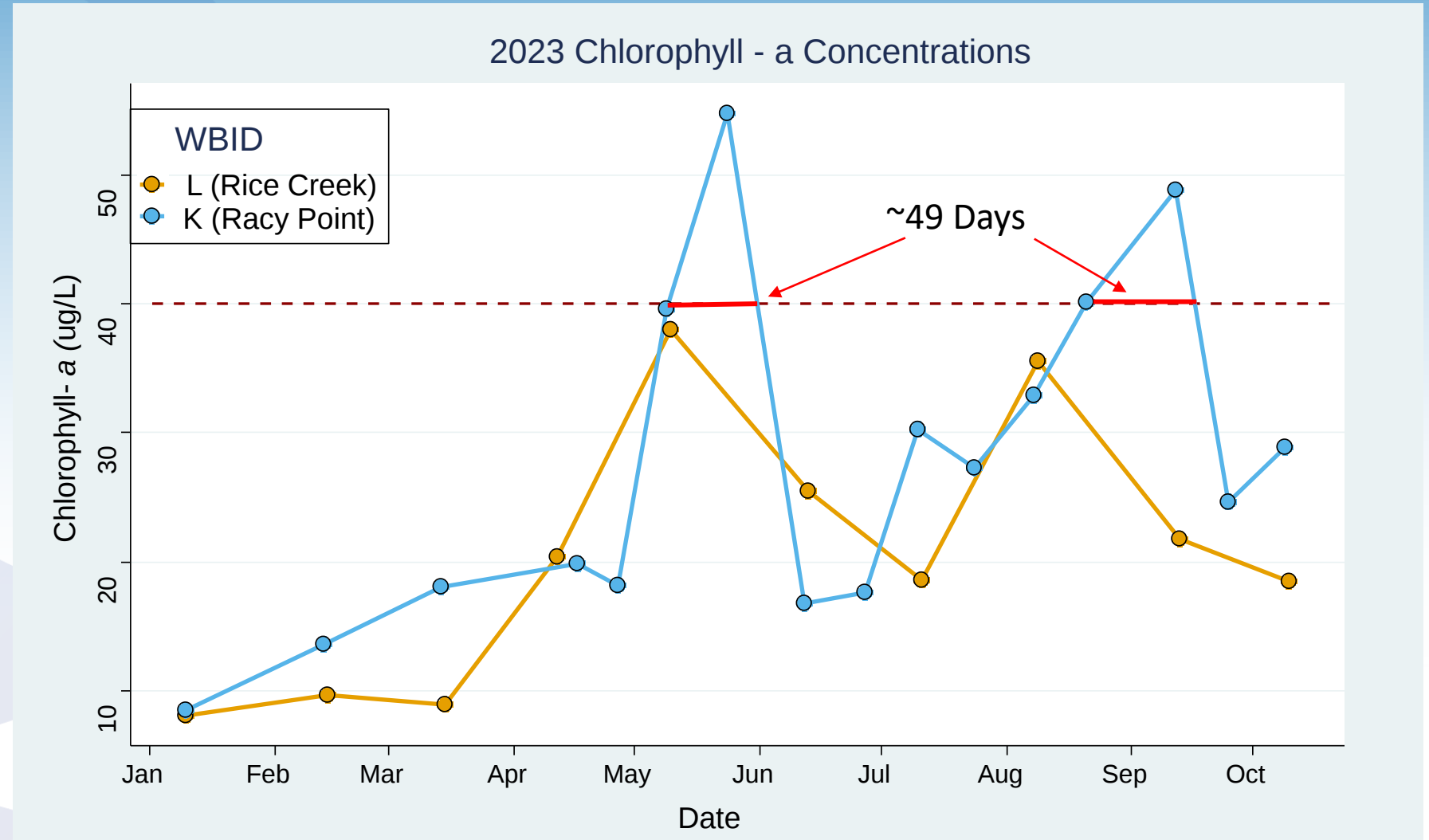
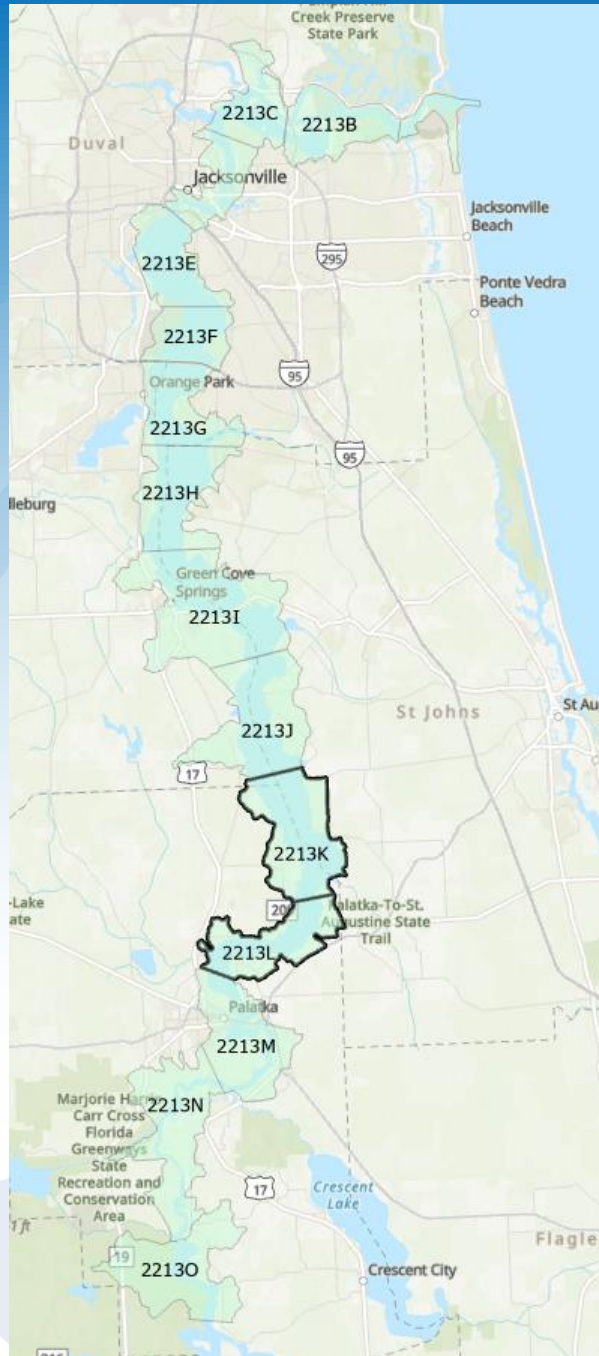


