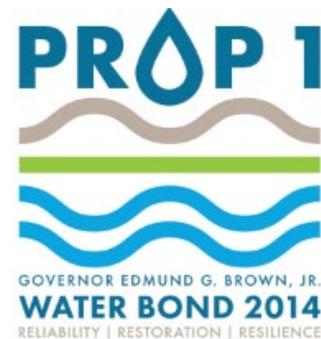


# Lake Elsinore Algae Treatability Pilot Study Prop 1 Grant – Project Update

Lake Elsinore / Canyon Lake TMDL Task Force Meeting  
September 27, 2022

**Chris Stransky and John Rudolph**  
**WSP USA**





## Study Objectives

1. Explore the use of a suite of algae removal / reduction technologies at Lake Elsinore through a series of controlled in-lake pilot studies.
2. Monitor and compare treatments over the course of a set testing period
3. Evaluate data obtained to rate the effectiveness and cost-benefit of each technology
4. Project the feasibility of lake-wide treatment of each technology



## Project Tasks

- 1) Research and review a variety of viable treatment technologies and interested vendors ✓
- 2) Draft RFQ and solicit proposals ✓
- 3) Select and coordinate with vendors and the City of LE ✓
- 4) Collect empirical data using different algal removal technologies (in progress) ✓
- 5) Use data to analyze the feasibility of each technology scaled to the entire lake
- 6) Recommendations for future larger scale pilot studies for technologies considered promising
- 7) Community outreach and education



## Vendors Selected

1. EutroPHIX / SePro – Chemical Treatments
2. BioCleaner – Microbial Treatment
3. Moleaer / Aquatechnex - Nanobubble Technology
4. AECOM – Hydronucleation Floatation Technology. Algae Bioharvesting



# Vendor Treatments

## In-lake Mesocosm Enclosures

- Three turbidity curtains installed near Launch Pointe Boat Ramp



# Vendor Treatments

## In-lake Mesocosm Enclosures

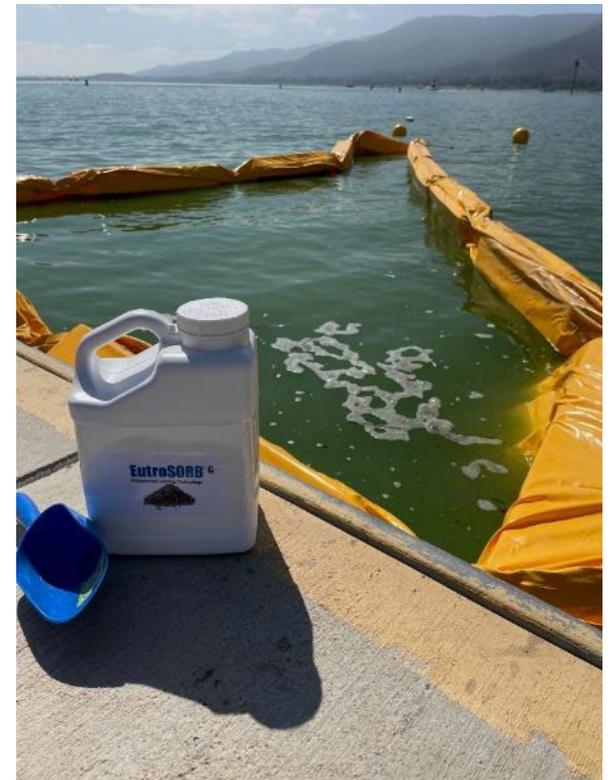
- Three turbidity curtains installed near Launch Pointe Boat Ramp



