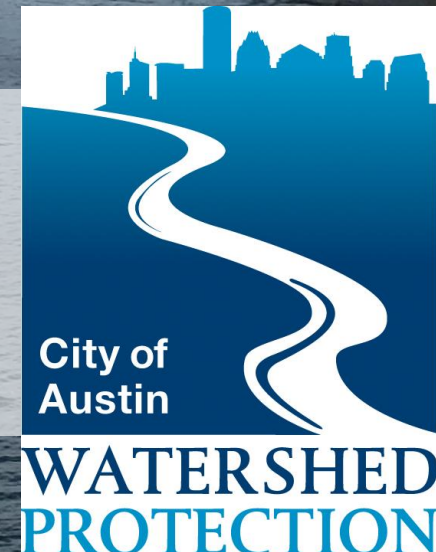


The Reservoir Update - 2021



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June 15, 2022



2021/2022 Projects

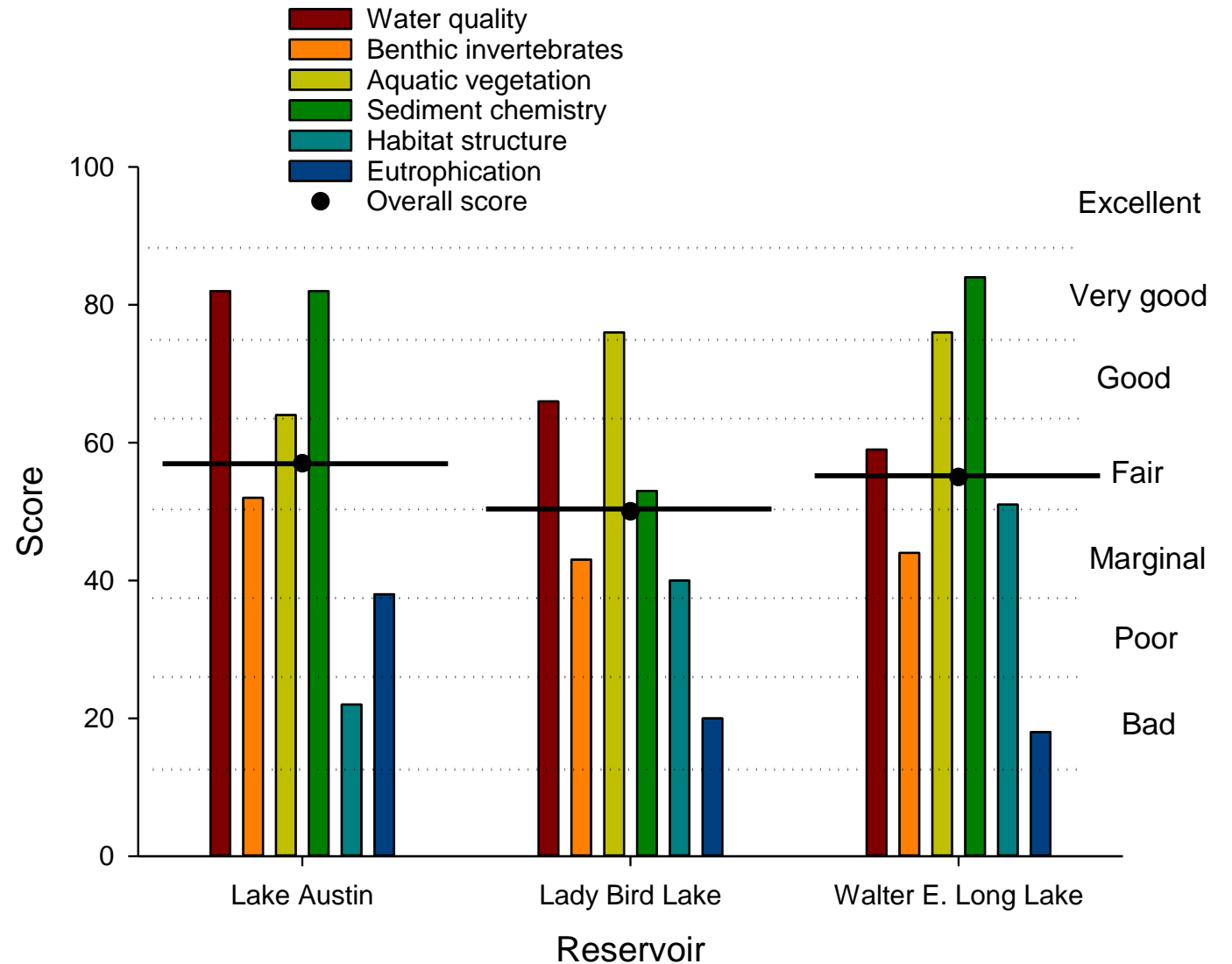
- On-going Projects
 - Reservoir monitoring – Austin Lakes Index (ALI) of Lake Austin, Lady Bird Lake, Lake Walter Long
 - Lake Austin native plant restoration
 - Collaboration with TPWD fishery monitoring
 - Zebra Mussel monitoring
 - Harmful Algal Proliferation (HAP) monitoring
 - With added sites
- New Projects
 - Lady Bird nutrient management toward HAP mitigation
 - Collaboration with UT toward sediment bedform mapping and microplastic observations



