CLFLWD
WATERSHED DISTRICT

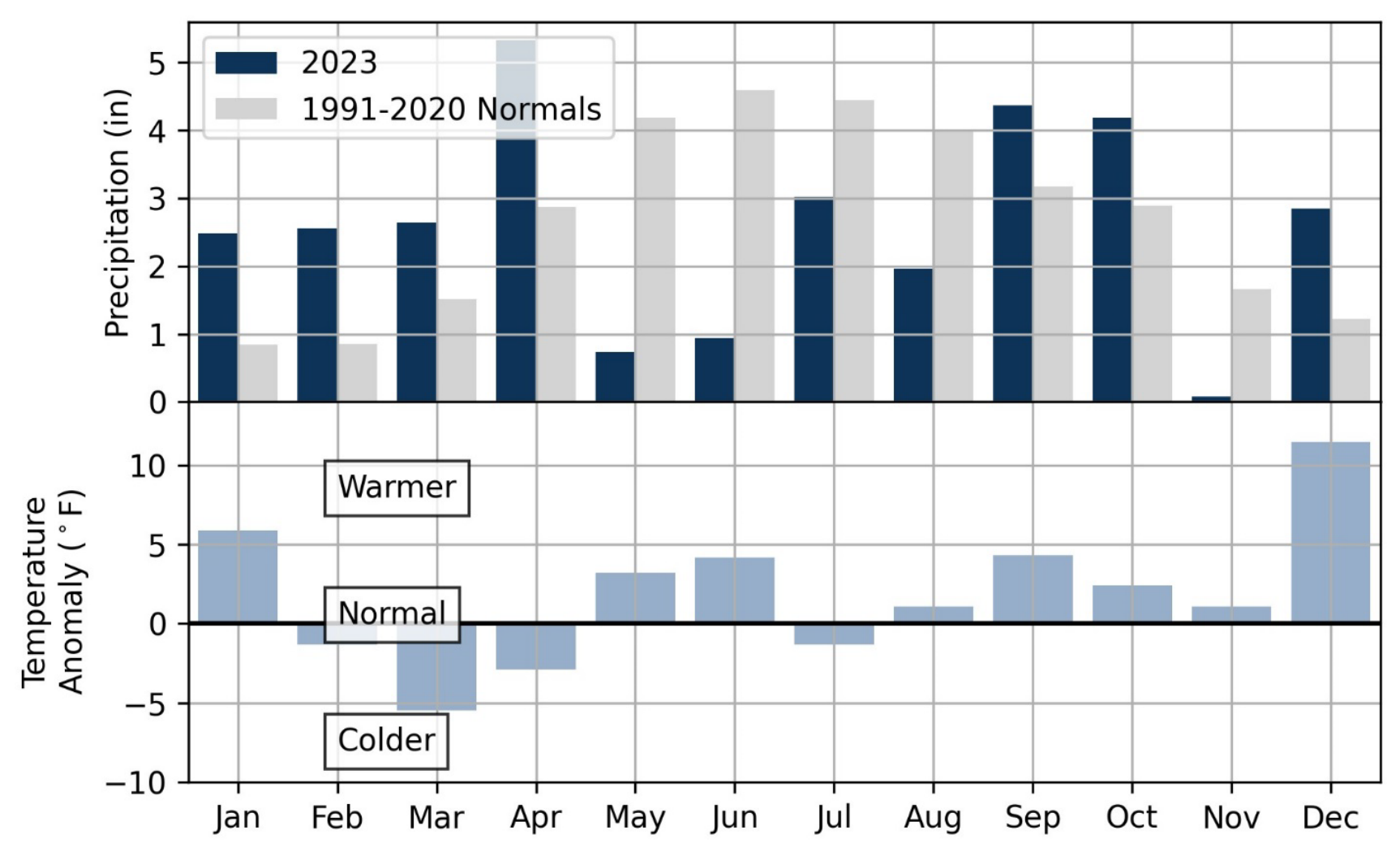
2023 Water Monitoring Report

April 11, 2024 Regular Board Meeting

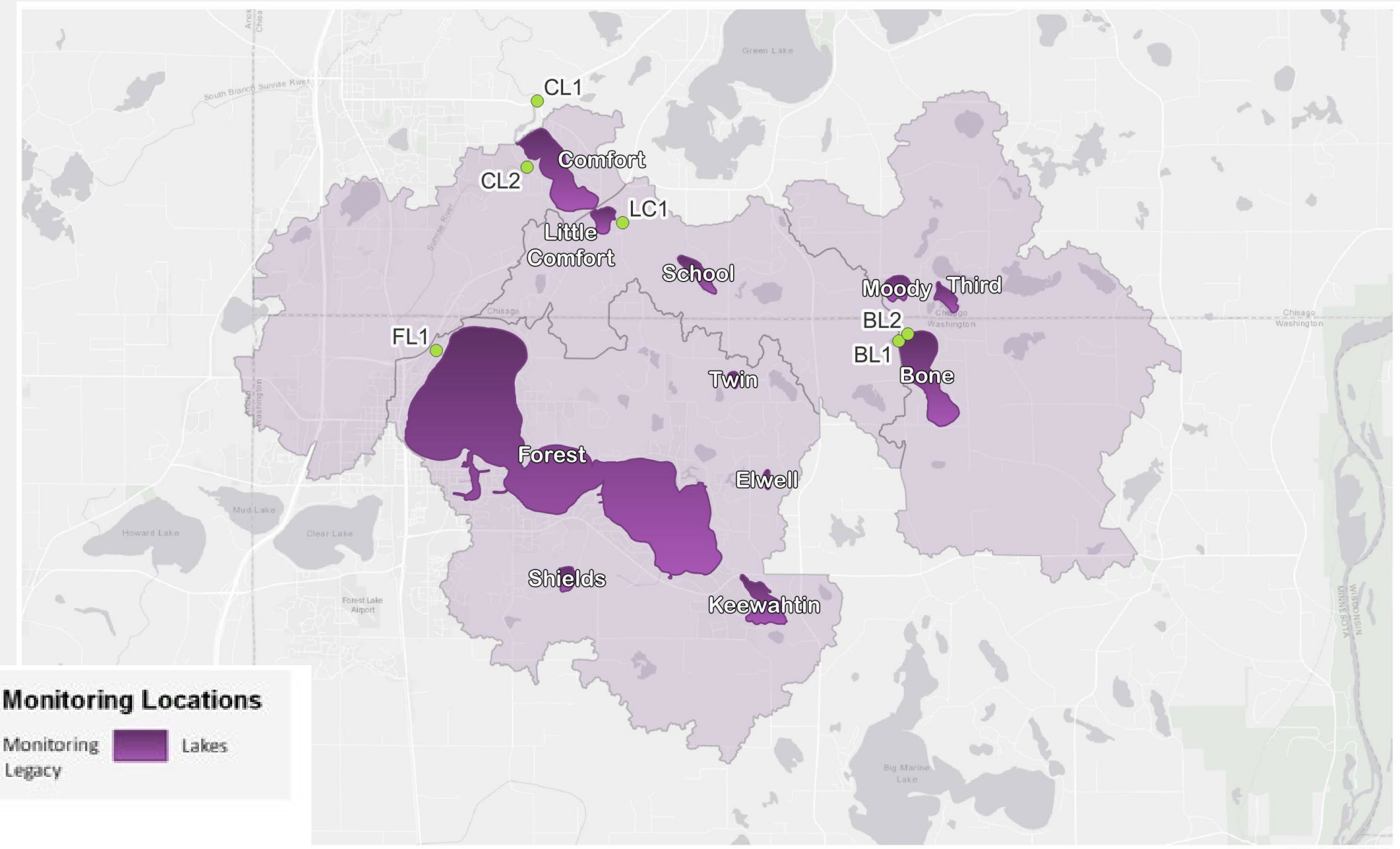
Emmons & Olivier Resources

Moody Lake Aerial, 2023

2023 Climate Trends



