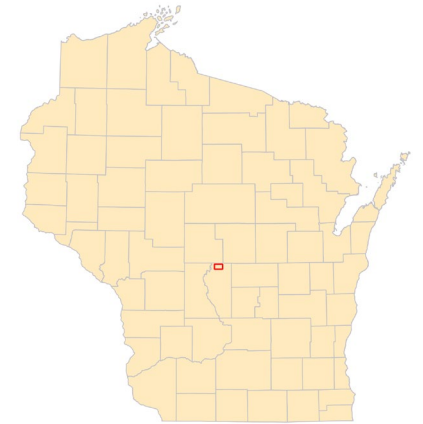


Tri Lakes Project Area / Monitoring Locations



EOR is monitoring **water quality data** to assess how nanobubble technology is doing to treat harmful algae blooms



Adams County
Wisconsin



MONITORING KEY:

 Buoy Locations  Monitoring Locations  Nanobubblers

0 2,500 5,000 ft



Understanding Data Types

Biological	Submerged Aquatic Vegetation
	Chlorophyll
	Phytoplankton
	Zooplankton
	Realtime Buoys (Chlorophyll, Cyanobacteria)

BIOLOGICAL DATA:

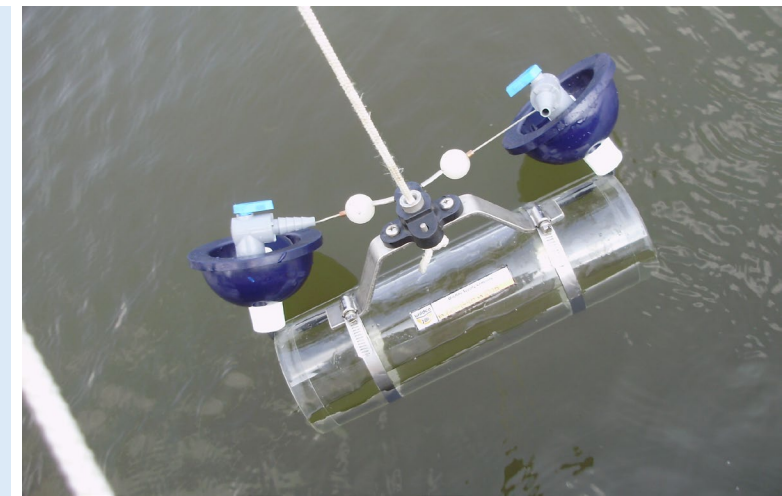
helps us understand the communities of plants and animals within the lake. It indicates whether there is a harmful algae bloom (HAB).



Chemical	Dissolved Oxygen (DO) Profiles
	<u>Nitrogen series:</u>
	React P, Total P
	BOD5
	TOC/DOC
	Realtime Buoys (DO, pH, ORP)

CHEMICAL DATA:

indicates nutrients within the water. When nutrients are above certain thresholds, they can promote the growth of harmful algae blooms (HAB's).



Physical	Bottom Hardness Survey
	Temperature Profiles
	Realtime Buoys (Temperature)

PHYSICAL DATA:

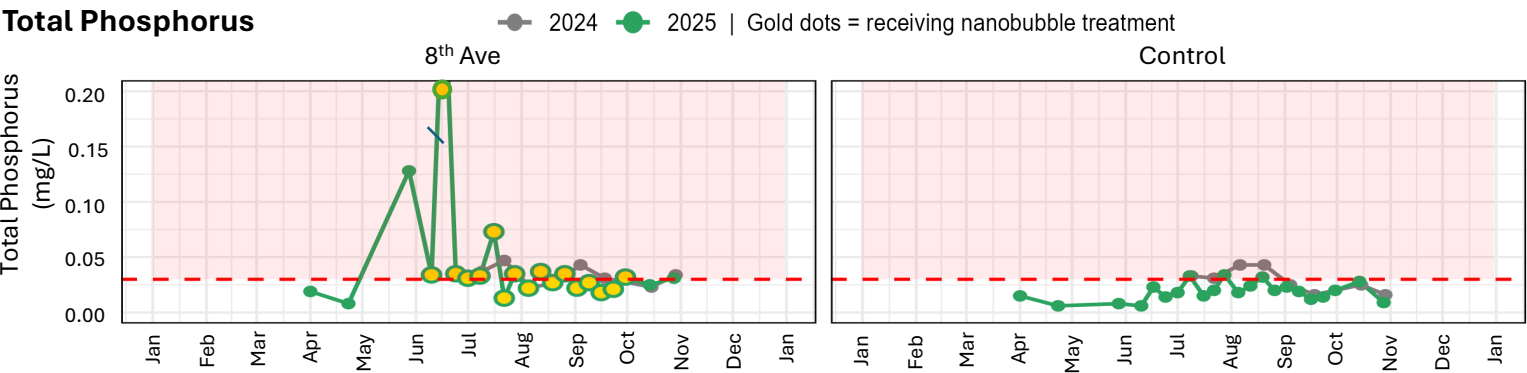
helps us understand lake processes that might promote the growth of HAB's