Austin Lakes Index (ALI)

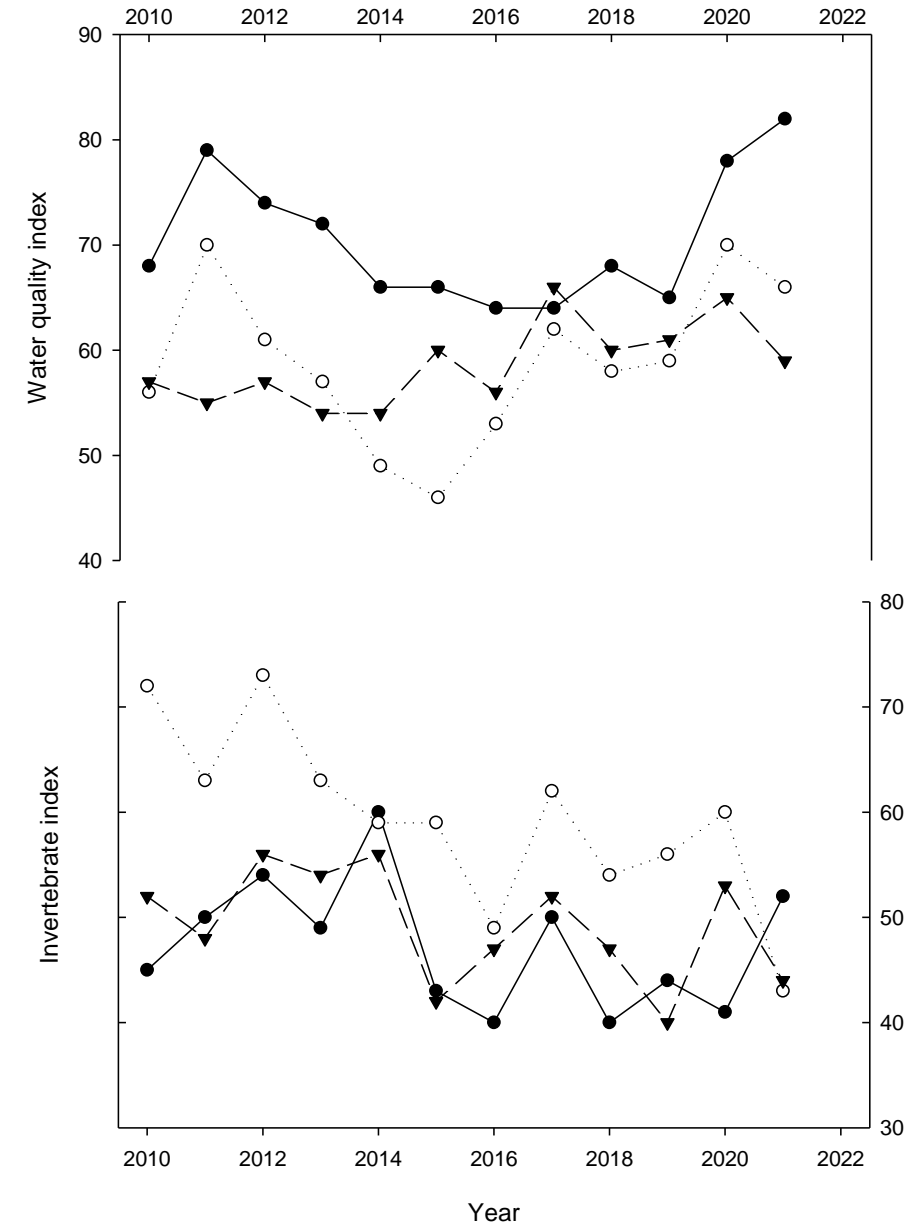
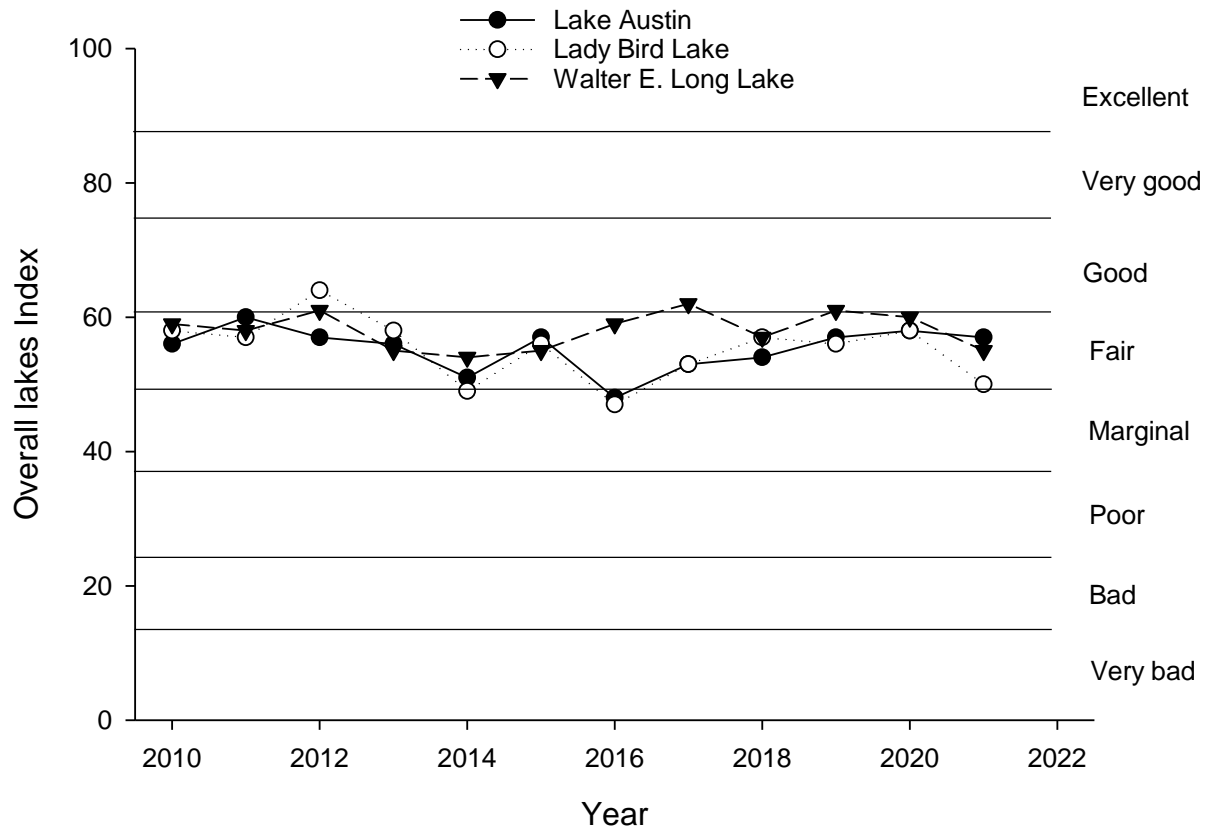
Current reservoir condition

- Water quality, sediments, aquatic vegetation generally above average
- Benthic invertebrates, habitat, eutrophication generally below average



Temporal Trends

- Although overall scores appear steady, sub-index components can have large variability



