A Collaborative Solution to Harmful Algal Blooms in Utah

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A Collaborative Solution to Harmful Algal Blooms in Utah

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The Problem

Harmful algal blooms (HABs)...
- affect Utah Lake, Scofield Reservoir, Jordanelle Reservoir, Mantua Lake, and other water bodies throughout Utah
- are toxic to public health, the environment, and the economy

Approach to Solution

- Three-step approach using detection, extraction, and sustainable disposal of HABs
- Detection using Utah Water Research Laboratory (UWRL) AggieAir unmanned aerial vehicle (UAV) technology
- Extraction using USU HAB harvester
- Disposal in Central Valley Water Reclamation Facility (CVWRF), Utah’s largest wastewater treatment plant and a potential option for biological treatment of toxic algae

Preliminary Results

- Light filters were able to differentiate toxic from non-toxic algae for potential UAV detection
- Prototype HAB harvester successfully extracted HAB algae
- Preliminary treatability test resulted in measurable cyanotoxin reduction in biological treatment using CVWRF anaerobic sludge
- Scientific literature and the UDEQ (Utah Department of Environmental Quality) agree that continuing and upscaling this research is necessary

Recommendations

- Continue supporting USU research, the UDEQ, and UWRL because they are leaders in battle against HABs in Utah

Microcystin Concentration Reduction in Anaerobic CVWRF Sludge

Figure 3 – Measureable reduction of cyanotoxin using CVWRF biological treatment with no change in control