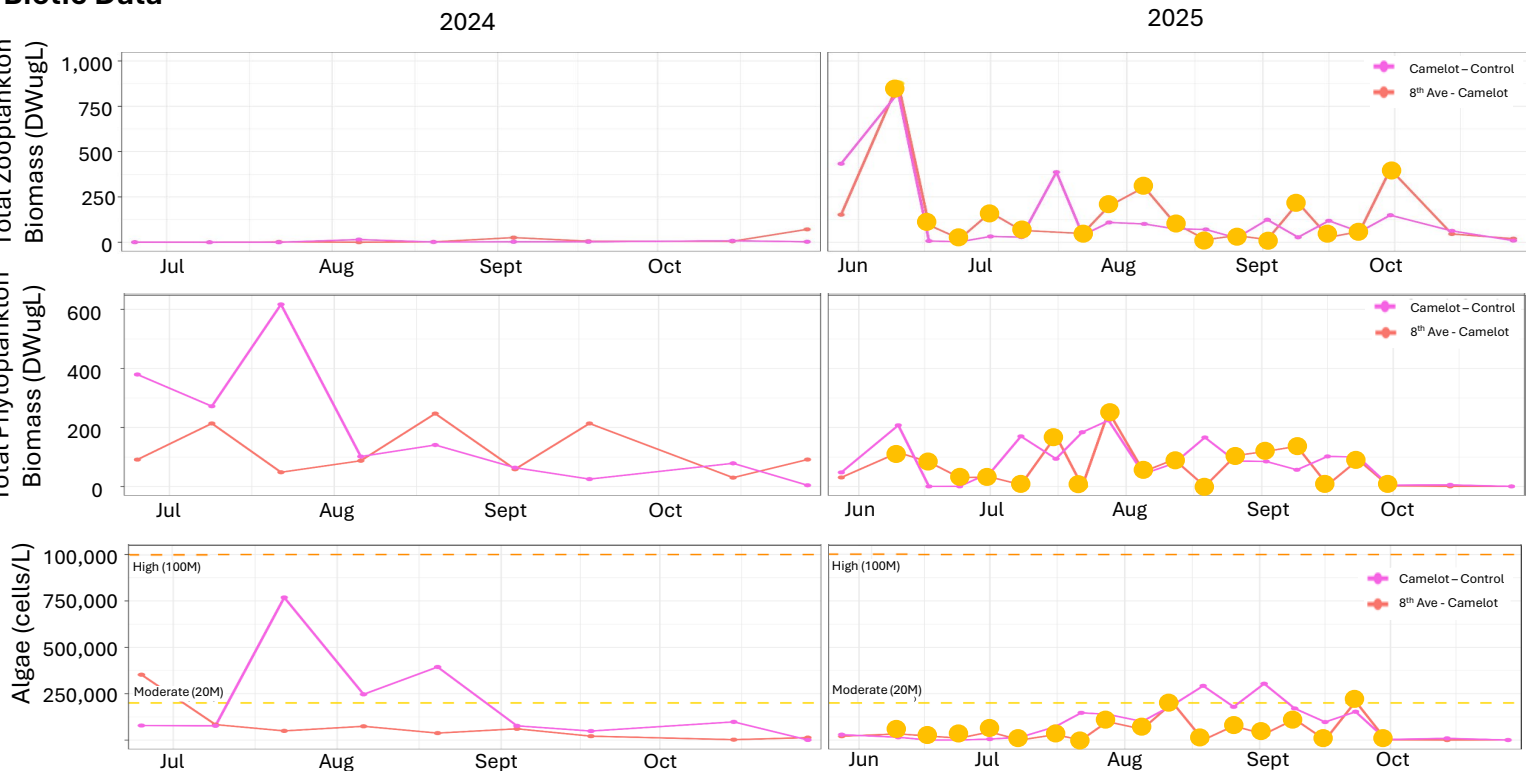


Lake Camelot: Biological & Chemical data

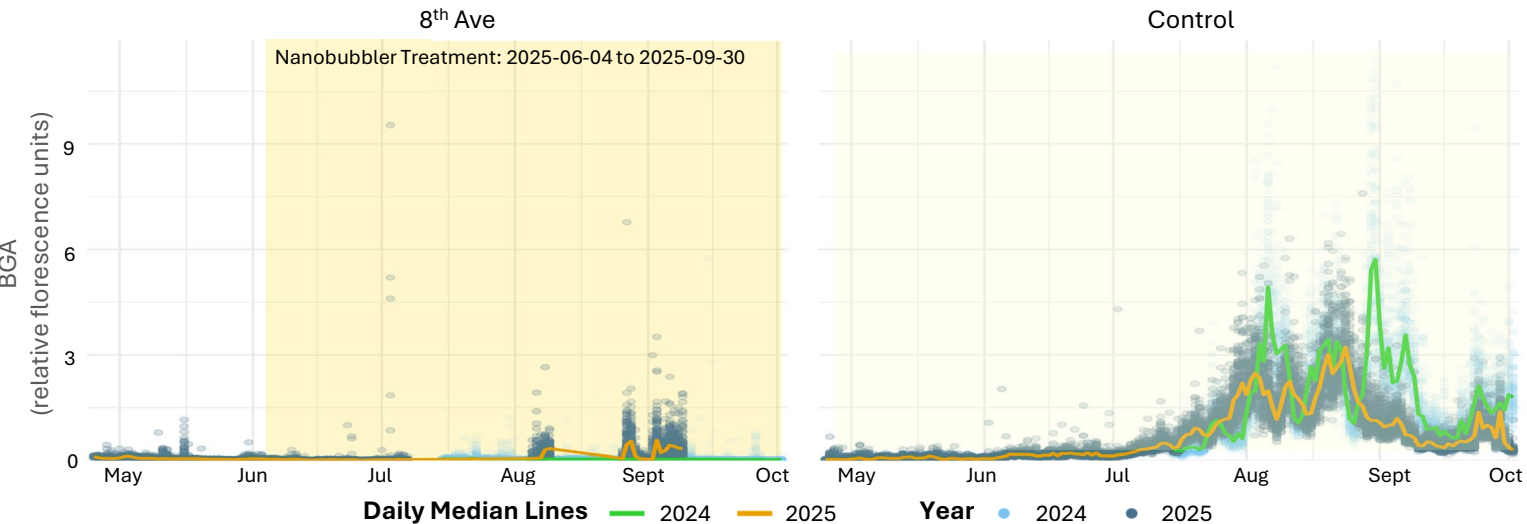
Total Phosphorus



Biotic Data



Yellow dots = Treatment active | Dashed lines = Alert thresholds



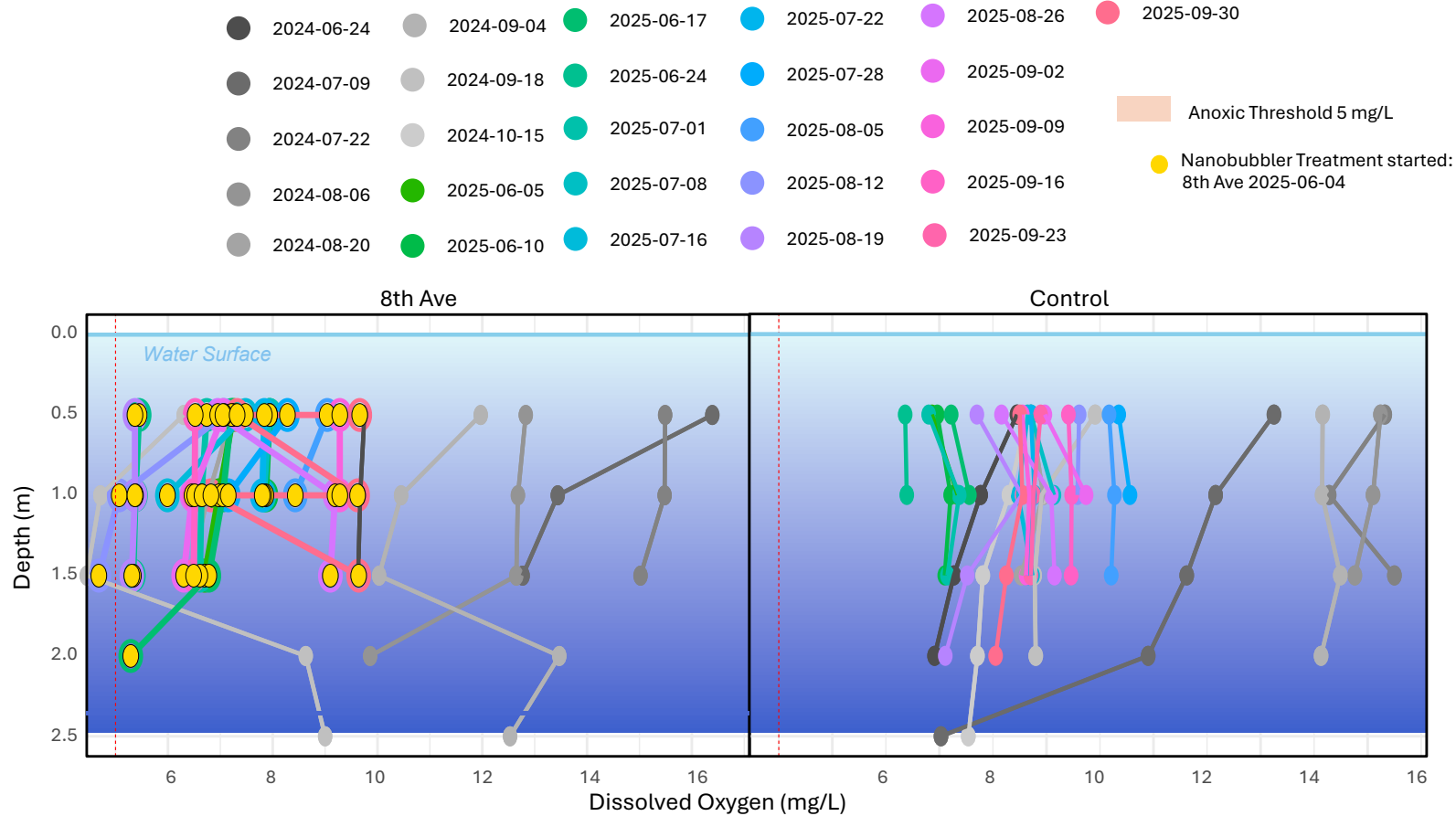
LAKE CAMELOT KEY TAKEAWAYS

1. In general, TP is close to the standard with some large peaks at 8th Ave.