- When chlorophyll-*a* > 40 µg/L, algal blooms tend to be dominated by cyanobacteria
- Cyanobacteria are nutritionally poor, and potentially toxic
- Bad for food webs, bad for people
- Goal: Limit duration of chlorophyll-*a* concentrations > 40 µg/L to < 40 days in worst case WBIDS
- **40 µg/L for 40 days**

Lower St. Johns River Freshwater Reach Target

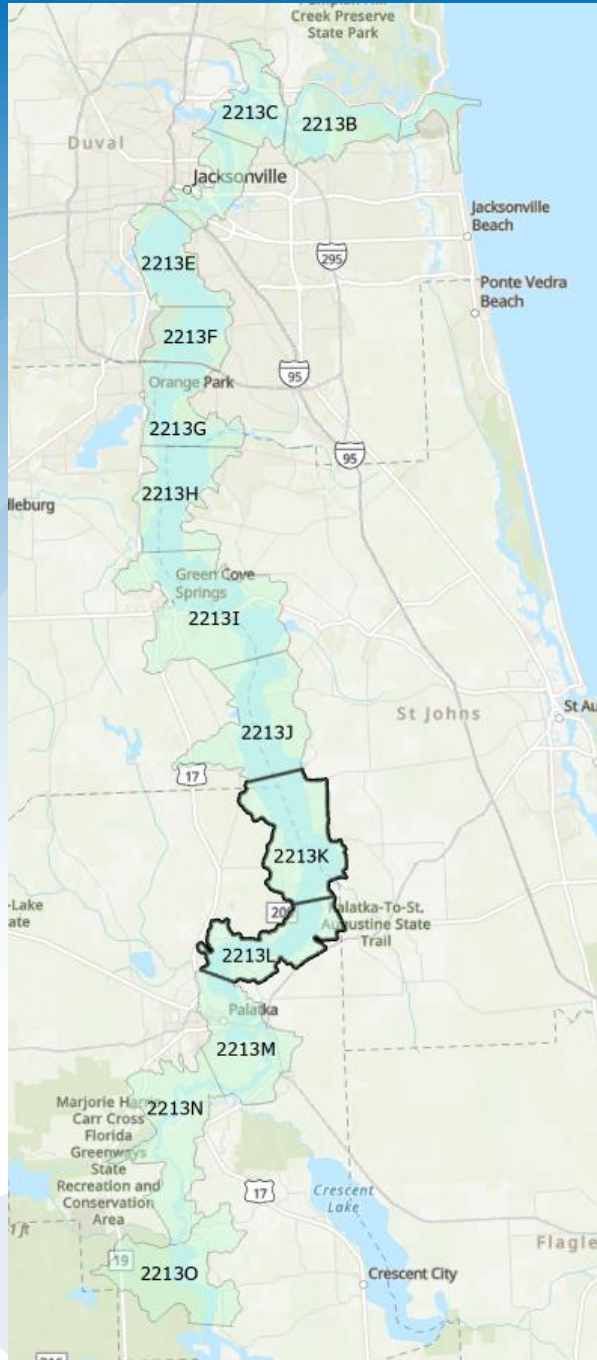
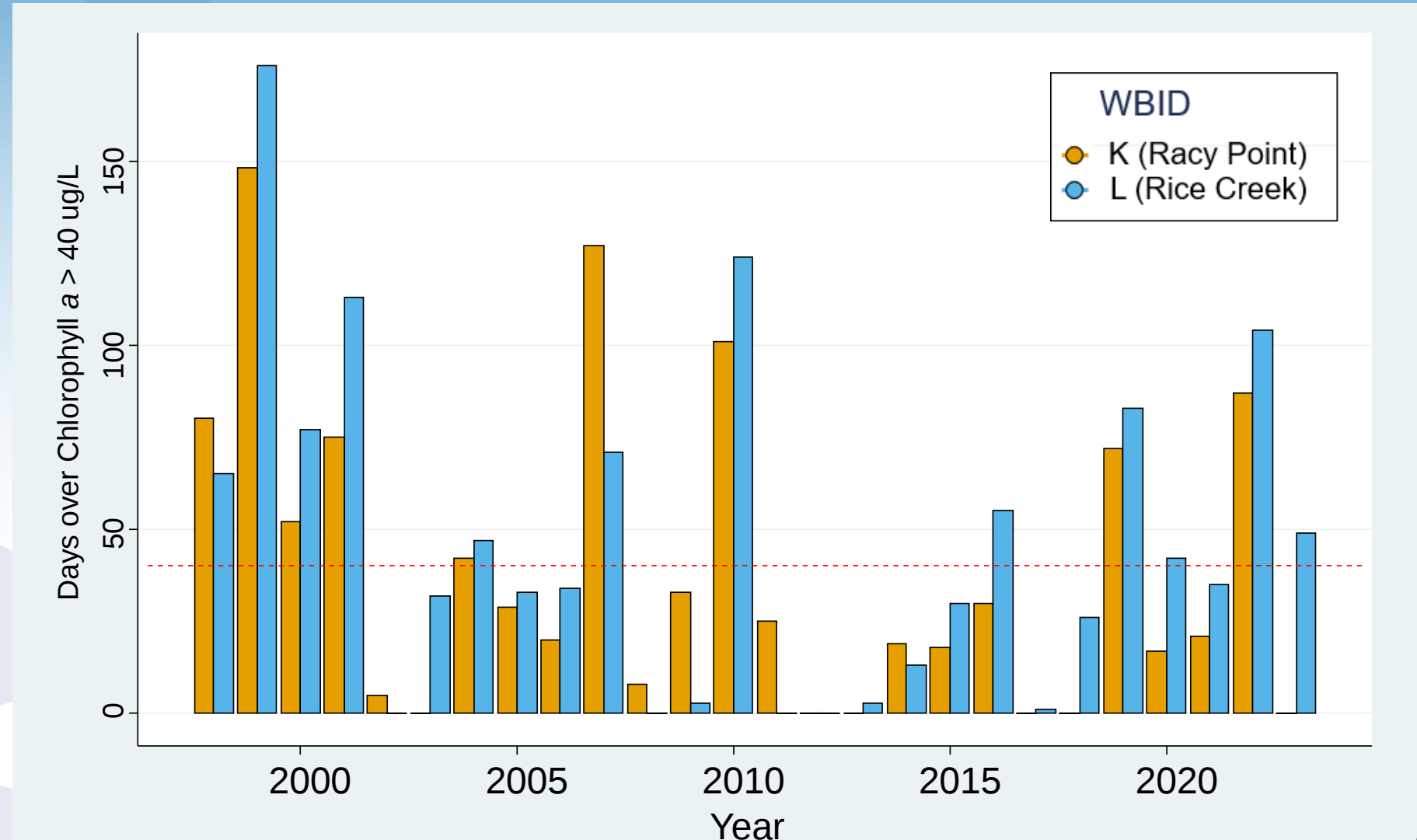
Worst case WBIDS - K and L

