Spring Lake water quality standard changes

The Prior Lake-Spring Lake Watershed District learned last week that the federal Environmental Protection Agency approved a revision of the eutrophic water quality standard for Spring Lake.

Eutrophication occurs when a lake environment becomes enriched with nutrients, which can cause problematic algal blooms. In 2002, Spring Lake was placed on Minnesota’s list of impaired waters for aquatic recreation due to excess nutrients (phosphorus). The federal Clean Water Act requires states to develop a clean-up plan for each impairment.

The Minnesota Pollution Control Agency and the EPA supported the site-specific standard change and agreed that 60 micrograms per liter of phosphorus and 20 micrograms per liter of chlorophyll-a is the best level that Spring Lake could ever be expected to achieve (same as shallow lake standards). However, the secchi disk depth standard of 1.4 meters was not asked to be changed and will remain the same as deep water standards.

A Total Maximum Daily Load (TMDL) study and implementation plan for the lake was conducted by the Minnesota Pollution Control Agency (MPCA), the watershed district and the EPA in 2011. That study was based on the existing eutrophic water quality standard for deep lakes in this region, which was 40 micrograms per liter of phosphorus, 14 micrograms per liter of chlorophyll-a, and greater than 1.4 meters secchi depth.

The study identified ways to diminish the annual phosphorus load by reducing external pollutants and internal loads through rough fish management, curlyleaf pondweed control as well as controlling the release of phosphorus from the lake bed. The watershed district had since hired the Saint Croix Research Station to conduct a lake sediment core study in 2013 which found that a site-specific standard of 60 micrograms per liter of phosphorus and 20 micrograms per liter of chlorophyll-a would be more appropriate for this lake. When reviewing estimates of historic conditions dating back more than 200 years, the analysis showed that the concentration was never better than approximately 60 micrograms per liter of phosphorus or 14 micrograms per liter of chlorophyll-a. The district then asked the MPCA to change the site-specific standard.

District Board of Managers President Curt Hennes said: “The district is pleased that the EPA and MPCA will no longer hold us to a water quality standard in Spring Lake that is [not] achievable, given historic conditions.”

On Aug. 23, Hennes said, Barr Engineering reported results of another sediment core sampling that shows that the alum treatment applied in 2013 is still working and that the average total phosphorus concentration during the last three years is even lower than the new standard, at 47 micrograms per liter.

“Those concentrations are 53 percent lower than 10 years prior to the alum application. The watershed district will continue to comply with the actions listed in the TMDL study and support ongoing and new projects to ensure the new standard will continue to be met,” he said.

Details of the approved site-specific standard can be found at http://www.pca.state.mn.us/mvr1940 and www.plswd.org.

Workers applied aluminum sulfate, commonly called alum, to Spring Lake in October 2013 to prevent phosphorus from being released from the sediment. The Prior Lake-Spring Lake Watershed District employed the alum treatment as a means of improving water quality on Spring Lake.