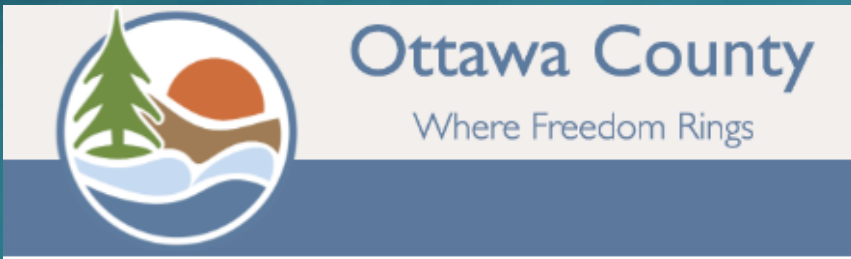




Spring Lake Improvement Program

August 14, 2023



Paul Hausler, Water Resources Practice Leader
Tony Groves, Senior Water Resources Specialist

progressive|ae

Proposed Project Scope 2024-2033

- Aquatic Plant Control
- Aquatic Plant Control Coordination & Oversight
- Water Quality Monitoring
- Information & Education
- Watershed Management
- Lake Alum Treatment

Aquatic plants are part of a healthy lake. They produce oxygen, provide food and habitat for fish, and help to stabilize shoreline and bottom sediments.

Insects and other invertebrates live on or near aquatic plants, and become food for fish, birds, amphibians and other wildlife.

Plants and algae are the base of the food chain. Lakes with a healthy fishery have a moderate density of aquatic plants.

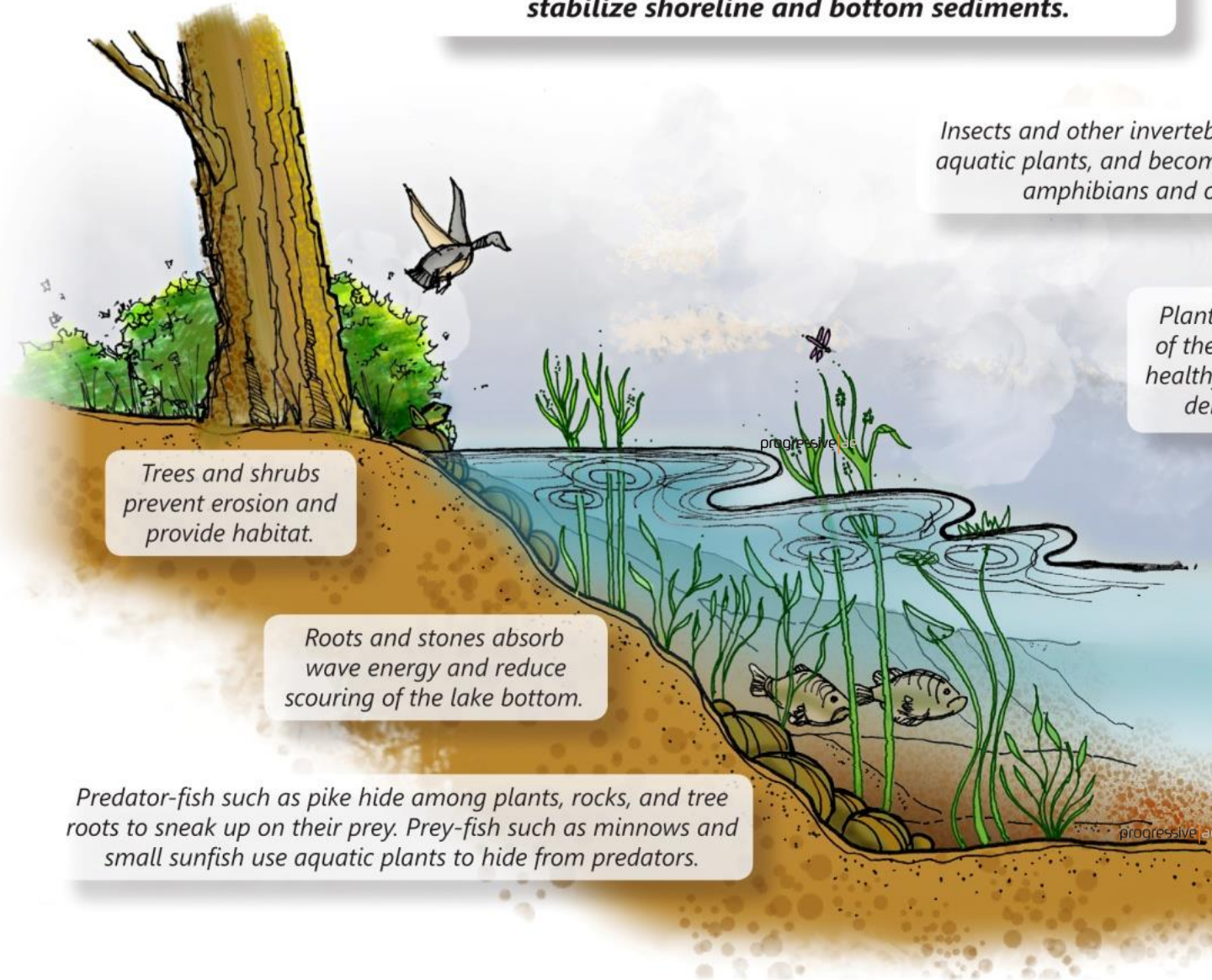
Aquatic plants provide habitat for fish and other aquatic life.