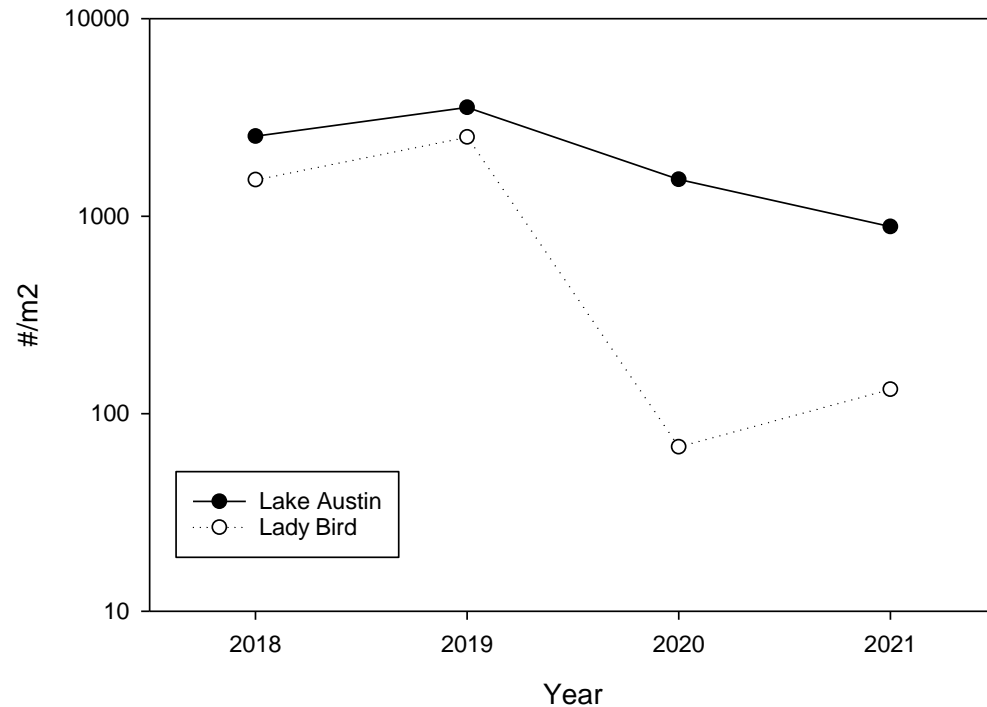
Re-vegetation Efforts

- Macrophytes doing well in cages in both reservoirs, thriving outside of cages in LBL
 - Maintained existing pens in both reservoirs, added new pens to Lake Austin