Goal = 40 $\mu\text{g/L}$ for 40 days



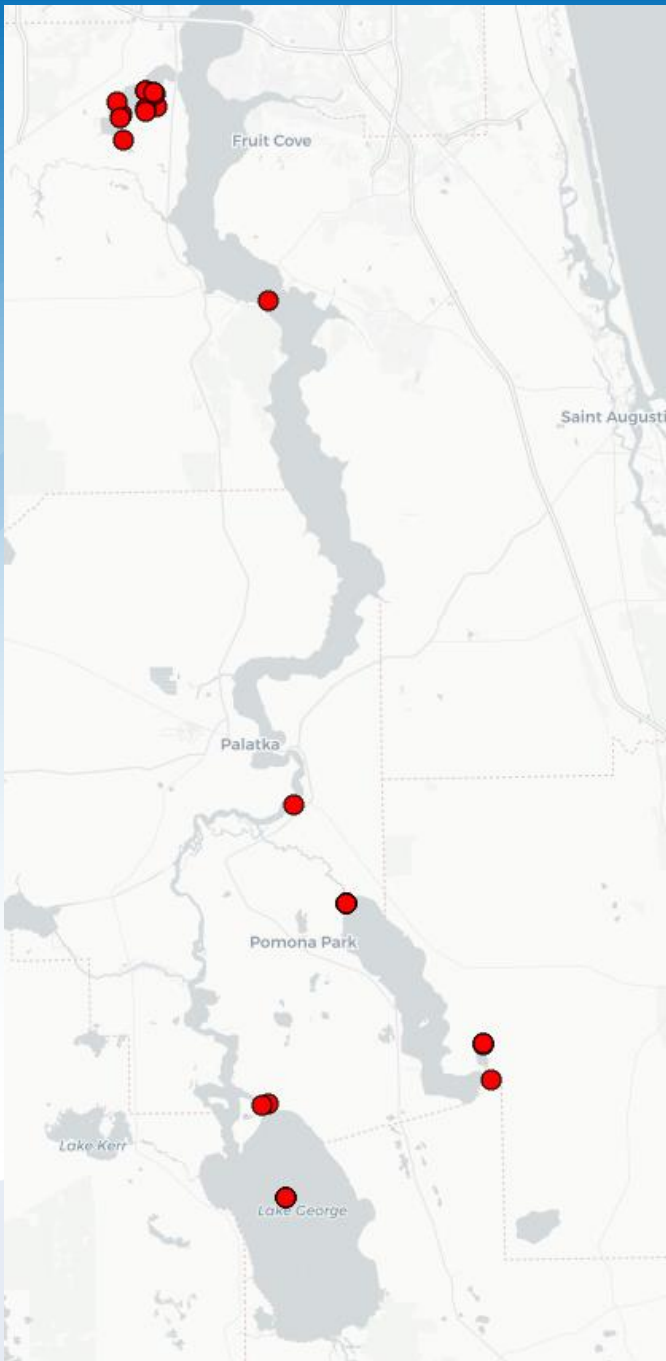
Lower St. Johns River Freshwater Reach Target

Long-term decline in estimated bloom duration.
Recent highs in 2019 and 2022.