Aquatic plants help to hold sediments in place and improve water clarity.

Trees and shrubs prevent erosion and provide habitat.

Roots and stones absorb wave energy and reduce scouring of the lake bottom.

Predator-fish such as pike hide among plants, rocks, and tree roots to sneak up on their prey. Prey-fish such as minnows and small sunfish use aquatic plants to hide from predators.



Aquatic Plant Control

Plants of Primary Concern

Eurasian (hybrid) milfoil



Curly-leaf pondweed



Starry stonewort



Aquatic Plant Control

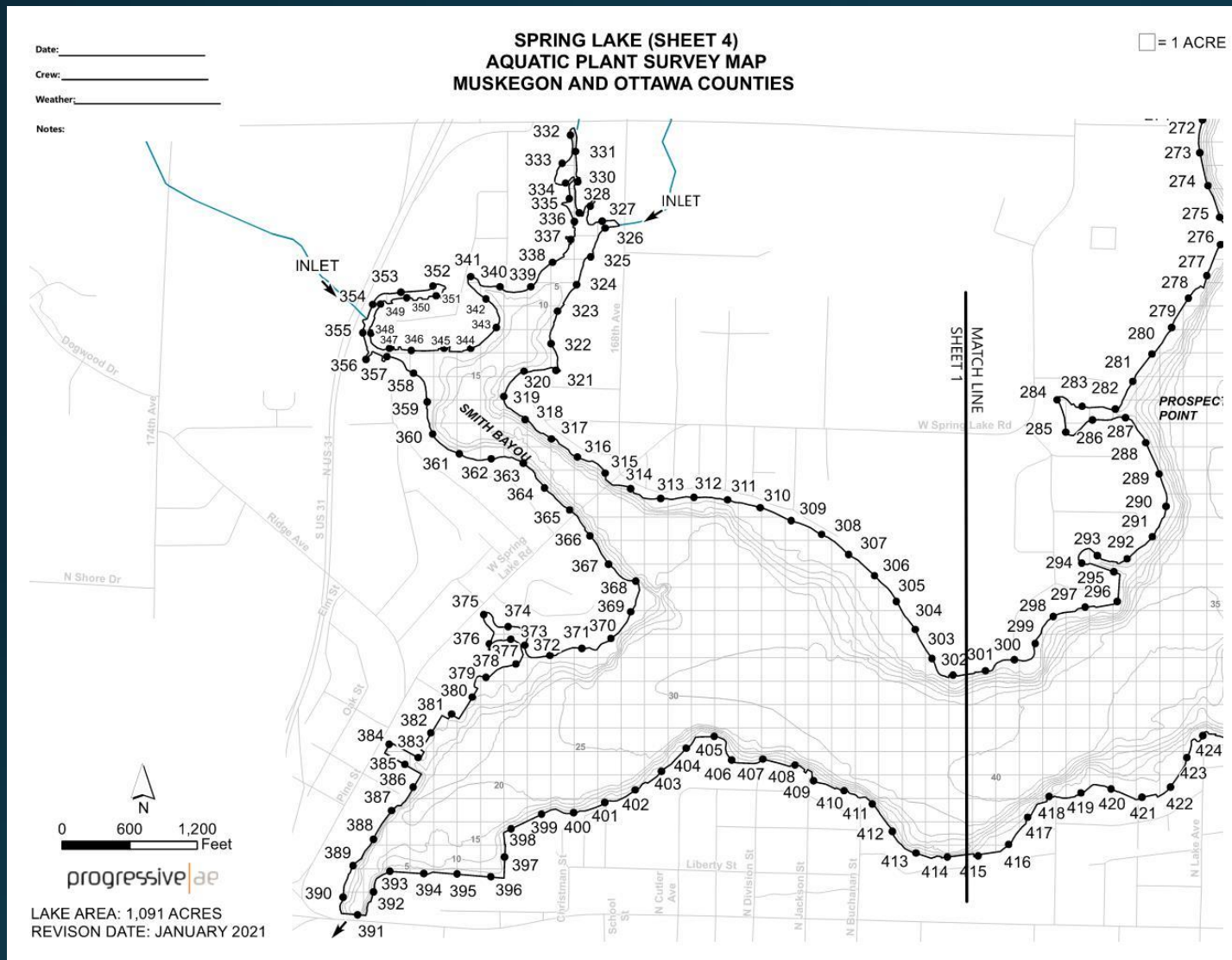
Algae

Filamentous algae



Blue-green algae

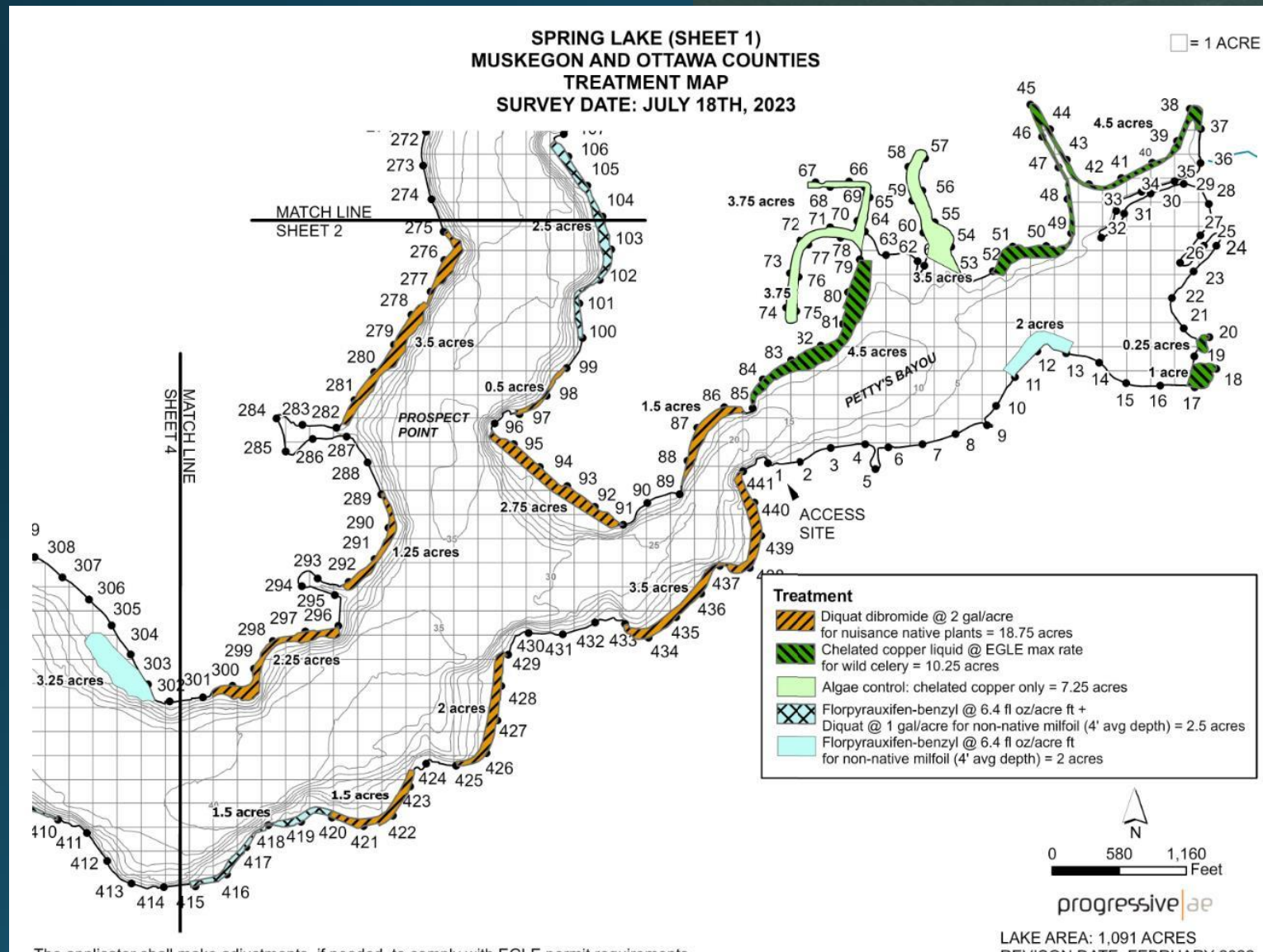




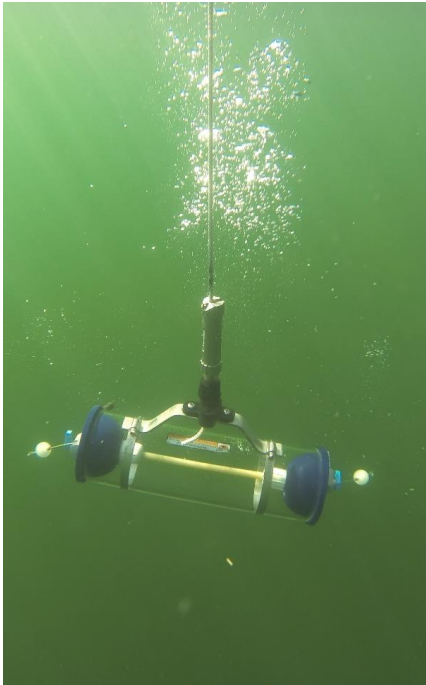
Aquatic Plant Surveys

- GPS Waypoints at 300-foot Intervals
- Updated Depth Contours
- Road Network
- Inlets and Outlets

