



Timpanogos Special Service District

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The Timpanogos Special Services District (TSSD) operates the largest publicly owned wastewater treatment facility that discharges directly into Utah Lake. We take great pride in providing this service to the community and are very interested in exploring better ways to improve Utah Lake water quality.

Utah Lake Solutions

Our proposed approach is not intended as a “quick fix response” used only to address harmful algal blooms (HABs) when or after they occur. It is intended to develop holistic and long-term solutions to reduce intensity, duration, and frequency of HABs. Our approach is not intended to divert attention away from the Utah Division of Water Quality’s (DWQ) efforts to develop water quality criteria for Utah Lake; it is intended to be collaborative, to build upon previous work by Utah State University and Central Utah Water Conservancy District, to augment and enhance DWQ’s current effort and begin refinement of realistic, holistic and long-term solutions for Utah Lake.

The Objective

To investigate and develop realistic, holistic and long-term solutions that are attainable and reduce the intensity, duration, and frequency of future HABs in Utah Lake.



The Challenge

Successful long-term control of HABs requires that all three elements of HAB control are addressed (see Figure 1). TSSD’s proposed approach focuses upon addressing: 1) **in-lake nutrient cycling**, e.g., lake sediment sources of nutrients, 2) the lake’s **ecosystem structure**, e.g., submerged vegetation and carp, and 3) **watershed inputs**, e.g., nutrient load reductions.

The Approach

TSSD proposes to install temporary exclosures in Utah Lake to create a miniature version of the lake’s ecosystem subject to the same weather and general water and sediment chemistry as the lake. These exclosures will facilitate experiments designed to answer the study’s questions:

Figure 1. Conceptual Model for HAB Control

1. What is the role of existing lake sediments, the presence of carp, and the relative absence of submerged vegetation in the occurrence of HABs in Utah Lake?
2. Are the following solutions successful in reducing internal nutrient cycling and thereby reducing the intensity, duration, and frequency of HABs in Utah Lake? Are these solutions implementable? Are the desired results attainable?
 - Addition of aluminum salts to permanently sequester in-lake phosphorus
 - Removal of carp
 - Restoration of submerged vegetation
 - Reduction of nutrients

The Timeline

Initiate preparation for field studies immediately.
Begin 3-year field studies in spring 2021 to develop implementable solutions.



Figure 2. Typical 10m Exclosure Proposed for Use in Utah Lake (photo credit Curry Industries)