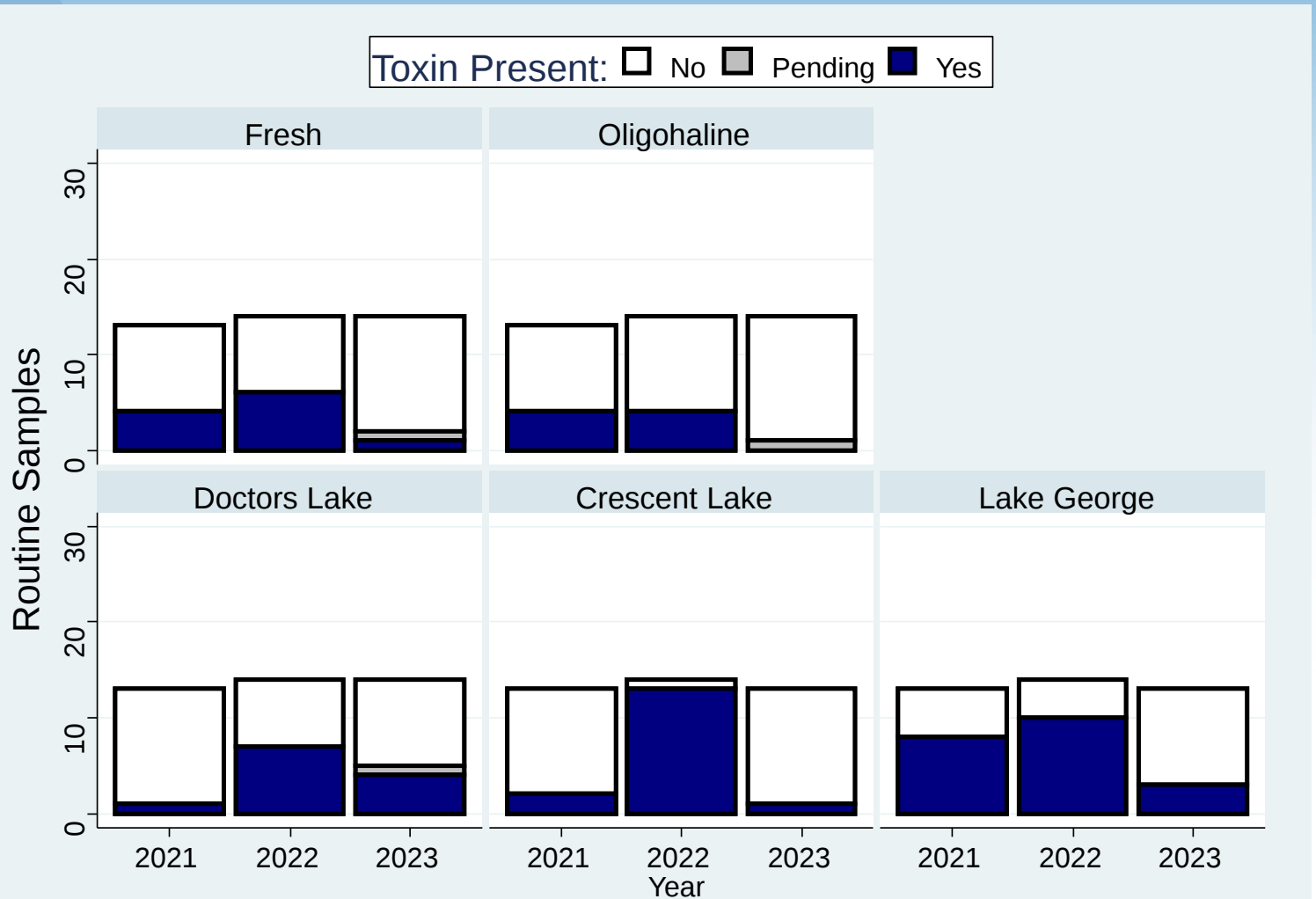


Harmful Algal Bloom Monitoring

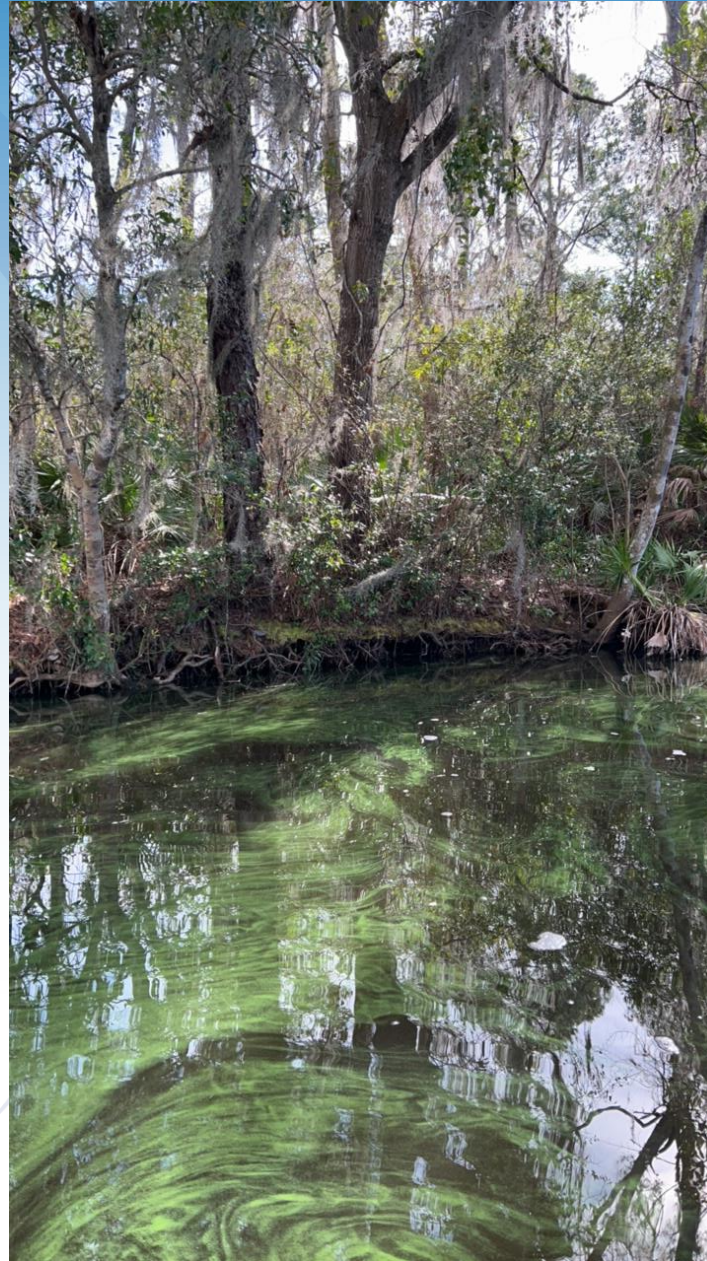
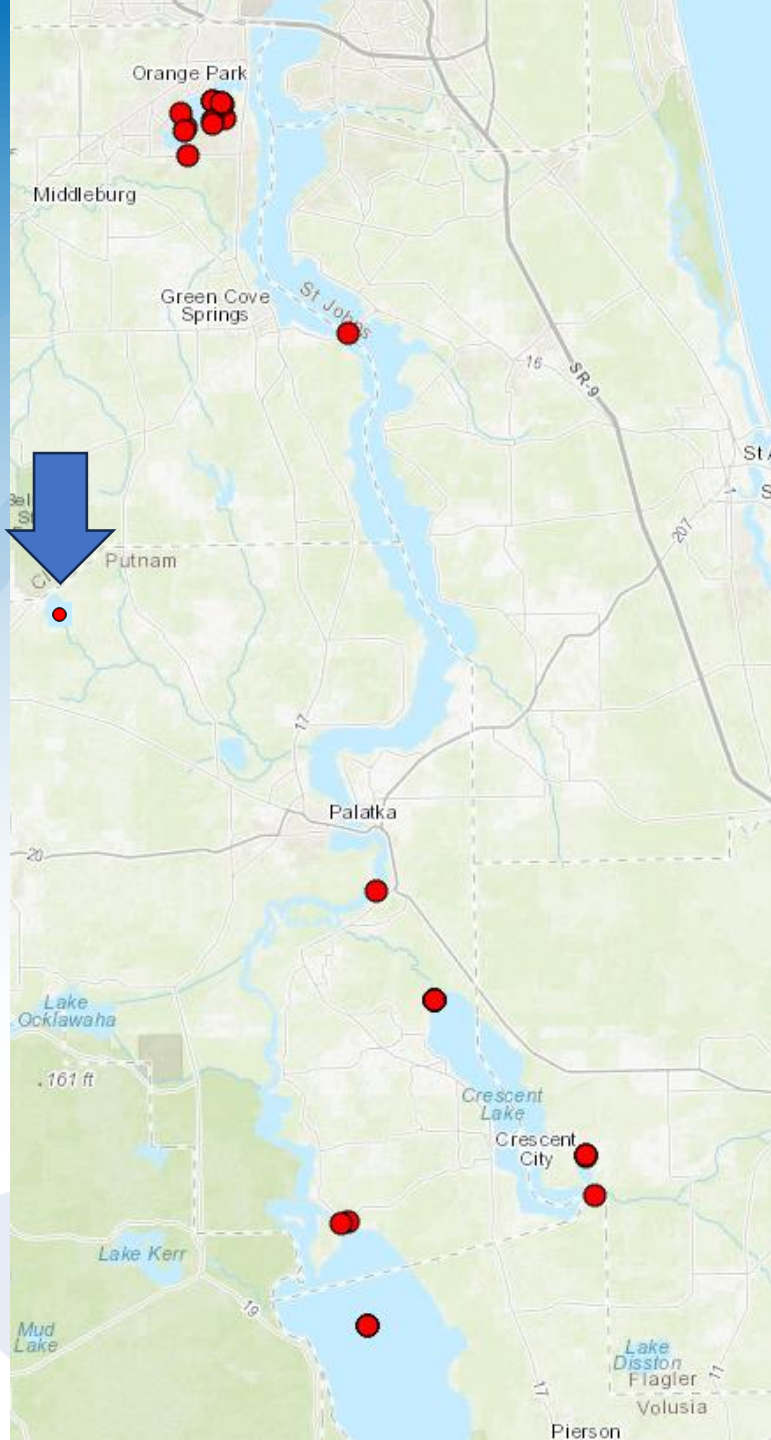
- Blooms still common
- Fewer cyanobacteria dominant in 2023
- Fewer producing toxins in 2023