Surveys, Treatment Mapping & Coordination

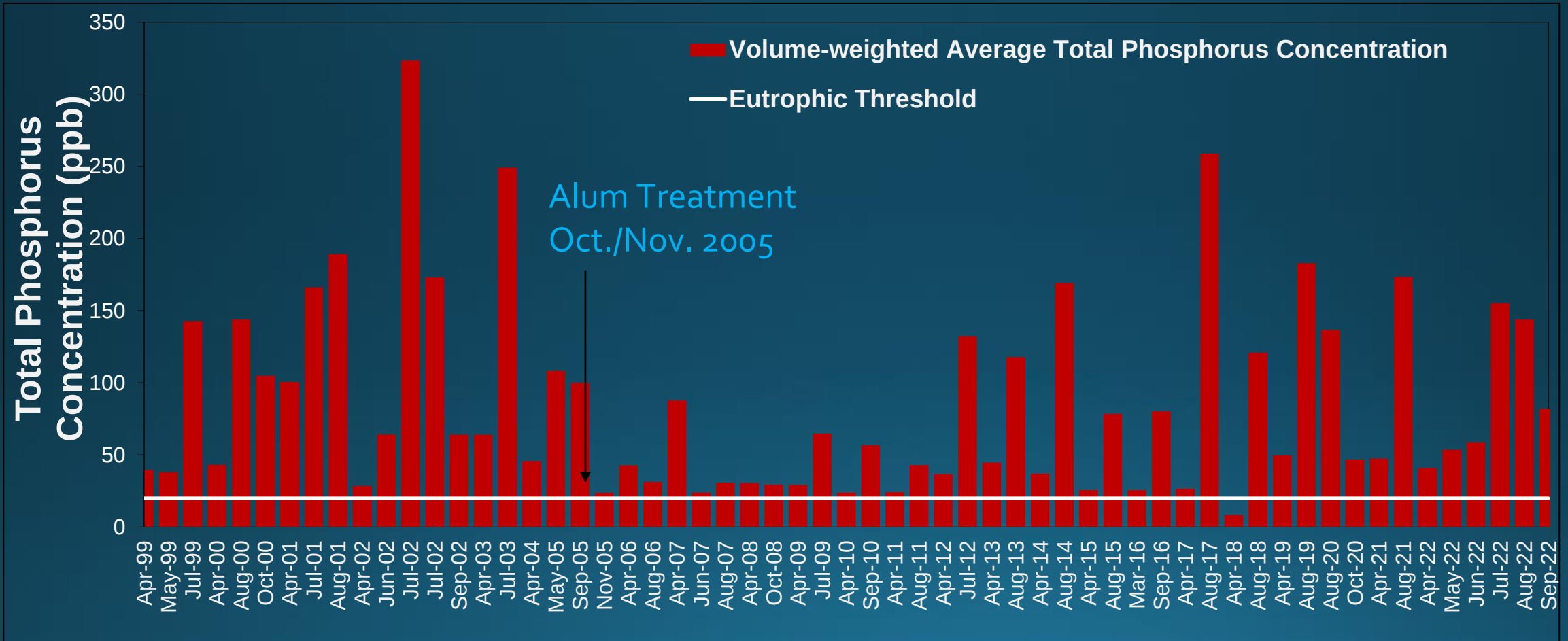


Water Quality Monitoring



- Temperature
- Dissolved Oxygen
- Phosphorus
- Chlorophyll-*a*
- Secchi Transparency

Volume-weighted Average Total Phosphorus 1999-2022



Information and Education

- Website springlakeboard.org
- Mailings
- Reports
- Meetings

Spring Lake - Lake Board

Ottawa and Muskegon Counties, Michigan



HOME LAKE FACTS WATER QUALITY PLANT CONTROL WATERSHED NEWS & REPORTS LINKS & INFO

The Spring Lake – Lake Board was established in 1997 in accordance with [Michigan's Natural Resources and Environmental Protection Act](#). The Lake Board includes a lakefront property owner, representatives from each of the municipalities bordering