# Vendor Treatments

## EutroPHIX/ SePro

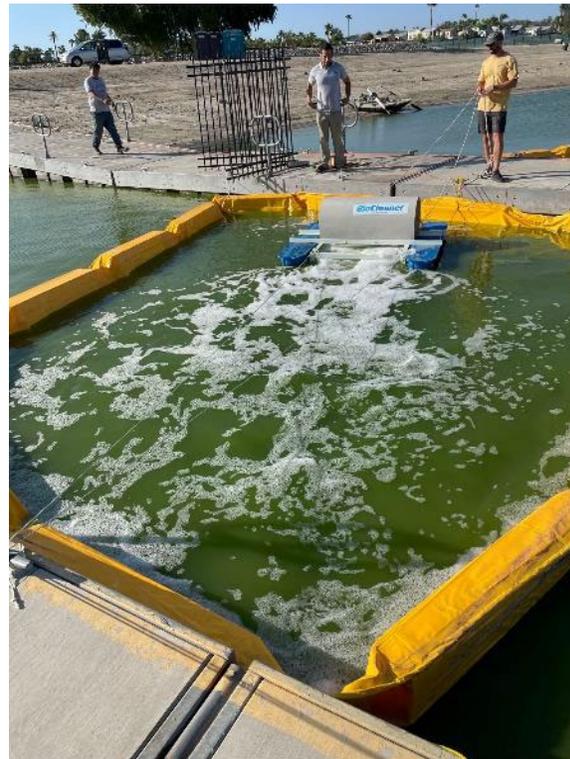
- Series of phosphorus sequestration treatments
- Two algaecide treatments
  - Copper-based
  - Peroxide-based



# Vendor Treatments

## BioCleaner

- Beneficial bacteria produced overwhelm and outcompete cyanobacteria for nutrients

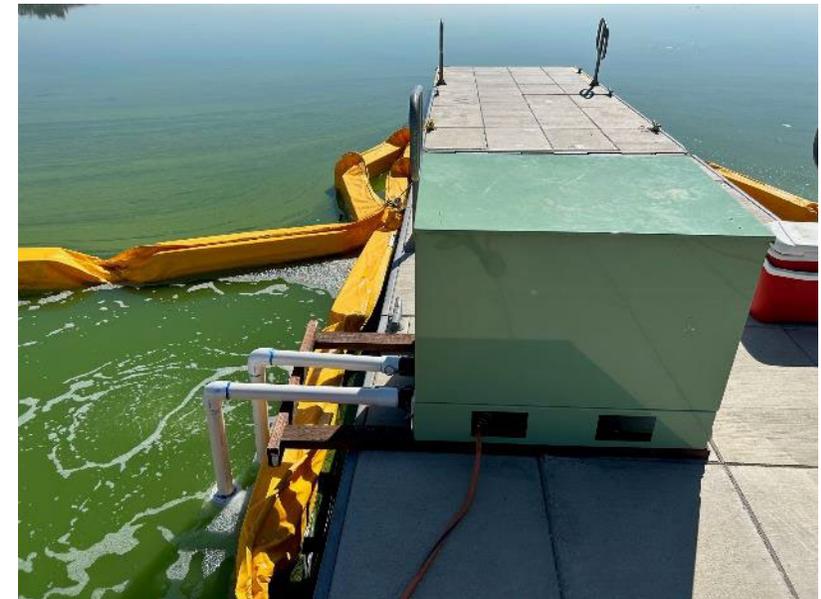




# Vendor Treatments

## Moleaer / Aquatechnex

- Nanobubbles increase dissolved oxygen shifting competitive advantage
- Nanobubble have mild oxidative effect on algal cells
- Nanobubbles oxidize metals suppressing phosphorus flux



# Vendor Treatments

## AECOM

- Float and skim-off algae
- Physically removes algae and nutrients in the process





# Monitoring

- Monitoring over a 4-6 week period
- Weekly sampling inside/outside each mesocosm
- Analytical: Water column nutrients, Chl-a, & algae community and cyanotoxins. Sediments – labile P (EutroPHIX only).
- Field Water Quality Parameters: DO, pH, temp (depth profiles) + turbidity and water color





## Next Steps

- Pilot Study Monitoring – Sept 2022 to Nov 2022
- Public Outreach “Dock Day” Oct 8
- Data Analysis and Reporting – Nov 2022 – April 2023
  - Field Data Report
  - Treatment Feasibility Report
  - Project Completion Report
  - Post Performance Report
  - Grant Completion Report



Questions?



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