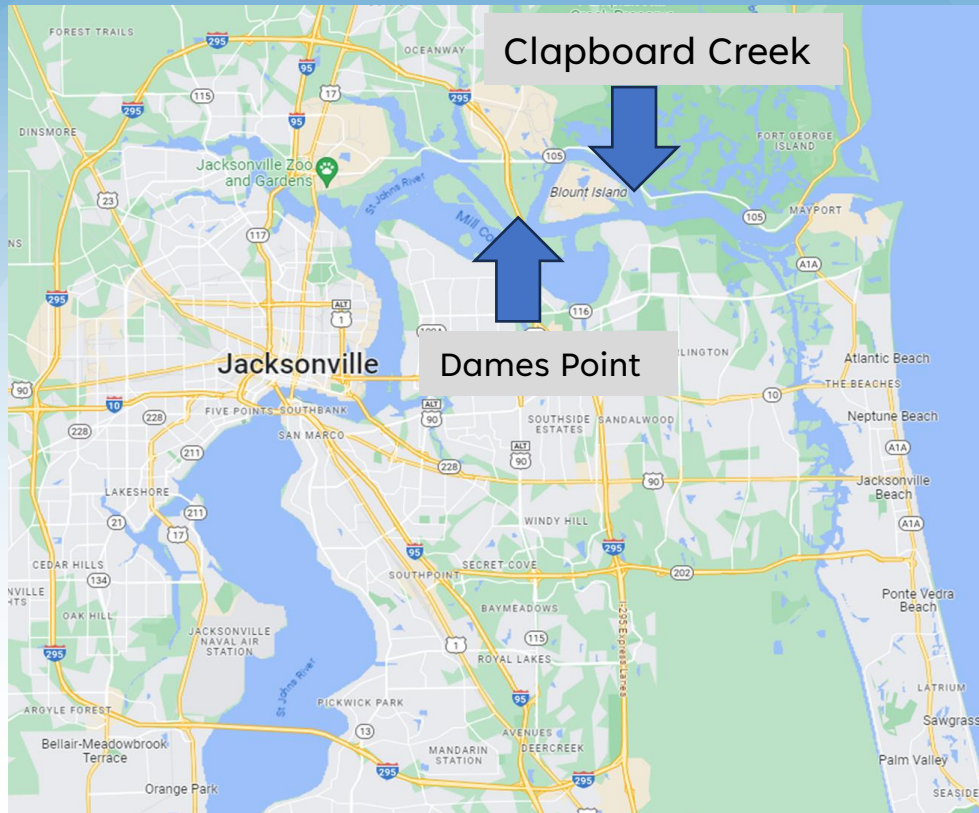
St. Johns River Water Management District



Georges Lake



Lower St. Johns River Marine Section Goal: Dissolved Oxygen



Goal: Protect marine organisms from low dissolved oxygen.