Spring Lake, and representatives from both Ottawa and Muskegon Counties. Several board members are lake residents. Since its establishment, the Lake Board has implemented several programs to help improve conditions in Spring Lake. Funding for the project has been derived through special assessment of benefitting properties around the lake. Management activities on Spring Lake are coordinated under the direction of the lake board's [environmental consultant](#), Progressive AE. This website includes information about Spring Lake and ongoing lake management activities.

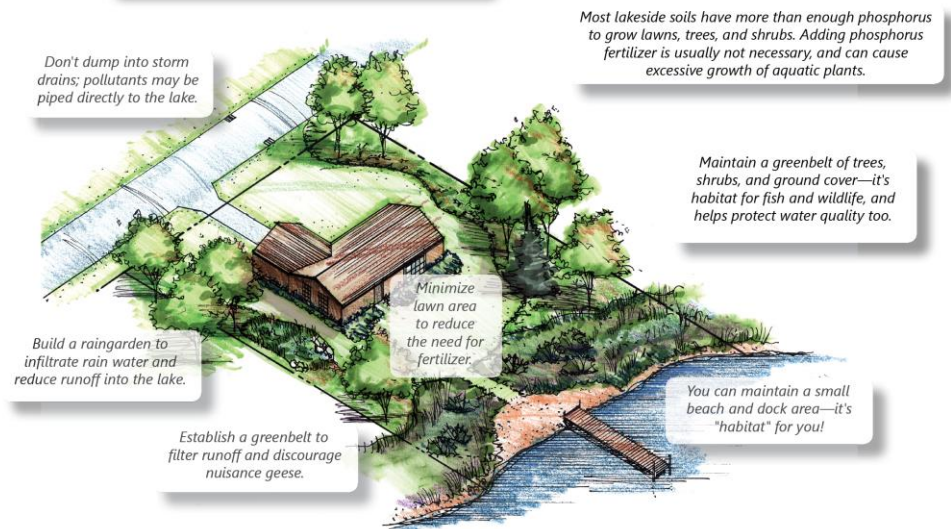
Click [here](#) for an historical overview of Lake Board activities.

The current improvement program on Spring Lake ends in 2023.