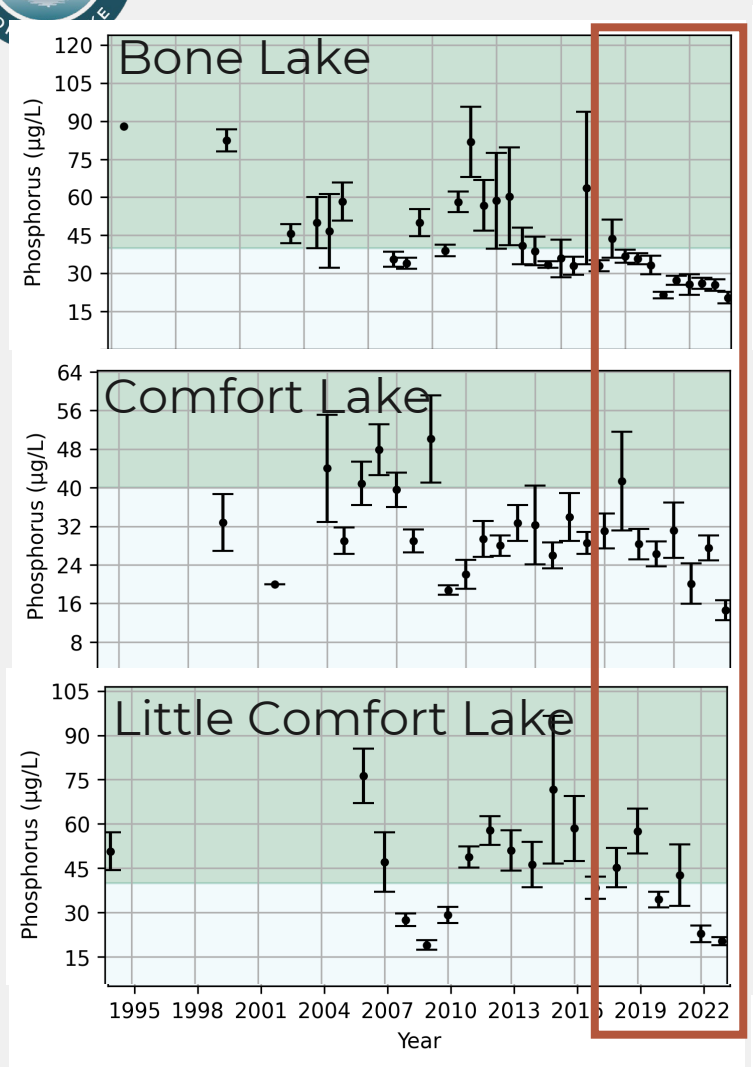
Monitoring Locations

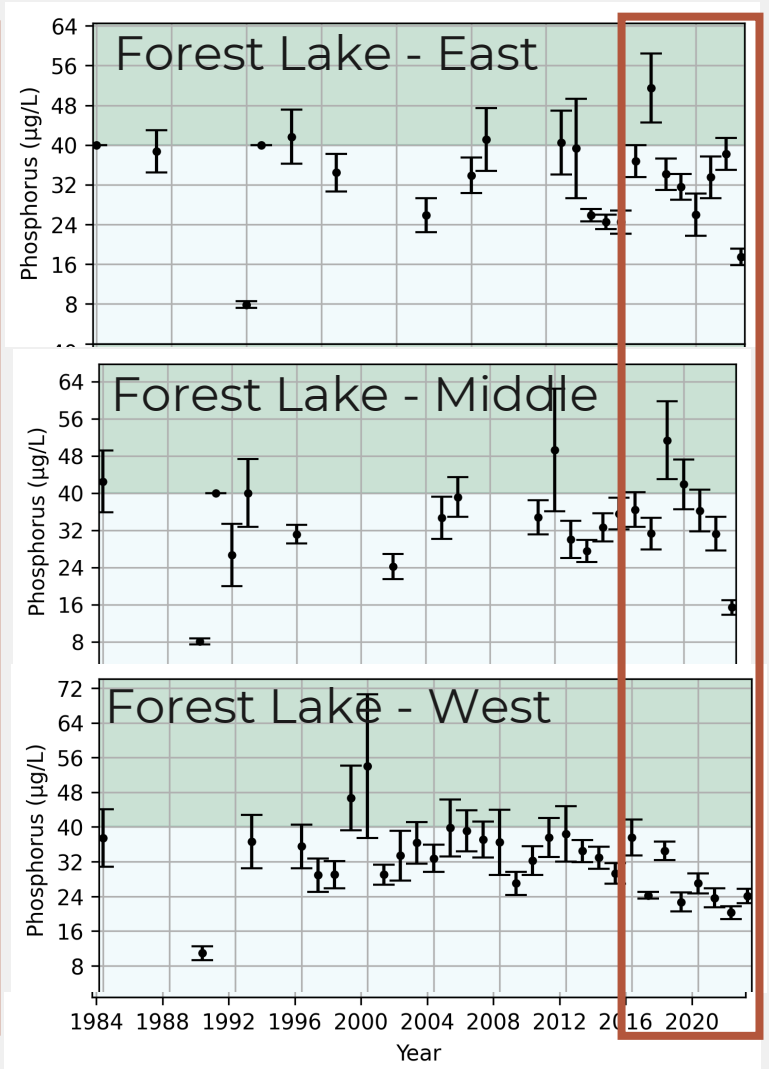


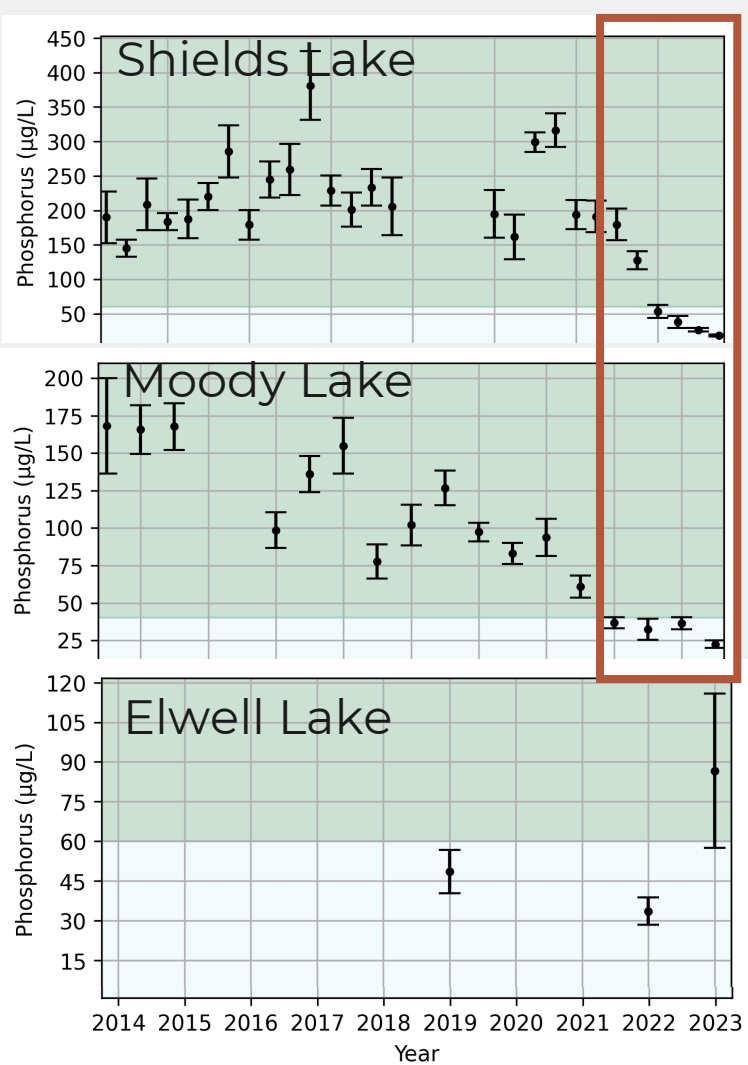
Lake Monitoring Trends

Lake	Total Phosphorus Trend	Chlorophyll-a Trend	Secchi Disk Trend
Bone	**Significantly Improving**	Improving	**Significantly Improving**
Comfort	Improving	**Significantly Improving**	**Significantly Improving**
Forest – West	**Significantly Improving**	**Significantly Improving**	**Significantly Improving**
Forest – Middle	Improving	Improving	Improving
Forest – East	Declining	Improving	Improving
Keewahtin	Improving	Improving	Declining
Little Comfort	**Significantly Improving**	Improving	Improving
Moody	**Significantly Improving**	Improving	Improving
Shields	**Significantly Improving**	Improving	Improving