- **Fractional Exposure (FE) < 1**

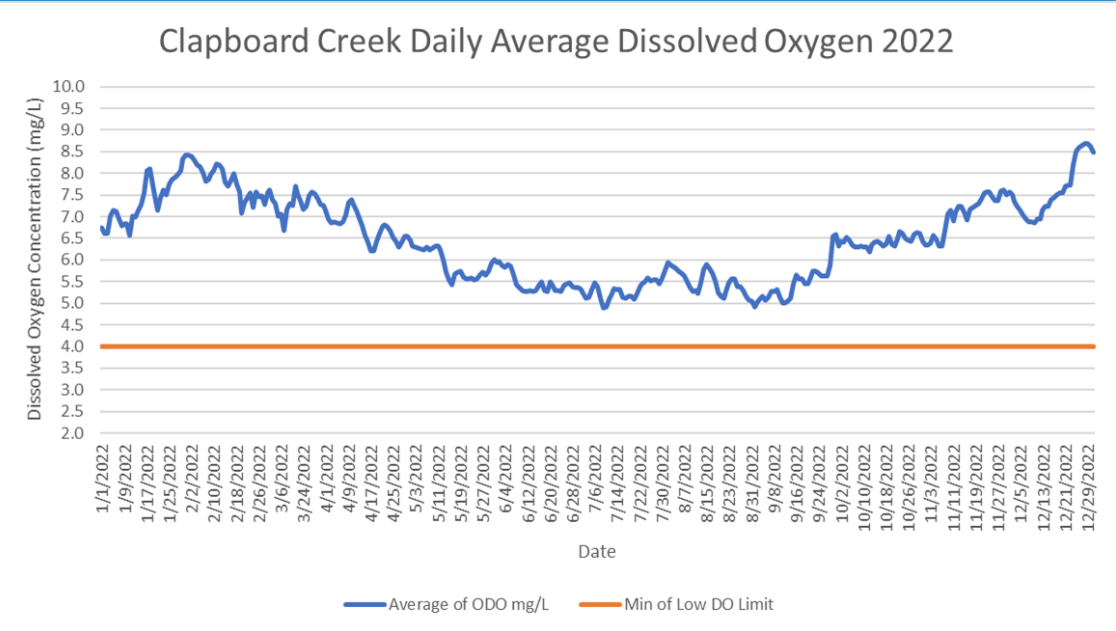
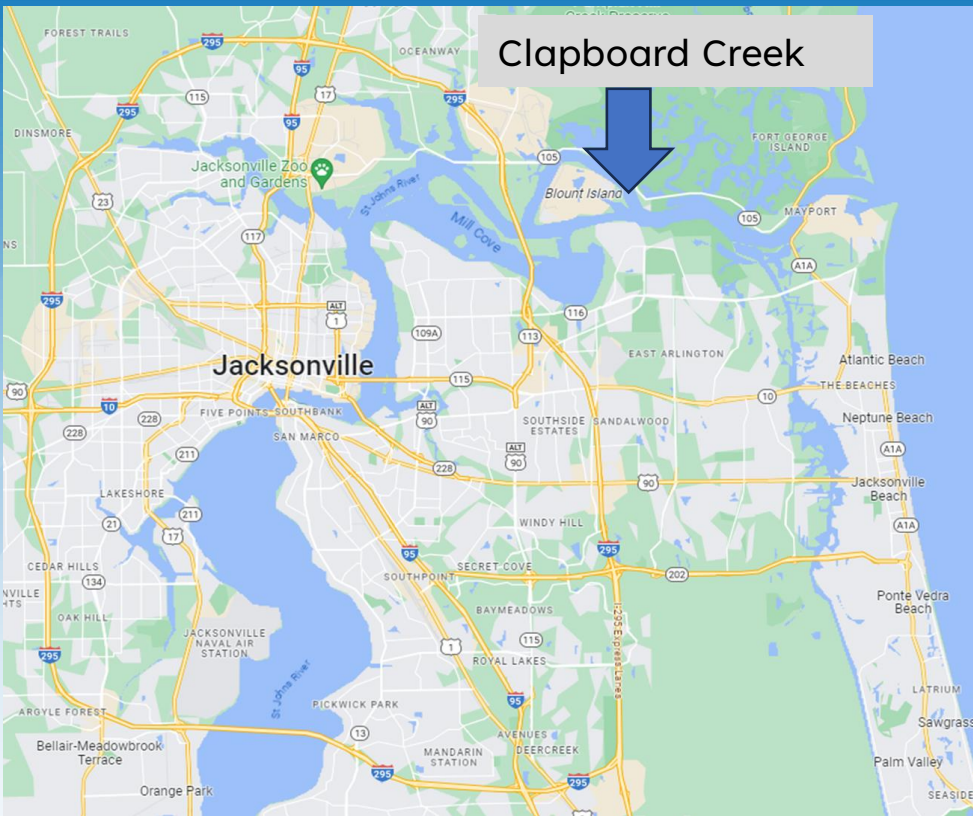
Two key monitoring stations:

- Dames Point Bridge, U.S. Geological Survey (USGS) Station
- Clapboard Creek, DEP Station
 - *Special thanks to Katrin Villinger and Michael King (DEP-ROC) for their fieldwork and data!*
 - *Thanks to Tiffany Busby for analysis and plots.*



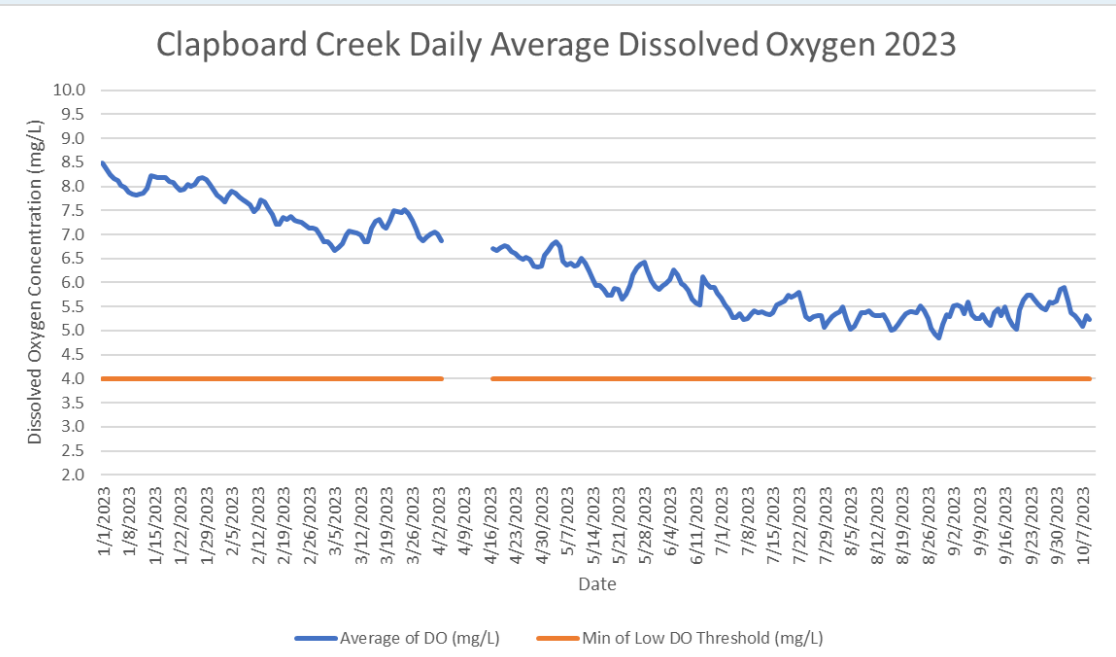
St. Johns River
Water Management District