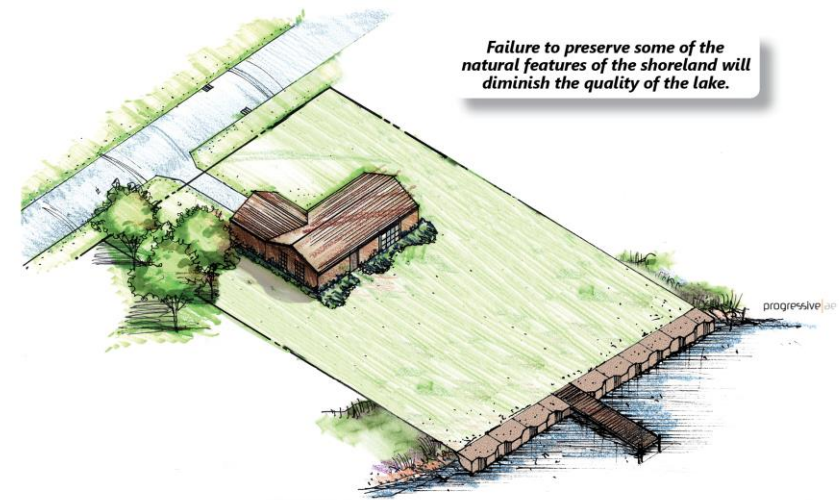
[Click here to review the notice of the upcoming public hearing to continue the project.](#)

/17/2023

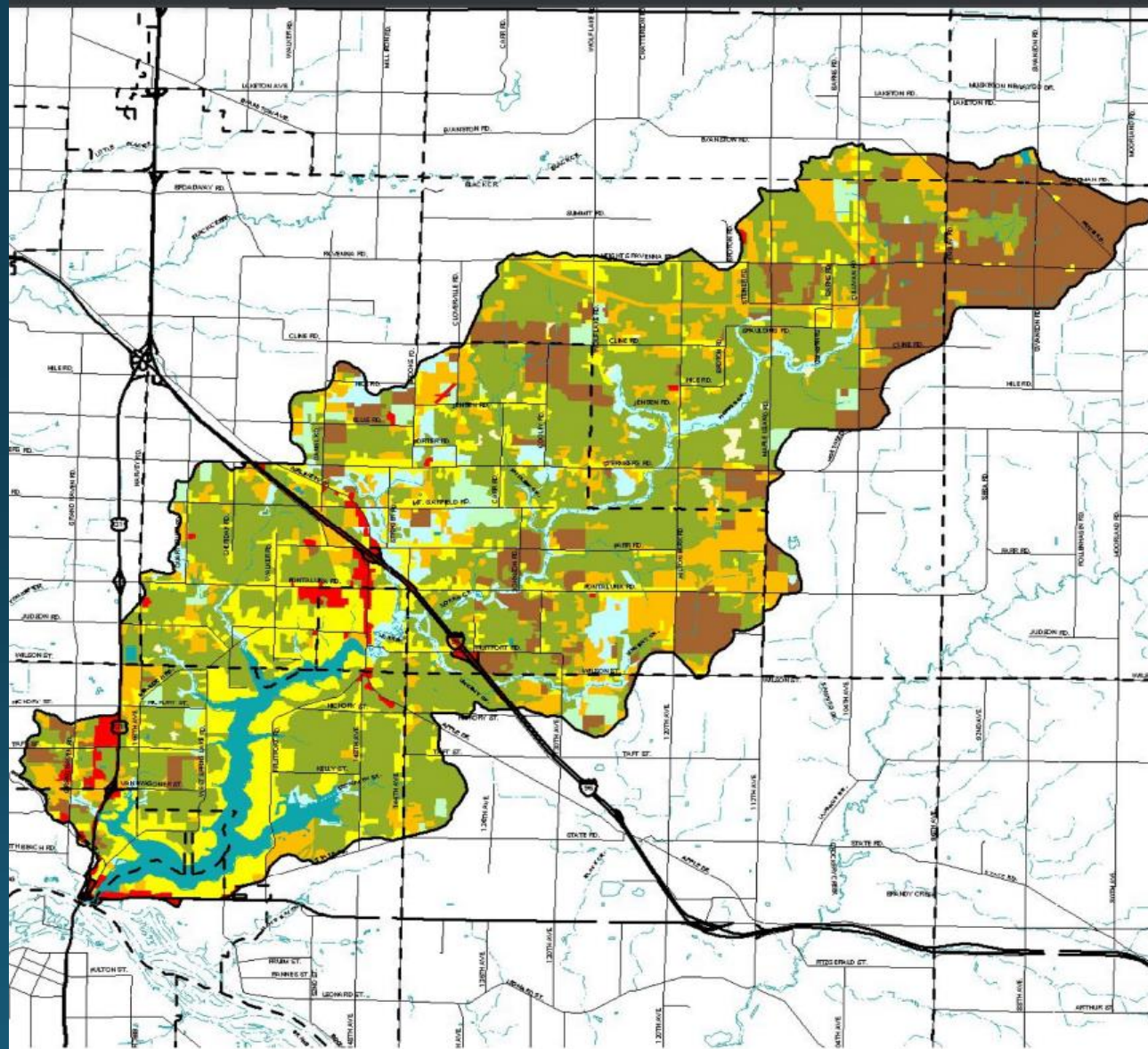
Your shoreland can be maintained to provide beach and boat access for you while maintaining habitat for fish and wildlife.