2. TP concentration dynamics are similar in trend and magnitude at 8th Ave and control, with some local maxima.
3. The water column is well mixed
4. Biotic parameters are similar in magnitude at 8th Ave and the control for algae and zooplankton.
5. Cyanobacteria trend and magnitude is similar in 2024 and 2025 at 8th Ave.

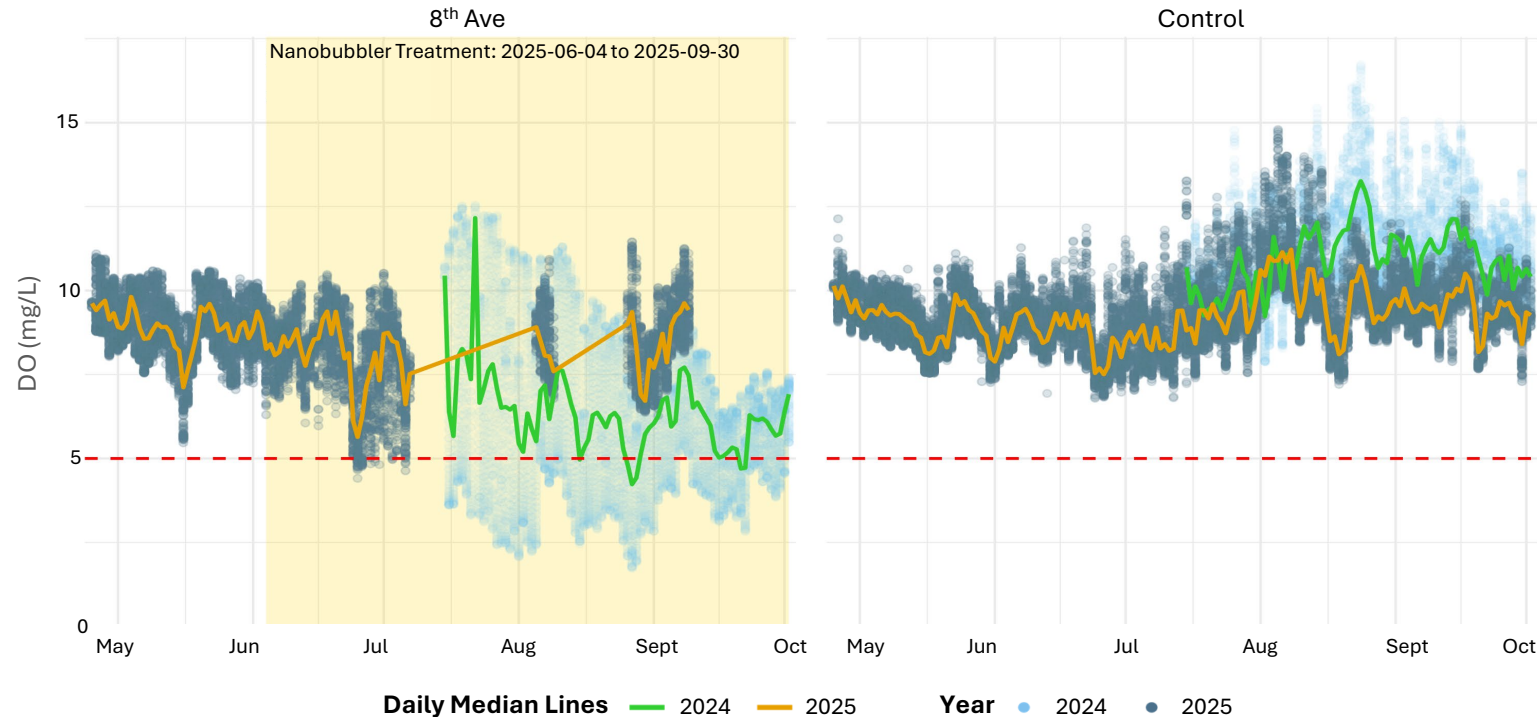


Lake Camelot : Dissolved Oxygen

Dissolved Oxygen Profiles



Bouy Dissolved Oxygen (DO)



