

Lake Size

297 acres

Date of Application

May 2016

Project Sponsor

Riley Purgatory Bluff
Creek Watershed District

Project Reference

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Lake Riley, MN

Lake Riley is 297 acres in size and bordered by the cities of Chanhassen and Eden Prairie, MN in the Minneapolis metropolitan area. Lake Riley's total phosphorus (P) concentrations were



Alum Floc Trails Behind Barge at Lake Riley, 2016

historically above the Minnesota Pollution Control Agency's standard of 40 µg/L and was classified as impaired for excess nutrients. Nuisance algal blooms, poor water clarity and reduced recreational opportunities were common for this high-use lake. Supported by Wenck Associates, the Riley Purgatory Bluff Creek Watershed District contracted with HAB Aquatic Solutions to conduct the first of multiple liquid alum applications. In May 2016, the first required dose of 108,061 gallons was applied in 3 days. Timing of the remaining dose was determined by analyses of the alum floc binding characteristics and is planned for 2020.

Water quality improvements following the first application have been dramatic. Since the alum application, summer epilimnetic total P dropped below the standard to approximately 26 µg/L and hypolimnetic P fell from 600 µg/L in 2015 to an average of 110 µg/L in 2016-17 (indicating significantly less internal P loading). Chlorophyll (a measure of algae) dropped by 55% and water clarity increased by over 3 feet (1 meter).

The graphs below show the changes in epilimnetic and hypolimnetic total-P. (Source: Riley Purgatory Bluff Creek Watershed District)