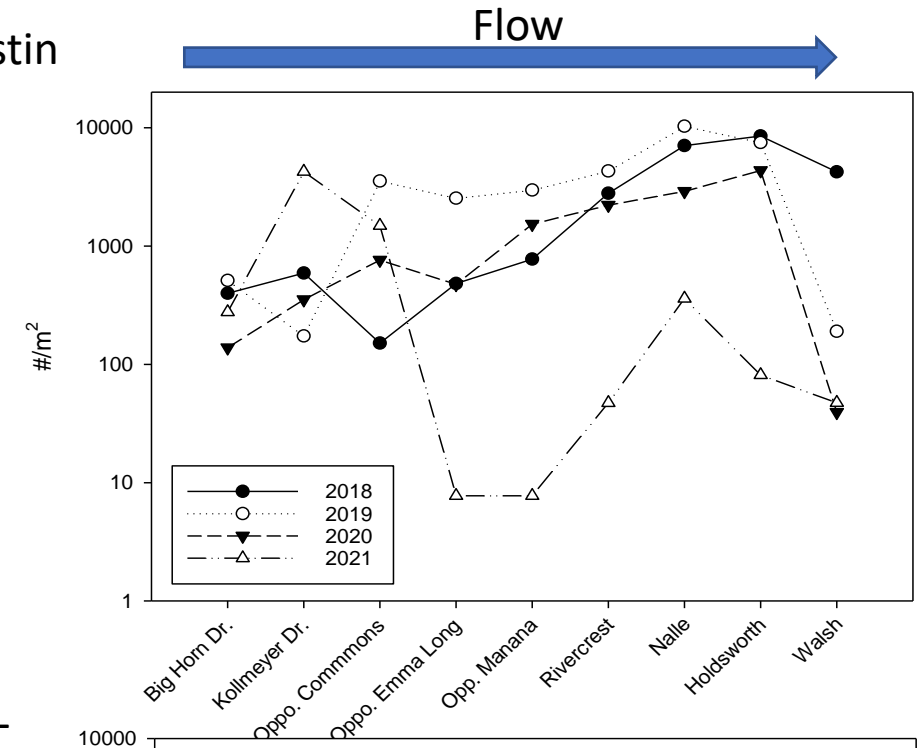


Zebra Mussel Populations

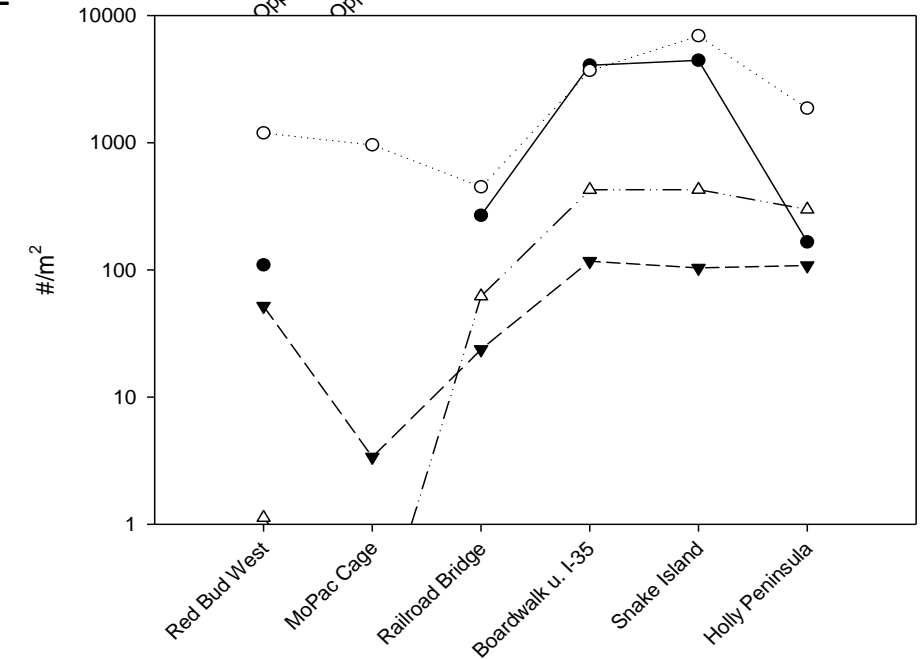
- “Ecosystem engineers” that have altered water quality, alter food webs
 - For example, water clarity correlated with densities



L. Austin



LBL



Harmful Algal Proliferations (HAPs)



A map of Austin, Texas, with various locations and highways labeled. The map is overlaid with several text boxes. The word 'Austin' is written in large, stylized letters across the center. A star marks the city center. Highways 1, 183, 122, 12241, 35, and 10 are shown. Neighborhoods like WOOTEN, FAR WEST, CRESTVIEW, HIGHLAND, ROSEDALE, WEST LAKE HILLS, EAST CESAR CHAVEZ, and BARTON HILLS are labeled. A blue line represents a river or creek. A large 'iStock' watermark is visible in the center.