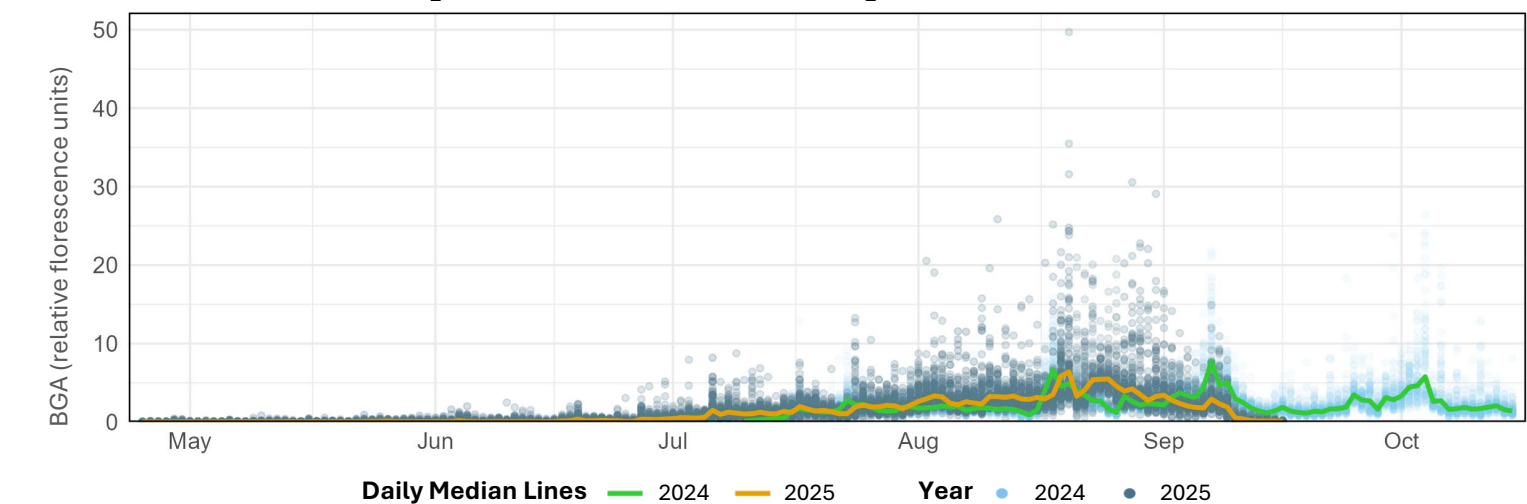
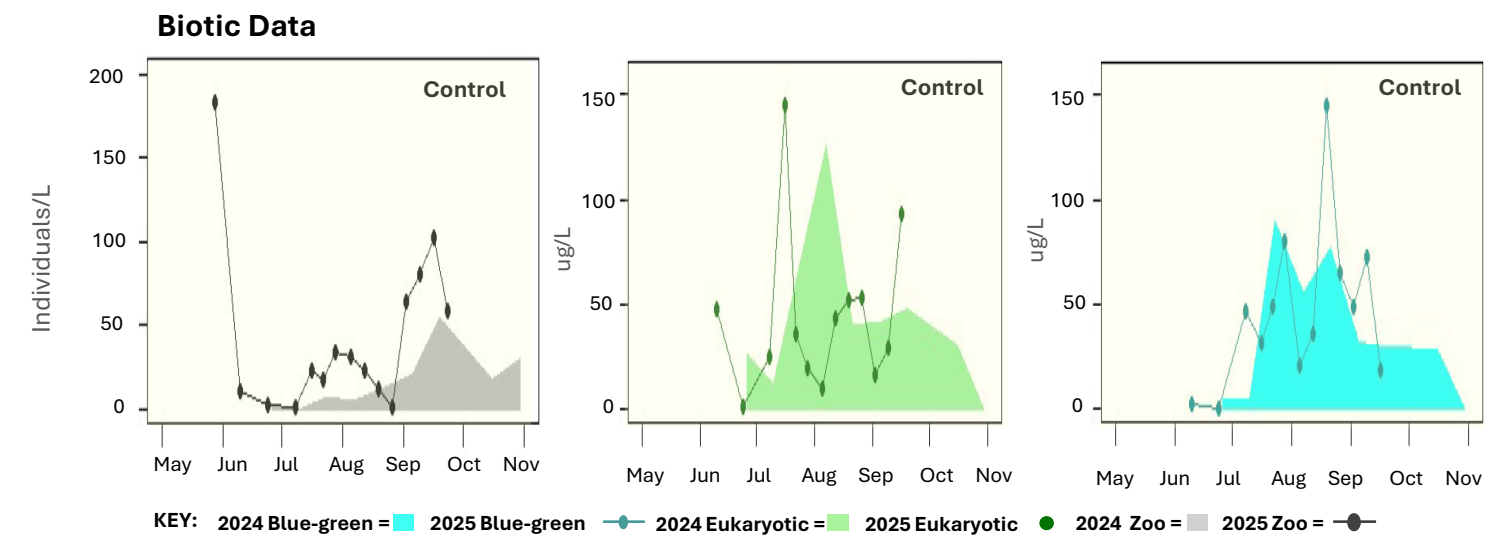
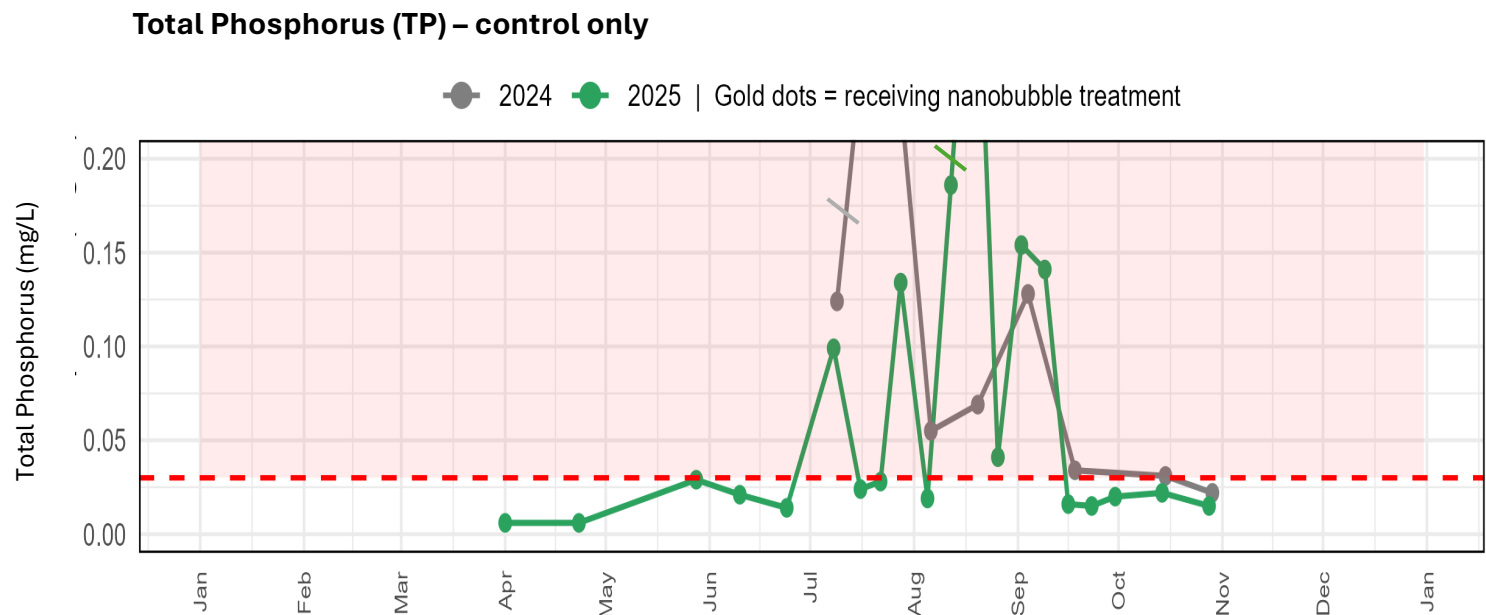
LAKE CAMELOT KEY TAKEAWAYS

