2025 VLAWMO Lake Vegetation Survey Proposal

December 2, 2024

Prepared for:
Vadnais Lake Area Water Management Organization

Prepared by:
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2025 Eurasian Watermilfoil and Curly Leaf Pondweed Delineation, Pre and Post Removal Survey Proposal Birch

Scope of Services

Delineation Surveys

Delineation surveys will be used to collect data on the abundance of aquatic vegetation, specifically Eurasian Watermilfoil (EWM) and/or Curly Leaf Pondweed (CLP), using a meandering survey method consistent with DNR requirements for permitting.

Bathymetry and Biovolume Surveys (optional)

Bathymetric surveys are completed by connecting a Lowrance unit + transducer to the boat to capture lake bottom depth data. This data is then processed, corrected using physically measured field data points where necessary, and then used to create new contour lines with the BioBase application. It may be completed in conjunction with the delineation survey if desired. SWCD staff members will also use the Lowrance unit and transducer to generate data that produces a biovolume map showing concentration of aquatic vegetation growing in the lake if desired.

BIRCH LAKE

Eurasian Watermilfoil and Curly Leaf Pondweed Pre and Post Removal
Birch Lake Survey Estimate, April-May 2025

Task	Cost/hr	Hours	Cost
Boat Use	unit	$50/visit X 2 visits	$100
Field Work, 2 days (2 people)*	$80	24	$1,920
GIS Post-processing and Mapping	$80	4	$320
TOTAL		28	**$2,340**

*Total field work cost would be $960 if VLAWMO staff will be second person in the boat. Total survey cost would then be $1,380.

Deliverables

The macrophyte report will include:

- Static map, in PDF format, of the delimitation of Eurasian Watermilfoil (EWM) and/or Curly Leaf Pondweed (CLP) shown as a survey point heat maps with rake density of EWM and CLP at each survey point.
- Shapefiles including EWM and CLP recommended removal area and point location layers.

2025 Tamarack Lake Bathymetric Survey Proposal

Scope of Services

Macrophyte Surveys

Macrophyte surveys will consist of data sampling at evenly spaced geo-referenced points throughout the lake to characterize the diversity and abundance of aquatic vegetation using a point intercept survey method. RC-SWCD staff members will also use Lowrance unit and transducer to generate data to produce a biovolume map showing concentration of aquatic vegetation growing in the lake.

Bathymetry Surveys

Bathymetric surveys are completed by connecting a Lowrance unit and transducer to the boat and following pre-determined transect lines across the lake to capture lake bottom depth data. This data is then processed, corrected using physically measured field data points where necessary, and then used to create new contour lines with ArcGIS software. It may be completed in conjunction with macrophyte surveys when there is a clear enough sonar signal in the lake.

Tamarack Lake

Bathymetry and Macrophyte Survey

Task	Cost/Hour	Hours	Cost
Boat Use	unit	-	$50
BioBase Upload	unit	-	$300
Lake Survey Prepwork	$80	2	$160
Field Work, 8 hours (2 people)*	$80	16	$1,280
Data entry (Species & Depths)	$80	2	$160
GIS Post-processing and Mapping	$80	3	$240
Report Completion, Contour Generation	$80	6	$480
TOTAL		**29**	**$2,720**

*Total field work cost would be $640 if VLAWMO staff will be second person in the boat. Total survey cost would then be $2,030.

Deliverables

The Bathymetric Report will include:

- Description of Methods;
- Tables of aquatic, emergent, native, and invasive plants surveyed;
- Bathymetry Map, BioVolume Map, numbered Survey Point map to match with aquatic species tables, and shoreline polygons; and
- Shapefiles including Biovolume, 2025 Contour Lines, and Point Intercept Location layers.

2025 Wilkinson DWW Bathymetric Survey Proposal

Scope of Services

Macrophyte Surveys

Macrophyte surveys will consist of data sampling at evenly spaced geo-referenced points throughout the lake to characterize the diversity and abundance of aquatic vegetation using a point intercept survey method. RC-SWCD staff members will also use Lowrance unit and transducer to generate data to produce a biovolume map showing concentration of aquatic vegetation growing in the lake.

Bathymetry Surveys

Bathymetric surveys are completed by connecting a Lowrance unit and transducer to the boat and following pre-determined transect lines across the lake to capture lake bottom depth data. This data is then processed, corrected using physically measured field data points where necessary, and then used to create new contour lines with ArcGIS software. It may be completed in conjunction with macrophyte surveys when there is a clear enough sonar signal in the lake.

Wilkinson Deep Water Wetland

Bathymetry and Macrophyte Survey

Task	Cost/Hour	Hours	Cost
Boat Use	unit	-	$50
BioBase Upload	unit	-	$300
Lake Survey Prepwork	$80	6	$480
Field Work, 6 hours (2 people)*	$80	12	$960
Data entry (Species & Depths)	$80	2	$160
GIS Post-processing and Mapping	$80	3	$240
Report Completion, Contour Generation	$80	6	$480
TOTAL		**29**	**$2,670**

*Total field work cost would be $480 if VLAWMO staff will be second person in the boat. Total survey cost would then be $2,190.

Deliverables

The Bathymetric Report will include:

- Description of Methods;
- Tables of aquatic, emergent, native, and invasive plants surveyed;
- Bathymetry Map, BioVolume Map, numbered Survey Point map to match with aquatic species tables, and shoreline polygons; and
- Shapefiles including Biovolume, 2025 Contour Lines, and Point Intercept Location layers.

2025 Gem Lake to Wilkinson DWW Vegetation Transplant Proposal

Scope of Services

Aquatic Vegetation Transplant
Aquatic vegetation transplant will consist of collecting select DNR approved aquatic species from the donor water body, then dispersing the collected and packaged samples in the recipient water body. RC-SWCD staff members will use SCUBA equipment to collect aquatic species samples with roots attached from the lake bottom. Collected samples will be transported in coolers to minimize plant stress from temperature fluctuations. Materials such as burlap, pea gravel, and twine will be used to package groupings of collected samples, ensuring that samples sink to the lake bottom after being deposited throughout the recipient water body.

Gem to Wilkinson Transplant

Collection and Transplant of Aquatic Species

Task	Cost/Hour	Hours	Cost
Boat Use	unit	-	$50
SCUBA Tank Rental	unit	-	$35
Field Work, 8 hours (2 people) *	$80	16	$1,280
TOTAL		**16**	**$1,365**

*Total field work cost would be $640 if VLAWMO staff will be second person in the boat. Total survey cost would then be $725.

Deliverables

- List of species collected and transplanted from Gem to Wilkinson and process photos may be provided upon request.

2025 Lake Amelia Area Flowering Rush Treatment

Lake Amelia Area Flowering Rush Treatment Estimate
May-August 2025

Task	Cost/hr	Hours	Cost
Documenting absence of on lake population; ongoing treatment and planting at private property adjacent to the lake. *	$80	30	$2,400
TOTAL		30	**$2,400**

*Seed used for planting to be provided by VLAWMO

Deliverables

- Lake Amelia will be documented in EDDMaps and the treatment site in ISMTrack