Jessica Hollis Park – 3 positives

Emma Long – 0 positives

Walsh Ramp – 3 positives

Red Bud – 9 positives

Auditorium Shores – 3 positives

Festival Beach – 3 positives

Jessica Hollis Park = 0.06 ± 0.03 mg ATX/kg

Walsh Ramp = 1.56 ± 3.03 mg ATX/kg

Red Bud = 0.11 ± 0.13 mg ATX/kg

Aud. shores = 0.007 ± 0.013 mg ATX/kg

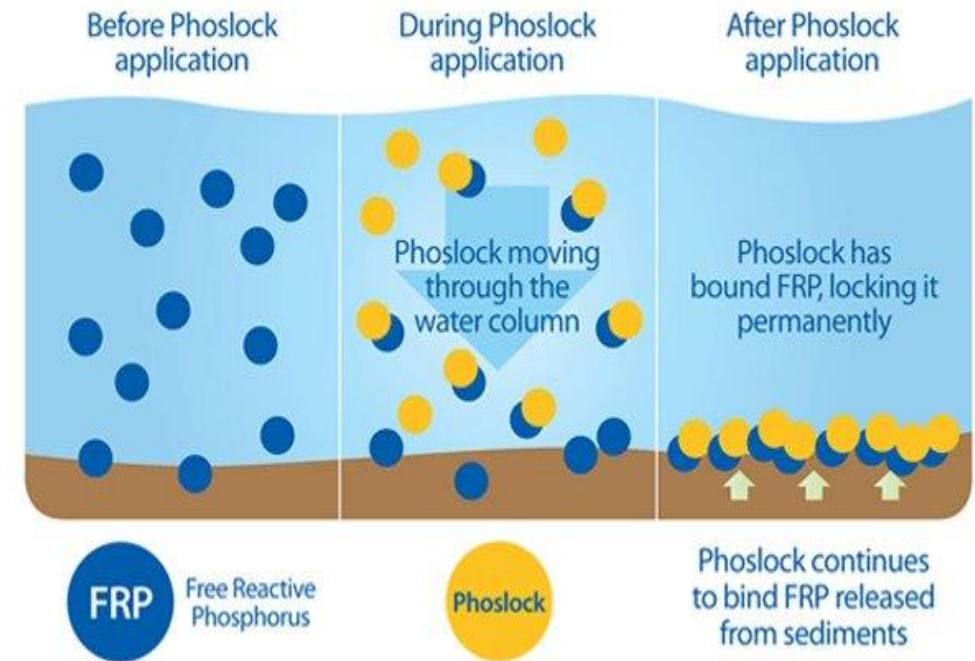
Festival Ramp = 0.002 ± 0.004 mg ATX/kg
 19.68 ± 34.53 mg CYN/kg

Nutrient Mitigation Pilot Project

- Background: We are limited in the environmental drivers of HAPs that can be effectively managed
- One of the most important drivers is Phosphorus (P)
 - Hypothesis being tested: Reducing available sediment P will negatively impact HAP growth and toxicity
- Sediments of Lady Bird Lake are very P-rich

Phoslock

- Toward that end, we secured a multi-year contract with SePRO to apply lanthanum-modified bentonite toward sediment P management
- Phoslock utilized globally to mitigate excess P that may be released from the sediments
- Year 1 – applied 120,000 lbs of Phoslock around Red Bud Isle
 - For year 2 planning on “maintenance” application around Red Bud, targeting new area