1. In general, there is lower DO concentrations observed throughout the water column in 2025 at 8th Ave and the control compared to 2024.
2. The continuous DO concentrations at the surface are similar amongst 8th Ave and the control in 2025.
3. The continuous DO concentration at 8th Ave were higher in late summer compared to 2024 regardless of treatment.*

**Continuous measurements at 8th Ave were sporadic in late summer due to buoy malfunction*



Lake Arrowhead: Biological & Chemical Data



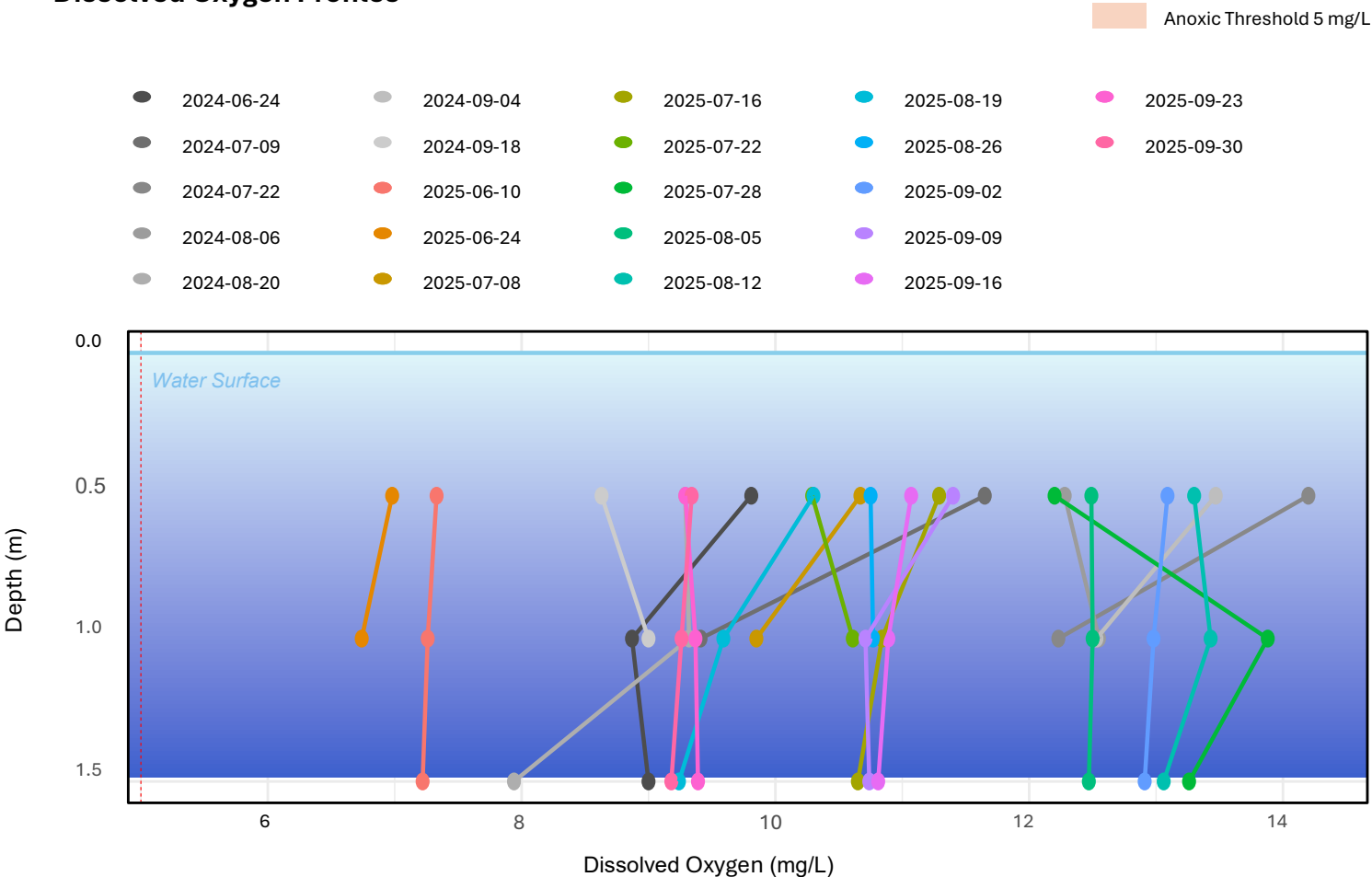
LAKE ARROWHEAD KEY TAKEAWAYS

1. Phosphorus concentrations had higher peaks in 2025 compared to 2024.
2. Marginally higher concentrations of zooplankton comparing 2024 and 2025.
3. Similar phytoplankton concentrations trends and magnitude comparing 2024 and 2025.

