

Point Intercept Plant Survey Methodology

The methods used for the project will follow our RMBEL Standard Operating Procedure (SOP) for aquatic vegetation surveys and involve use of a point-intercept survey as described by Madsen (1999). GIS software will be used to create a grid of points overlaying depths 0-25 feet on the Lake at predefined intervals consisting of 120, 100, and 80 meter intervals. Upon approval, the points at the specified interval will be uploaded into a hand-held Global Positioning System (GPS) and navigated to with a watercraft.

Once on-site, an electronic depth finder or depth stick would be used to record depth in 1 foot increments and a double-sided, weighted garden rake would be used to collect vegetation (Figure 1). The rake would be deployed from a predefined side of the boat and be dragged across the bottom for approximately 9 feet in an effort to sample a 1 meter square area.



Figure 1. Double-sided, weighted garden rake

For each sampling location, vegetation sampled will be recorded to genus or species level and quantified by a number scheme 1, 2, 3, or 4 as follows:

- 1) = plants filling $\leq 1/3$ of the rake head
- 2) = plants filling between $1/3$ but $\leq 2/3$ of the rake head
- 3) = plants filling $> 2/3$ of the rake head
- 4) = plants over the top of or covering the entire rake head

Vegetation will be sampled at all points found to be located within the vegetated zone. We would continue sampling points until no vegetation was found. Therefore, we would be sampling one interval beyond the point at which vegetation was last found.

Upon completion of the field work, reporting would be conducted at our office in Detroit Lakes, MN. If treating, a shapefile of the identified curly leaf areas will be sent to the DNR, Lake Association, and the applicator within two days of the survey.

The detailed final report would be submitted within one month of the survey. The final report would include the following information at a minimum:

- 1) Frequency of occurrence of each taxon found. This would be calculated from the number of points sampled.
- 2) Combined frequency of native submersed aquatic plants, all submersed aquatic plants, and all species found.
- 3) The number of submersed native and non-native species at each point, and the average number of all submersed species at each sample point calculated in Microsoft Excel.
- 4) The observed maximum depth of submersed plants.
- 5) Recommended areas of treatment for curly-leaf pondweed.

In addition, graphs and maps will be created to supplement data and provide a visual sense where needed.

One color printed copy of the report will be supplied to the Big Webb Lake Association, along with both pdf and Microsoft Word electronic versions of the report. All map files will be inserted into the report and also sent as image files to be used in public information and outreach materials.

Maps of Survey Area

Maps representing point coverage for specified areas of the lake:

The following maps represent point coverage for Clearwater Lake (18-0038-00). Intervals associated with the maps are 65m, 80m, and 100m (from top to bottom). Our pricing is per point, so closer spacing is more expensive than wider spacing. Please contact us for a specific price quote.