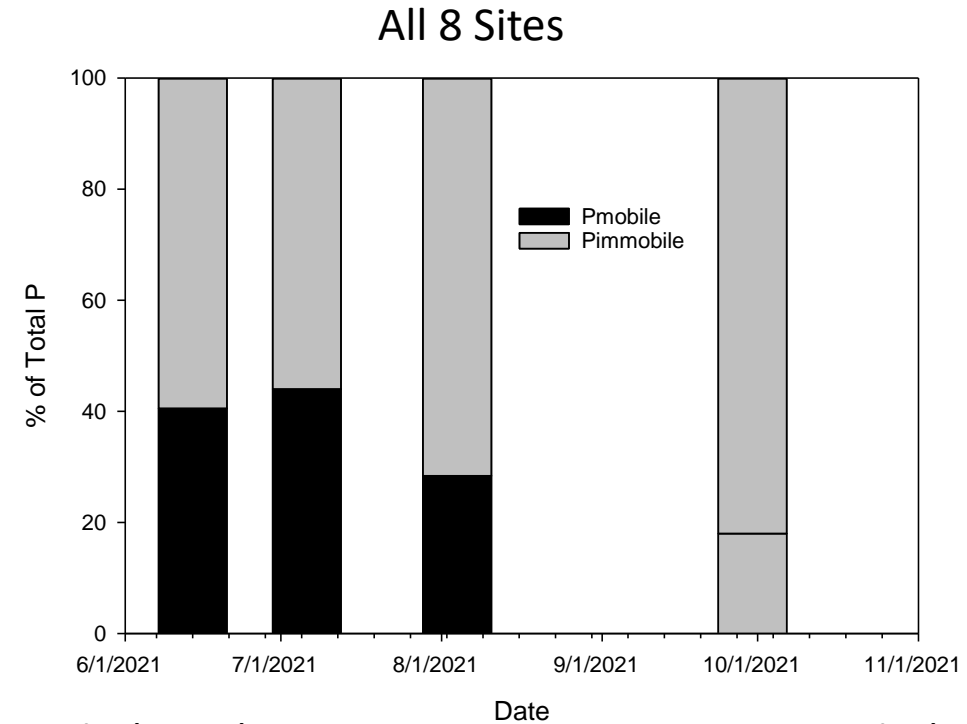


Application

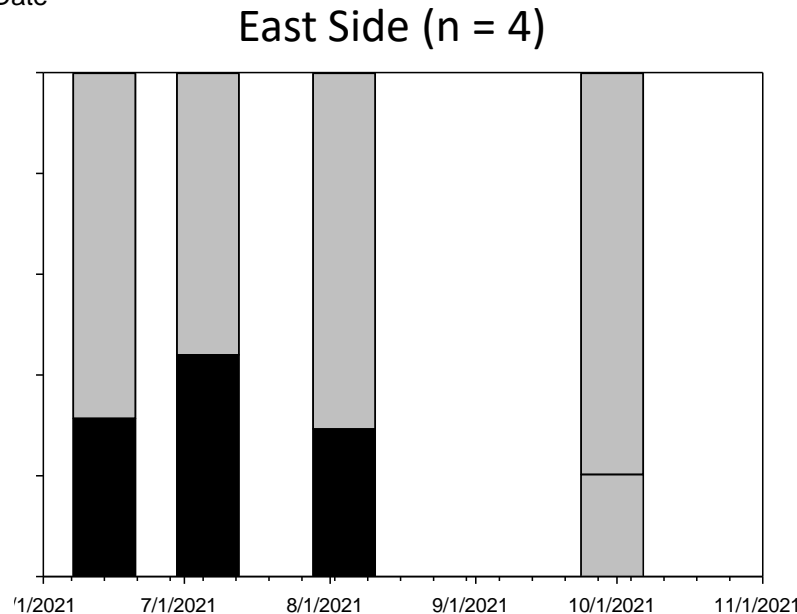
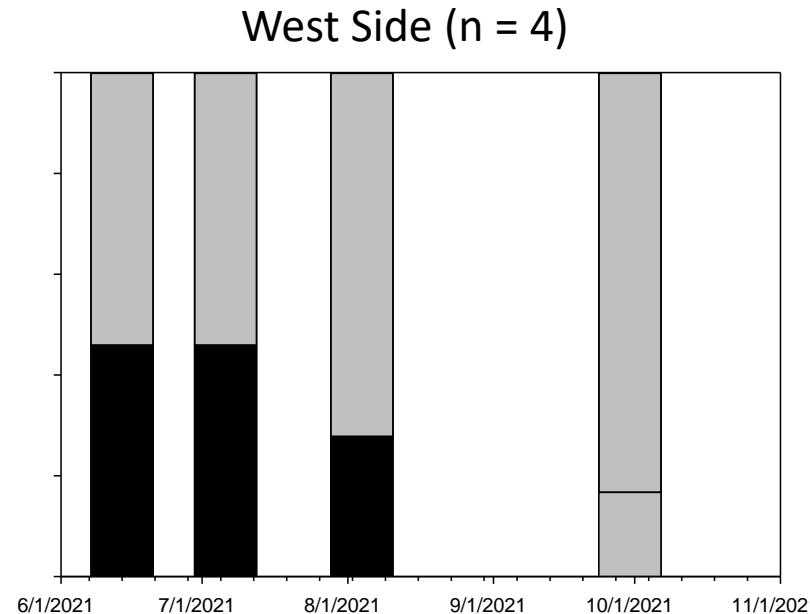


Sediment P Results

- Across all sites:
 - 40% decline in P-mobile fraction (good!)
 - >70% increase in P-immobile (very good!)