Clapboard Creek Dissolved Oxygen

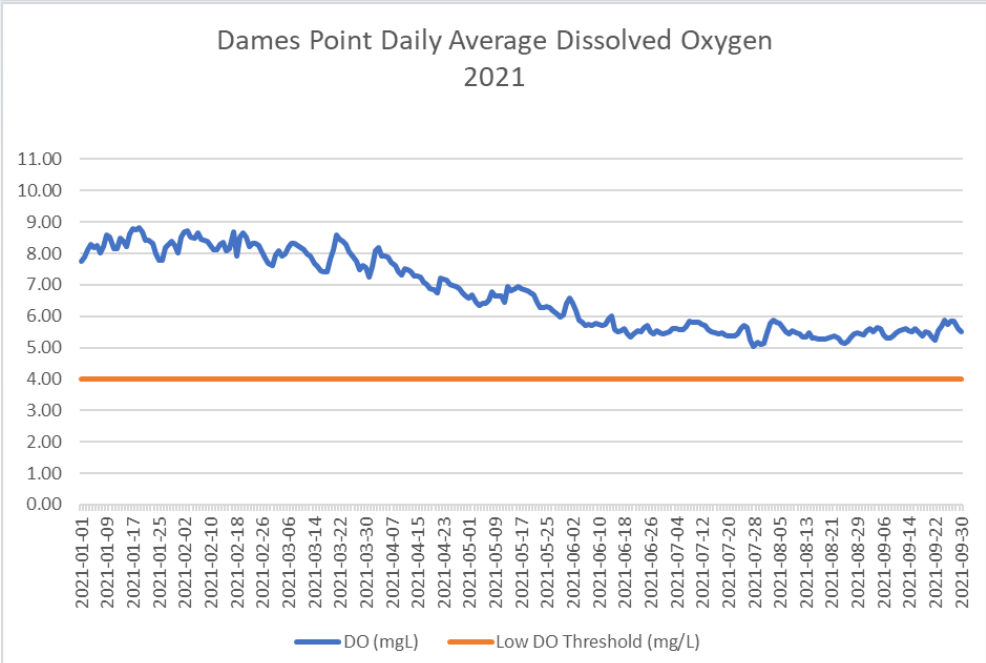
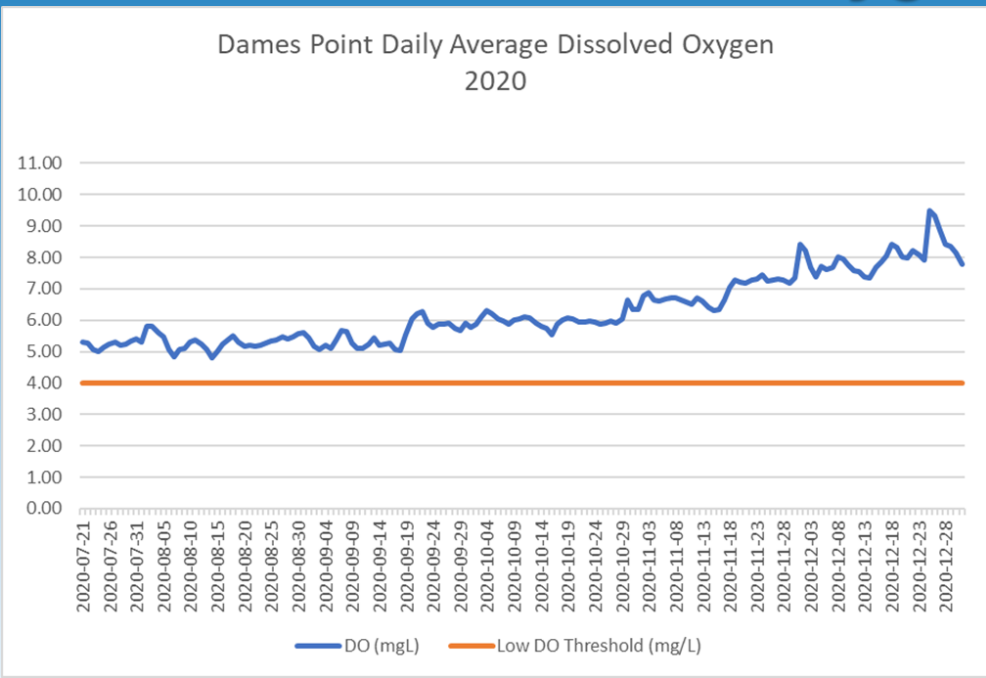
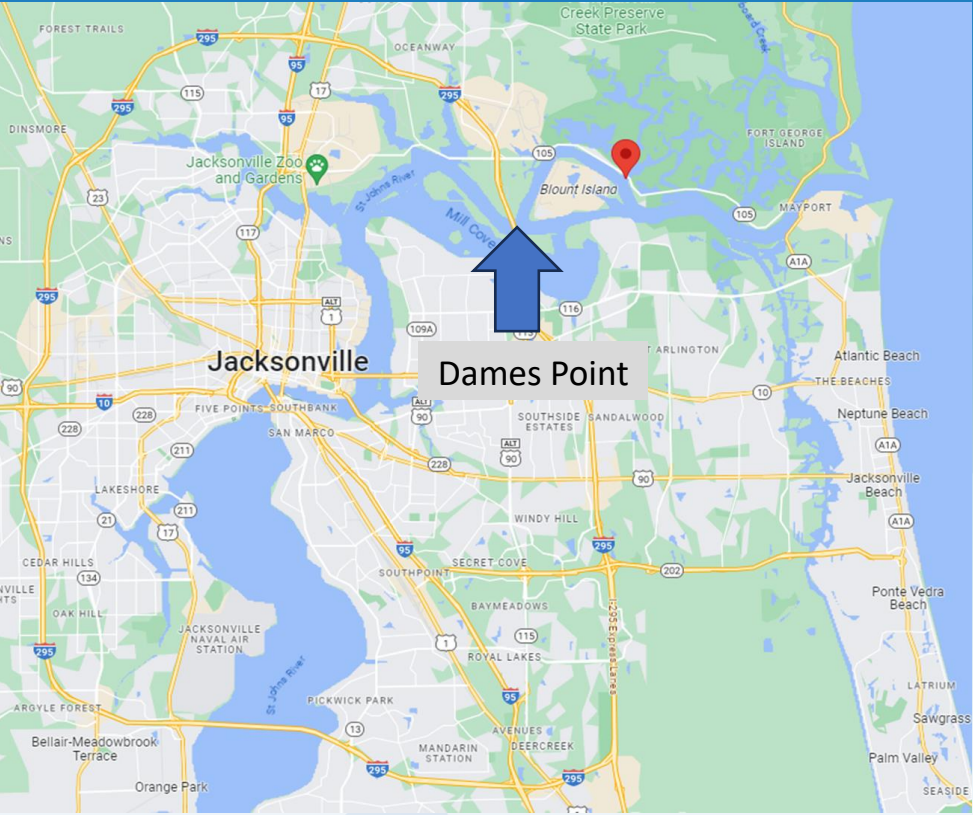


Year	Clapboard Creek FE	Dames Point FE	FE Goal
2019	0.783	0.073	< 1.0
2020		0.055	
2021	0.325	0.000	
2022	0.091		
2023	0.036		