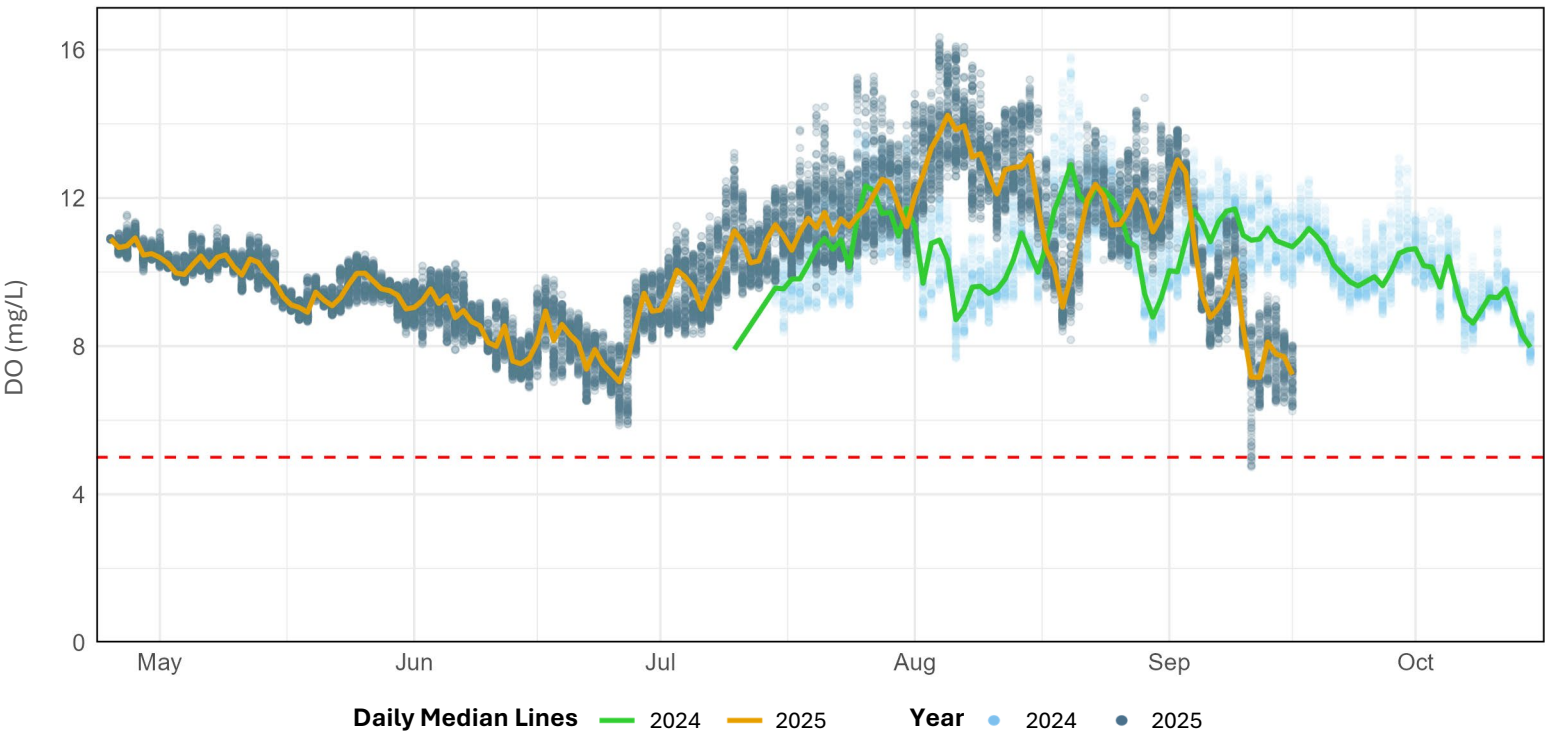


Lake Arrowhead : Dissolved Oxygen

Dissolved Oxygen Profiles



Buoy Dissolved Oxygen (DO) – control only



LAKE ARROWHEAD KEY TAKEAWAYS

1. DO concentrations are consistently higher than the anoxic threshold and there is little evidence of significant stratification
2. DO concentrations consistent in 2024 and 2025 until September 2025 when the DO concentrations decreased