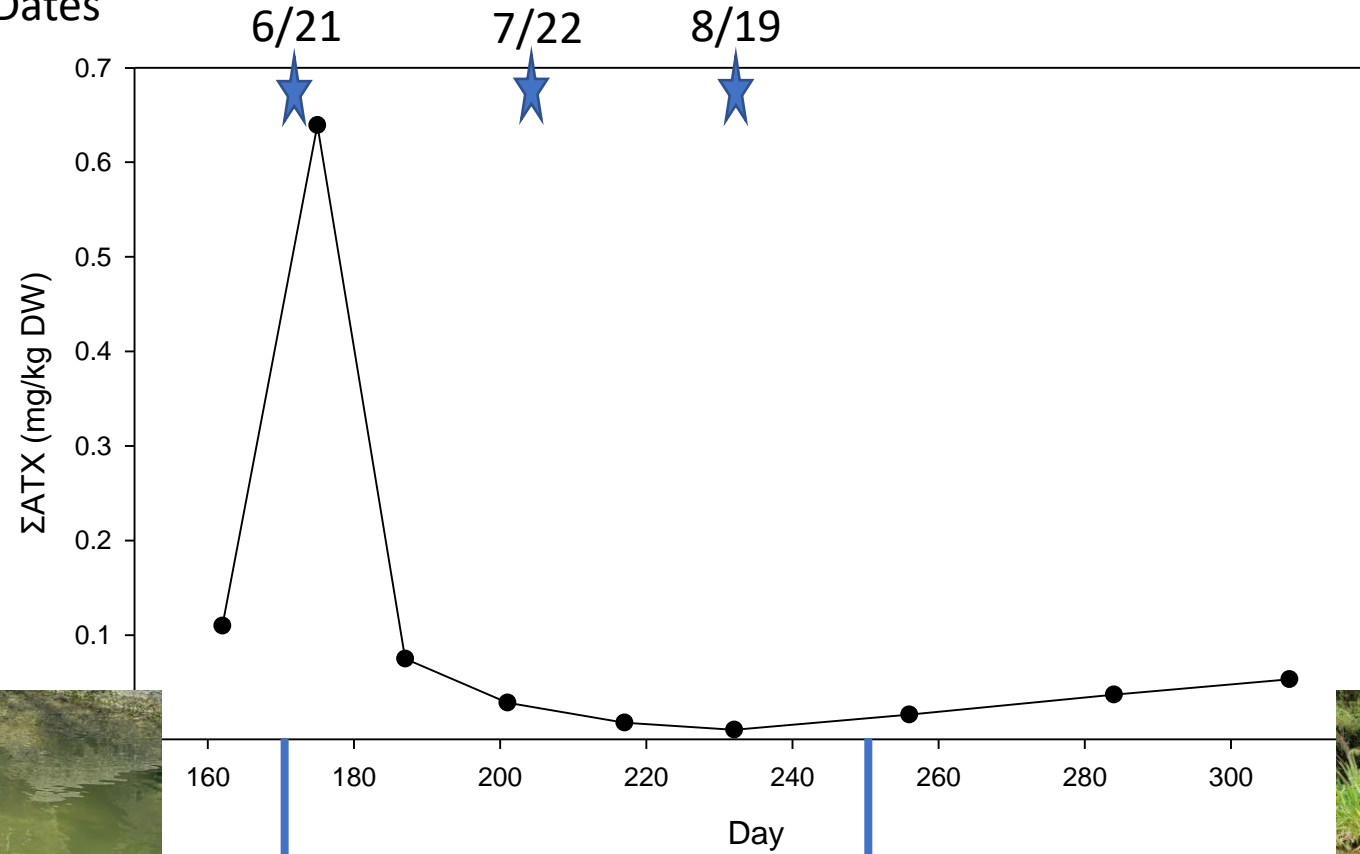


- Larger changes on west side due to greater content of organic sediments



Influence on Algal mats and Toxicity?

Application Dates



Sculpture Falls

- Samples taken from the popular spot in Barton Creek after a 3-1-1 call of a possible illness
 - At the time almost no flow, observed algal mats in the pool
 - Illness not believed to have been cyanotoxin driven; however, we did measure Cylindrospermopsin in the water
 - Once flows returned to the creek, algae and toxin were not observed
- Sculpture falls – Cylindrospermopsin = toxin that impacts liver and kidney (carcinogenic) over long period of drinking water ingestion, or massive ingestion of toxin for acute impact



Questions?