Failure to preserve some of the natural features of the shoreland will diminish the quality of the lake.



Watershed Management



Internal Phosphorus Release

TABLE 2 (continued)

SPRING LAKE 2022 DEEP BASIN WATER QUALITY DATA

Date	Station	Sample Depth (feet)	Temperature (°F)	Dissolved Oxygen (mg/L) ¹	Total Phosphorus (µg/L) ²
29-Aug-22	8	1	76	8.1	114
29-Aug-22	8	19	76	8.1	112
29-Aug-22	8	38	62	0.0	1070

Site 8 – deepest basin of Spring Lake

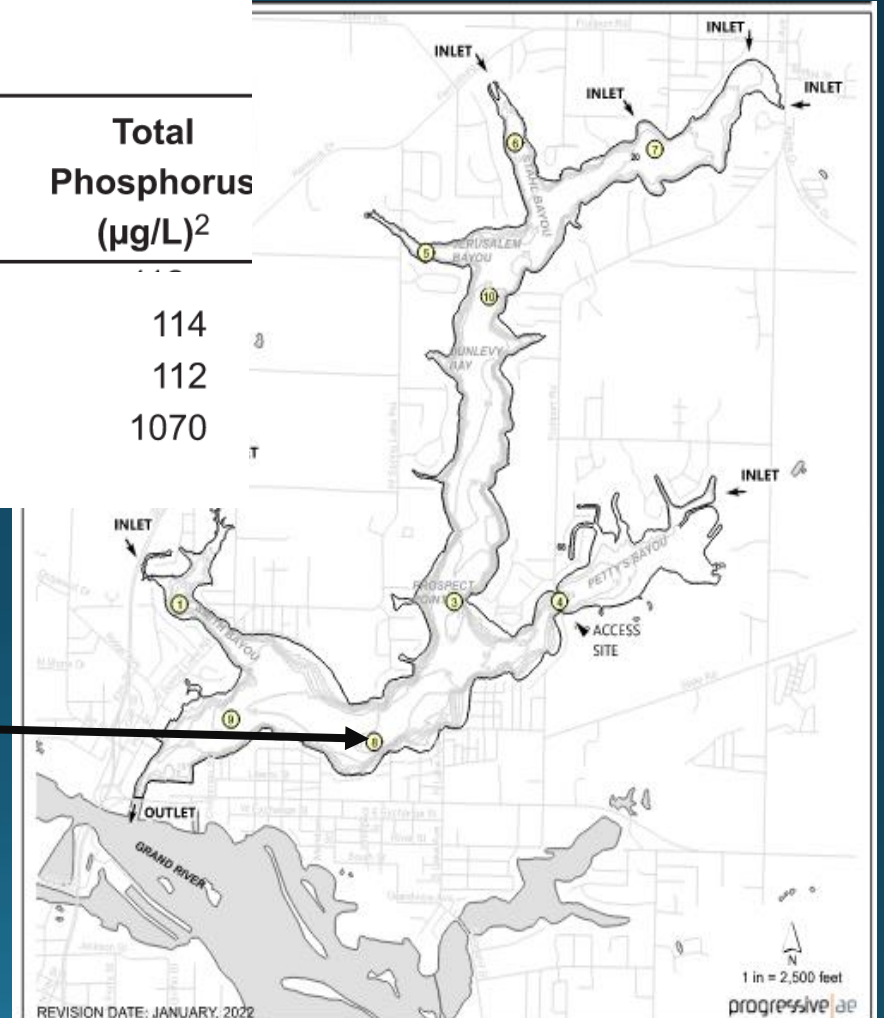
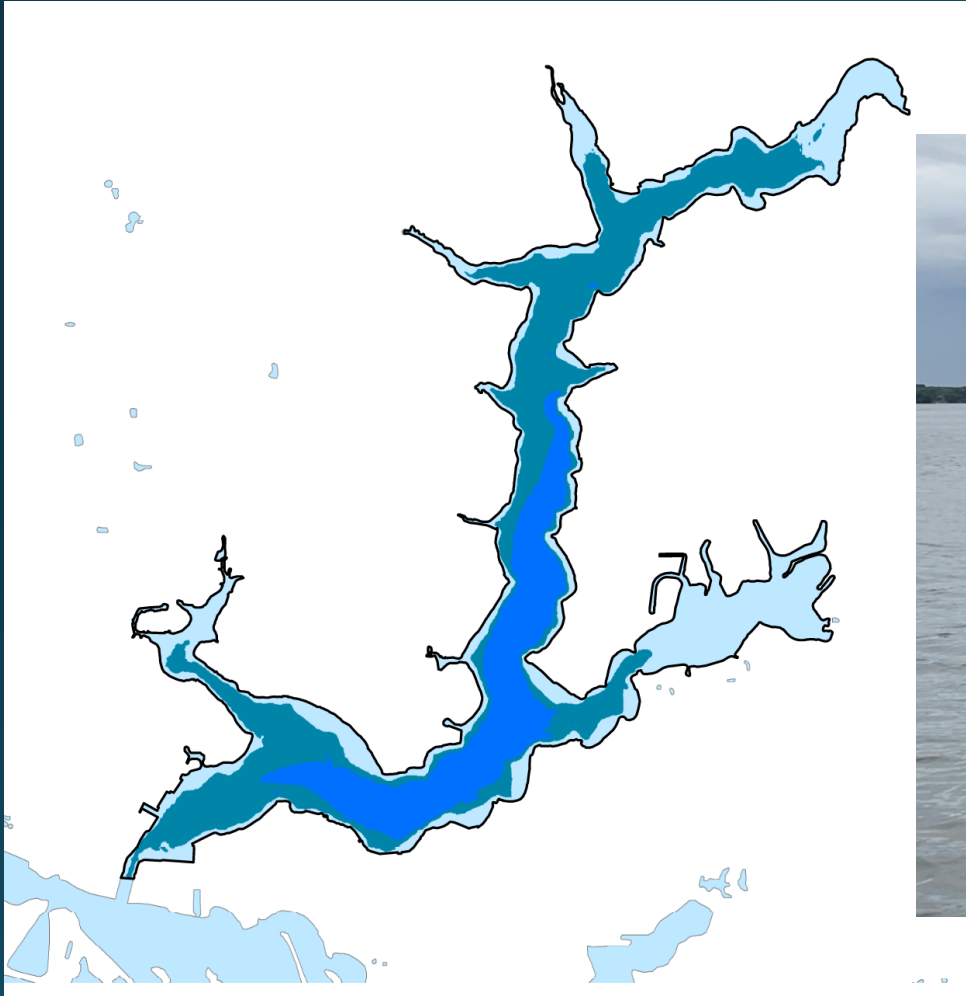


Figure 2. Spring Lake sampling location map.

Lake Alum Treatment



2024-2033 Proposed Budget

	Annual Cost
• Improvement	
• Aquatic Plant Control	\$100,000
• Lake Management Consulting	
• Plant Control Oversight & Coordination	
• Project Administration	\$14,000
• Water Quality Monitoring	\$12,000
• Information & Education	\$6,000
• Watershed Management	\$10,000
• Alum Treatment	\$468,000
• Administration & Contingency	<u>\$60,000</u>
• TOTAL	\$670,000



2024 – 2033 Annual Assessment Breakdown

Type	Benefit	Approx. Assessment
Developed Lakefront	1.0	\$600
Undeveloped Lakefront	0.5	\$300
Developed Backlot	0.5	\$300
Undeveloped Backlot	0.25	\$150
Commercial Lakefront	1.5	\$900
Commercial Backlot	1.0	\$600
Marina: < 50 slips	2.0	\$1,200
Marina: 50-100 slips	4.0	\$2,400
Marina: 101-150 slips	6.0	\$3,600
Marina: 151-200 slips	8.0	\$4,800
Marina: > 200 slips	10.0	\$6,000

Questions?