Tiffany Busby provided plots and analyses



Dames Point Dissolved Oxygen

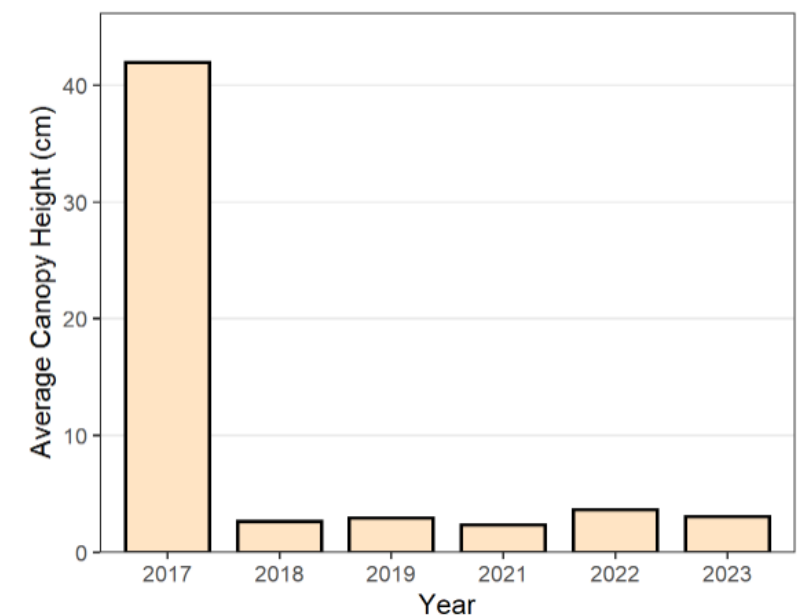
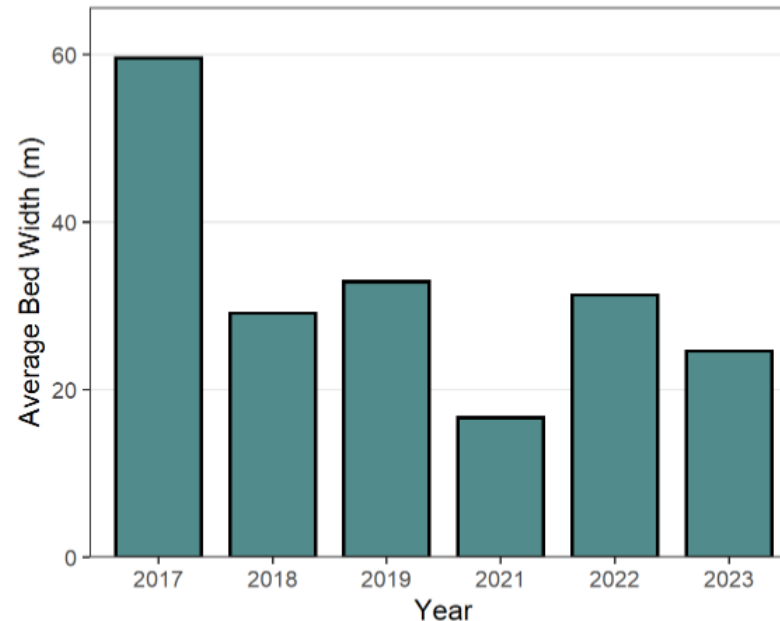
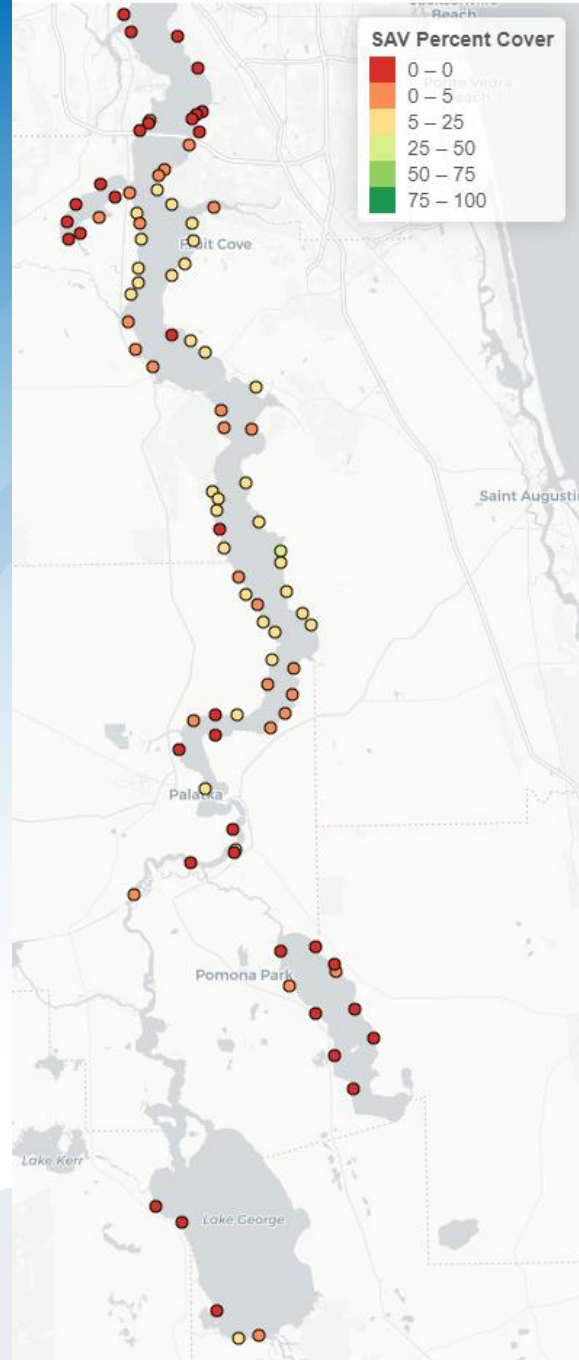


Year	Clapboard Creek FE	Dames Point FE	FE Goal
2019	0.783	0.073	< 1.0
2020		0.055	
2021	0.325	0.000	
2022	0.091		
2023	0.036		

Tiffany Busby provided plots and analyses

Submerged Aquatic Vegetation

- Canopy height, percent cover still low
- Bed size, percent occurrence slightly lower than 2022
- High water levels potentially the cause



Summary

- Freshwater chlorophyll-a goal potentially exceeded
- Marine dissolved oxygen goal met
- Harmful algal blooms persist
 - Routine samples indicate less severe than 2022
- Submerged aquatic vegetation persists
 - Decline in bed width from 2022
 - Canopy heights remain short compared to pre-Irma



Questions?



St. Johns River
Water Management District

Phosphorus, Nitrogen and Chlorophyll-a Trends 2007-2021