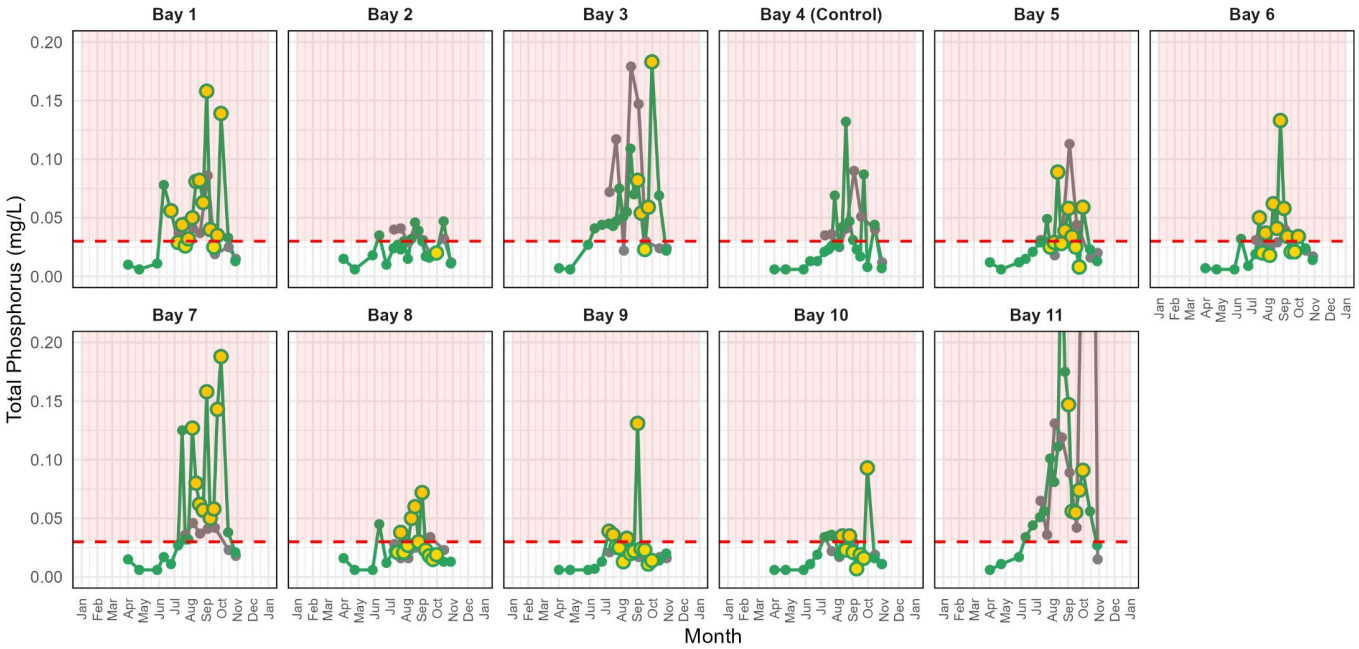
Lake Sherwood: Biological & Chemical Data

Total Phosphorus

Nanobubbler Treatment started:

Bay 1 2025-06-21	Bay 6 2025-07-15	Bay 9 2025-07-02
Bay 2 2025-09-25	Bay 7 2025-08-05	Bay 10 2025-08-06
Bay 5 2025-07-25	Bay 8 2025-07-14	

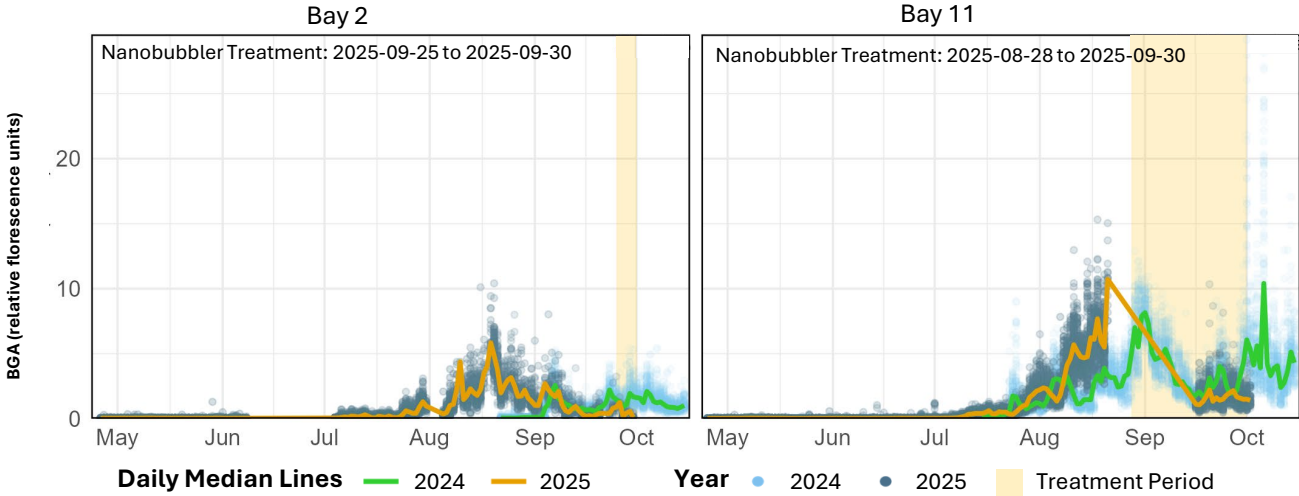
2024 2025 | Gold dots = receiving nanobubble treatment



Biotic Data

2024

2025



LAKE SHERWOOD KEY TAKEAWAYS

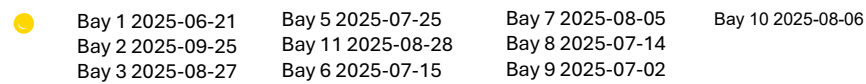
- 1. TP concentrations are exhibiting similar magnitudes in 2024 and 2025, with some local maxima.
- 2. The bottom and surface TP are similar concentrations, indicating there is no significant nutrient stratification.
- 3. There are similar magnitudes for biotic data amongst the treated bays and the control for 2025.



