

Aquatic Invasive Species Early Detection Survey

Surveyor: Ethan Hosey
CLP Detected: 22.8 acres

Survey Date: 7/7/2026
Water Temp: 74 °F

Environmental Conditions

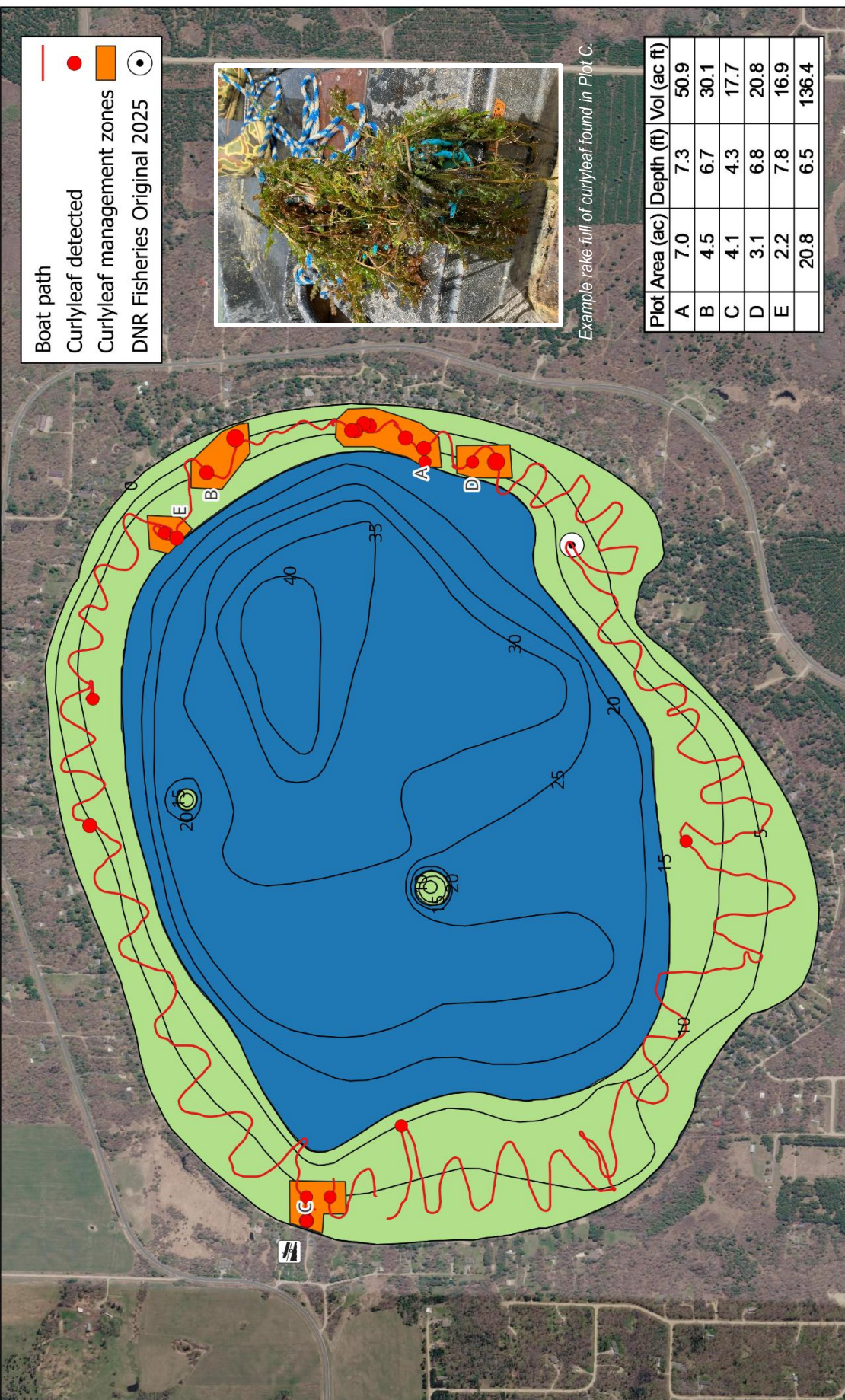
Partly cloudy conditions with no precipitation, an air temperature of 70 °F and winds 0-5 from the north during survey. The lake water temperature was measured at 72-74 °F.

Objectives and Methods

Grace Lake (860 acres, with a 340-acre littoral zone and 4.3 miles of shoreline) has no known history of invasive aquatic plant species, though monitoring has been limited — records indicate roughly 20 years passed between aquatic plant surveys prior to 2025. A routine Minnesota DNR Fisheries survey that year reported a single curlyleaf pondweed plant, the first known indication of the species in the lake. An August 2025 point intercept survey (one point per acre) did not detect curlyleaf pondweed, but this was likely because the survey occurred after the plant's known mid-to-late July die-off, missing its late June/early July peak growth window. As a result, the lake association commissioned a follow-up point intercept survey timed to peak growth, along with a meandering delineation survey to map beds, focusing on the 2025 plant location and any newly discovered plants. The meandering survey was conducted on July 7, 2026, covering an 8.3-mile path using published Minnesota DNR survey protocols. This meandering survey occurred after a point intercept survey was completed between 6/19-7/6/2026. Resulting maps show only positive curlyleaf pondweed hits; to delineate potential treatment areas, a 45 m buffer (half-acre spacing) was applied around each positive point, dissolved, and boundaries were drawn manually within the littoral zone. Isolated single-plant detections (fewer than two overlapping buffers) were excluded from mapping, consistent with prior communication with the MN DNR. Depths used for volume calculations and potential treatment planning were derived from a BioBase layer matching the survey timing.

Outcome Summary

The meandering delineation survey identified five distinct curlyleaf pondweed beds totaling 20.8 acres (7.0, 4.5, 4.1, 3.0, and 2.2 acres); an additional four isolated detections did not meet the two-buffer overlap threshold for delineation and were not mapped, but assuming a conservative ½-acre footprint each add roughly 2 acres, bringing total coverage to approximately 22.8 acres, or about 6.7% of the lake's 340-acre littoral zone — well within Minnesota's regulatory limits of 15% for chemical herbicide treatment or 50% for mechanical harvesting. We do not recommend harvesting, as it tends to fragment and spread curlyleaf pondweed rather than control it. No known method exists to eradicate the species once established, as it is here; permitted chemical treatments are contact herbicides that do not affect underground structures and/or reproductive turions, so annual regrowth should be expected. Our general recommendation is to pursue chemical treatment only where growth reaches nuisance levels that interfere with recreation. Any management action is regulated by the MN DNR's Ecological and Water Resources Division under a structured permitting process, with treatment windows generally required to fall between April 30 and May 15 to control curlyleaf pondweed before later-emerging native plants begin active growth; because permitting takes time, planning should begin no later than March 1 to ensure approval is in place before the treatment window. If chemical treatment is pursued, we recommend diquat as the primary option, with flumioxazin as a secondary alternative, at an estimated cost of \$300–\$500 per acre, with diquat generally the less expensive choice. The original point where the MN DNR found curlyleaf pondweed in fishing net in 2025 was also meandered, but no growing plants were located there.



Grace Lake Curlyleaf Pondweed Meandering Delineation Survey 7/7/2026



0 0.25 0.5 mi