Lake Monitoring Takeaways

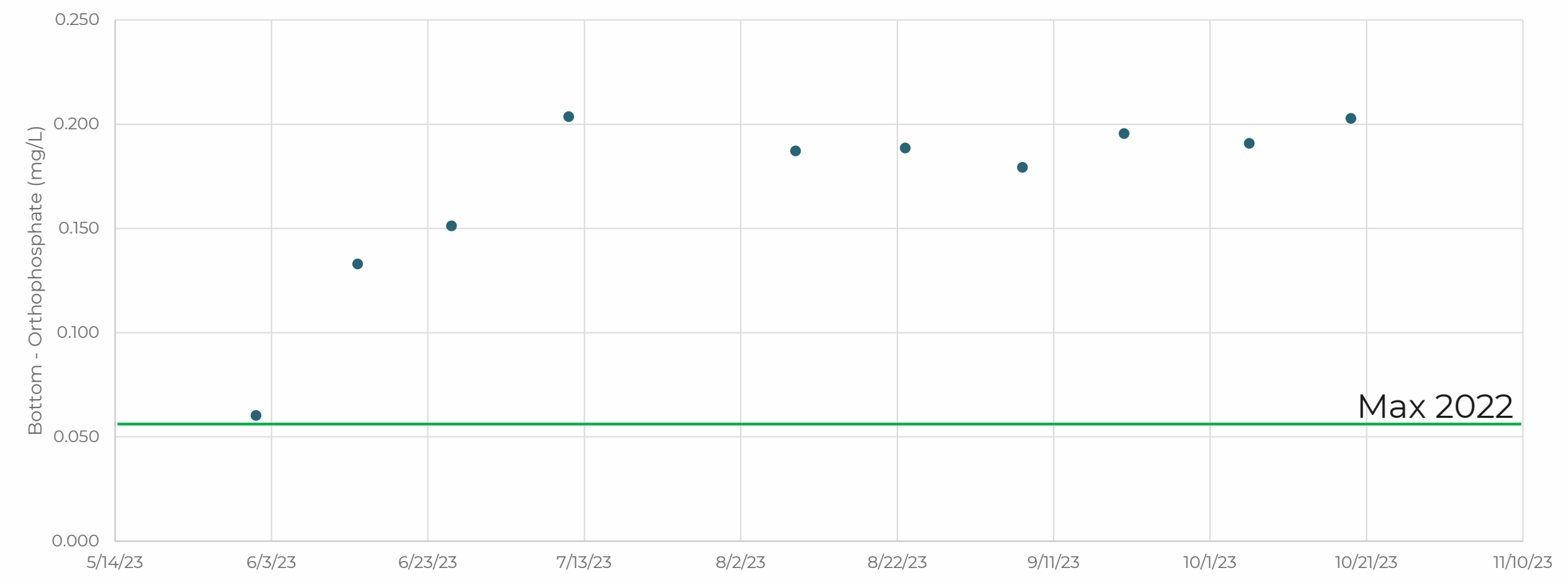






Lake Monitoring Takeaways- Internal Loading

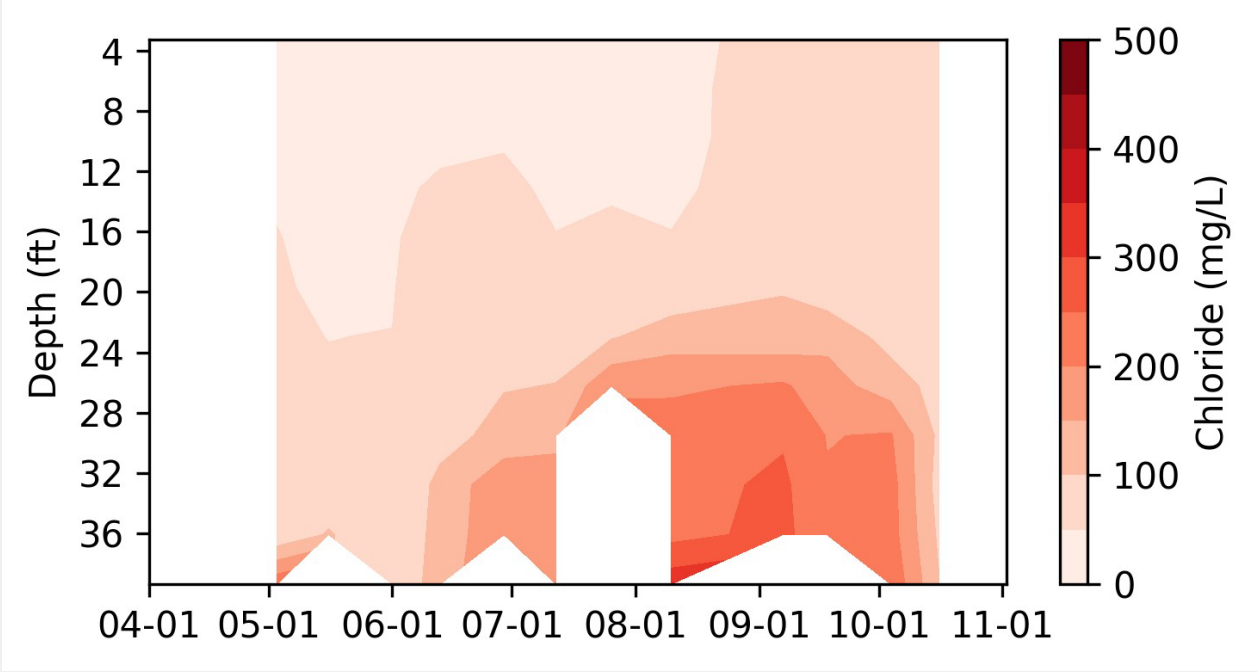
Moody Lake



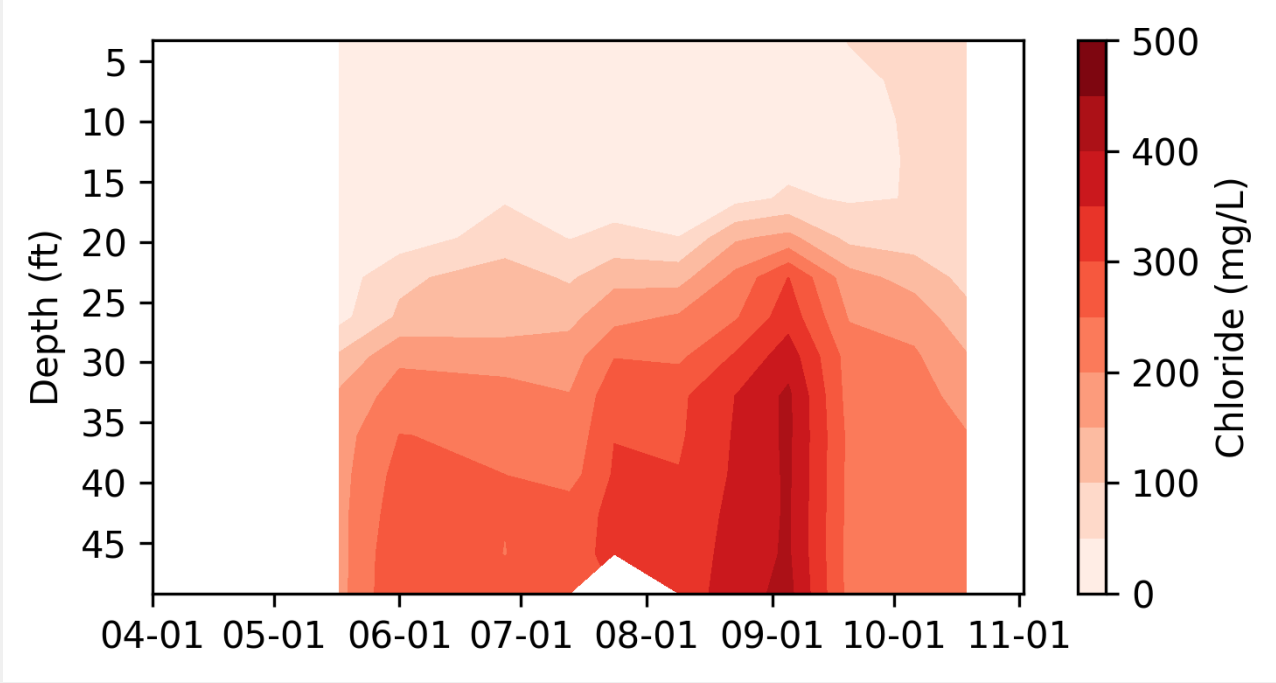
Pre-treatment Max ~2.0 mg/L

UPDATE Lake Monitoring Takeaways

Comfort Lake



Little Comfort Lake



Stream Legacy Site Takeaways

Monitoring Site		Drainage Area (acres)	Days of Flow	Number of Sample Events	Flow			Total Phosphorus		Total Suspended Solids	
					Daily Mean (cfs)	Volume (ac-ft)	Runoff depth (in)	FWMC (µg/L)	Load (lbs.)	FWMC (mg/L)	Load (lbs.)
Central Region Reference FWMC								**<100**		**< 30**	
Long-term Sites											
Bone Lake North Inlet	BL1	2,479	*	*	*	*	*	*	*	*	*