Lake Sherwood: Oxygen Data

Dissolved Oxygen Profiles

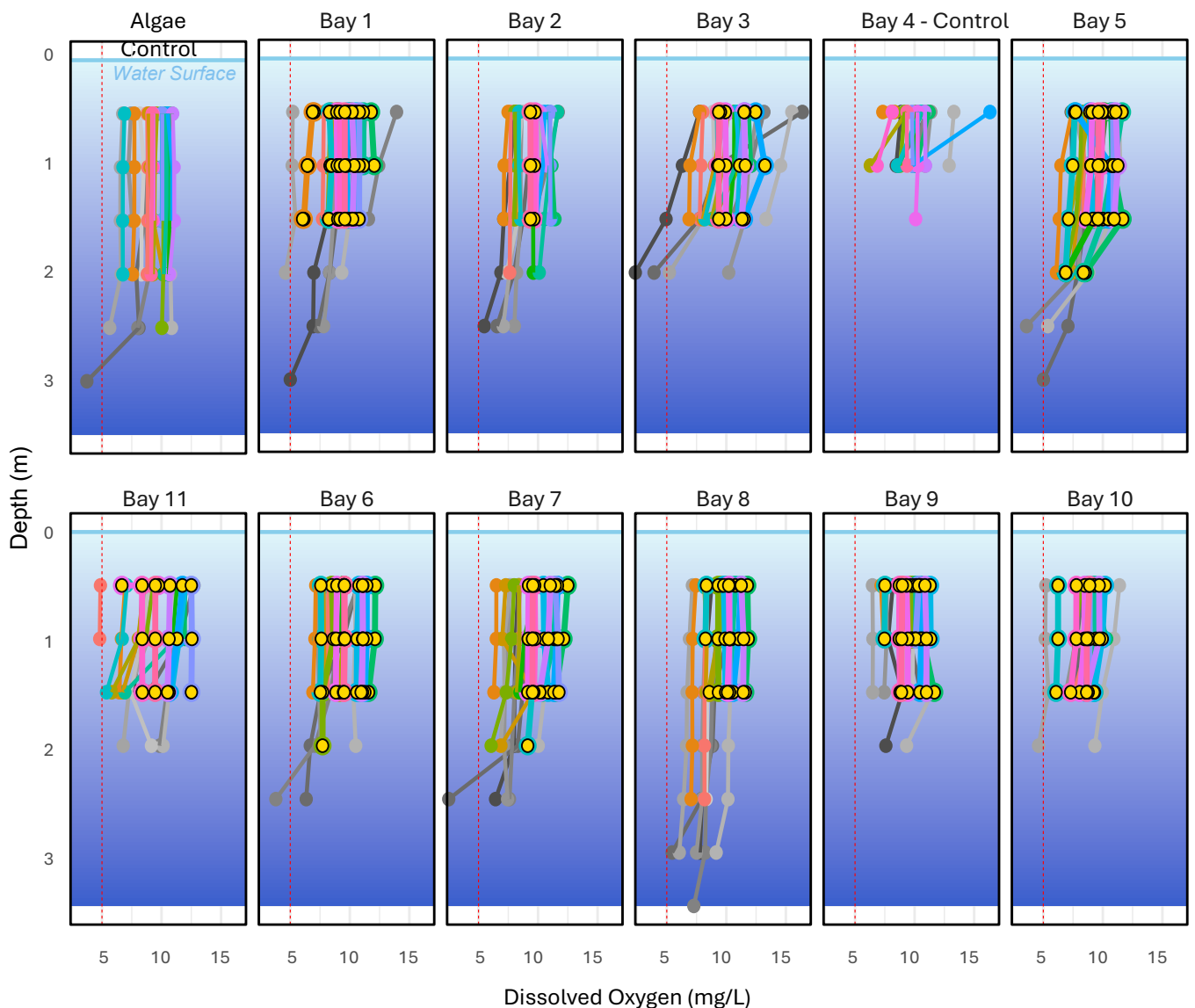
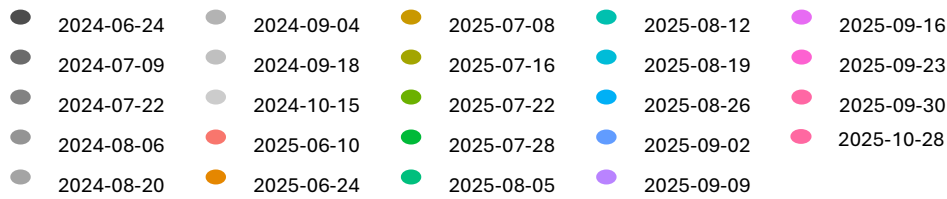
Nanobubbler Treatment started:



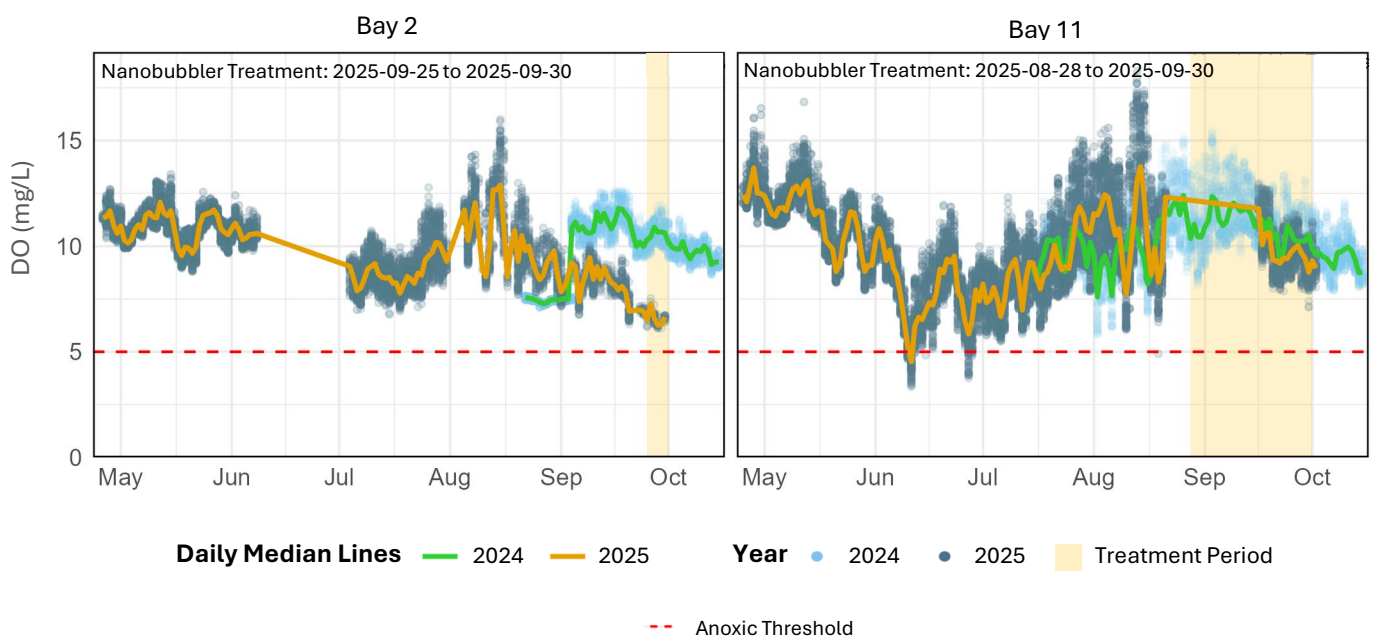
Nanobubbler Treatment ended: All Bays 2025-09-30

Anoxic Threshold 5 mg/L

Sample Dates



Bouy Dissolved Oxygen (DO)



LAKE SHERWOOD KEY TAKEAWAYS

1. In some bays, the post treatment profiles show a slightly higher DO concentration throughout the water column. 
2. The bottom DO continues to be above the anoxic threshold
3. In general, the trend is the same for DO the sediments
4. Continuous DO showing seasonal variability but does not appear to be dependent on the treatment period 



Lake Sherwood