Bone Lake Outlet	BL2	5,495	194	7	4	1,626	4	**55**	**244**	**7**	**30,647**
Big Comfort Outlet	CL1	24,558	170	8	18	7,194	4	**64**	**1,251**	**11**	**208,357**
Big Comfort Inlet	CL2	13,625	197	7	6	1,918	2	63	327	6	30,202
Forest Lake Outlet	FL1	8,719	*	*	*	*	*	*	*	*	*
Little Comfort Inlet	LC1	10,513	197	8	5	1,894	2	**157**	**806**	**28**	**143,657**

* Not enough samples to calculate FWMC and loads.

Bolded values have very high coefficient of variation (i.e., high uncertainty > 0.5) and should be used with caution.

Shaded FWMC values exceed the Central Region Reference values.

Main Monitoring Takeaways from 2023

- General water quality trends in lakes are good and improved from last year
- Restoration projects continue to improve water quality
- Data from 2023 monitoring informed recommendations for future actions

Forest Lake Aerial, 2023

2024 Recommendations

Lake Monitoring

1. Continue monitoring lake monitoring as planned.
2. Collect follow up sediment cores for Forest Lake alum treatment to evaluate the second dose.
3. Collect additional hypolimnion water samples on Comfort Lake and Littler Comfort Lake to evaluate chloride levels in these systems.

Stream Monitoring

1. Evaluate the extent of tailwater impacts to water elevations for Little Comfort and Comfort Lakes.
2. Refine automatic monitoring to make data collection more efficient.

Little Comfort Lake Aerial, 2023