

Wilkinson Lake



Contour Survey 4/05/17

Data collected and prepared by Ramsey
Conservation District for

**Vadnais Lake Area Water Management
Organization**

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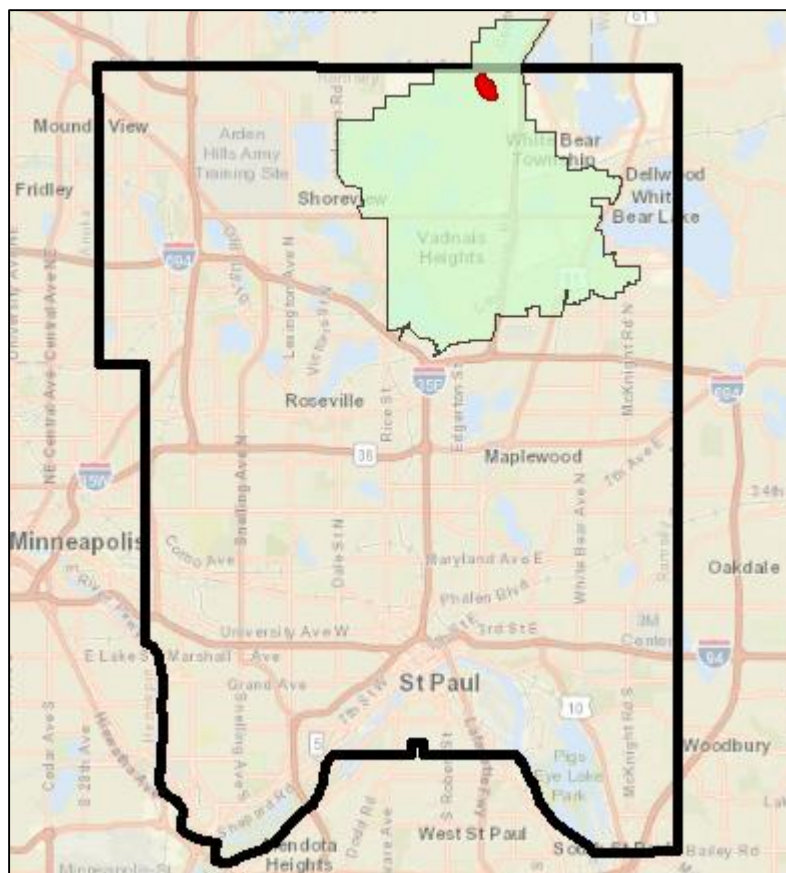


Figure 1. Location of Wilkinson Lake (red) in Ramsey
County within VLAWMO borders

Wilkinson Lake Depth Survey


April 5, 2017

Methods:

A Lowrance HDS-5 Insight Global Positioning System (GPS)-enabled depth finder was used to collect bathymetry and other data on Wilkinson Lake on April 5, 2017. The lake was transected at an average distance of 40 meters between transects at a speed of about 5 miles per hour. A measuring rod was used to spot check depth accuracy. Sonar log data was processed using the Contour Innovations, LLC, BioBase system and adjusted by 1.86 feet to account for the depth of the transducer and field measurements.

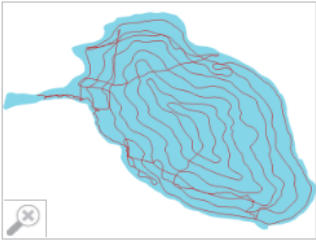
Results:

The datapoints were exported from BioBase and interpolated using ArcGIS software, where contour lines were generated. Results include a bathymetry map featuring depth in one-foot intervals, a bottom composition map, and a biovolume map. The contour lines will be sent with this report as a shapefile. The deepest point of this lake was recorded at 5.66 feet. While that point was not measured with the rod, some areas were confirmed at 4.8 ft depth with the measuring rod. As BioBase's Quality Control technician noted, the transducer did generate some false depths, which impact the contour lines. The survey showed a water volume of 451.00 acre-feet.

VEGETATION ANALYSIS REPORT

Wilkinson Lake, Ramsey County MinnesotaGenerated: 4/10/2017 1:57:24 PM (UTC)

Waterbody Size: 42.36 ha (104.70 acres)[report link](#)



Data Collector	Survey Size	Settings
Andrea Prichard	Area: 41.31 ha (102.09 acres)	Track Buffer: 25 m Grid Cell Size: 5 m Min. BV Detect: 5% Min. Veg Depth Detect: 0.73152 m
Data Collection Date 4/5/2017 2:31:01 PM (UTC)	Percent: 97.52% of waterbody Volume: 542,526.10 cu. m (439.83 acre ft)	Offset 0.566928 m 1.86 ft is the average depth disparity between the transducer reading and the measuring stick used in the field
Average Water Temperature 10.21° C (50.37° F)	Est. Waterbody Volume ? 556,295.00 cu. m (451.00 acre ft)	Quality Control Reviewer: McCormack, Ian Comments: False depths due to thick vegetation.
Location Start: 45.1190033, -93.07040405 End: 45.11903, -93.07073212		

More robust interactive map data, including sonar log trip replays, can be viewed on the ciBioBase website: www.cibiobase.com.

Bathymetry of Wilkinson Lake - April 5, 2017

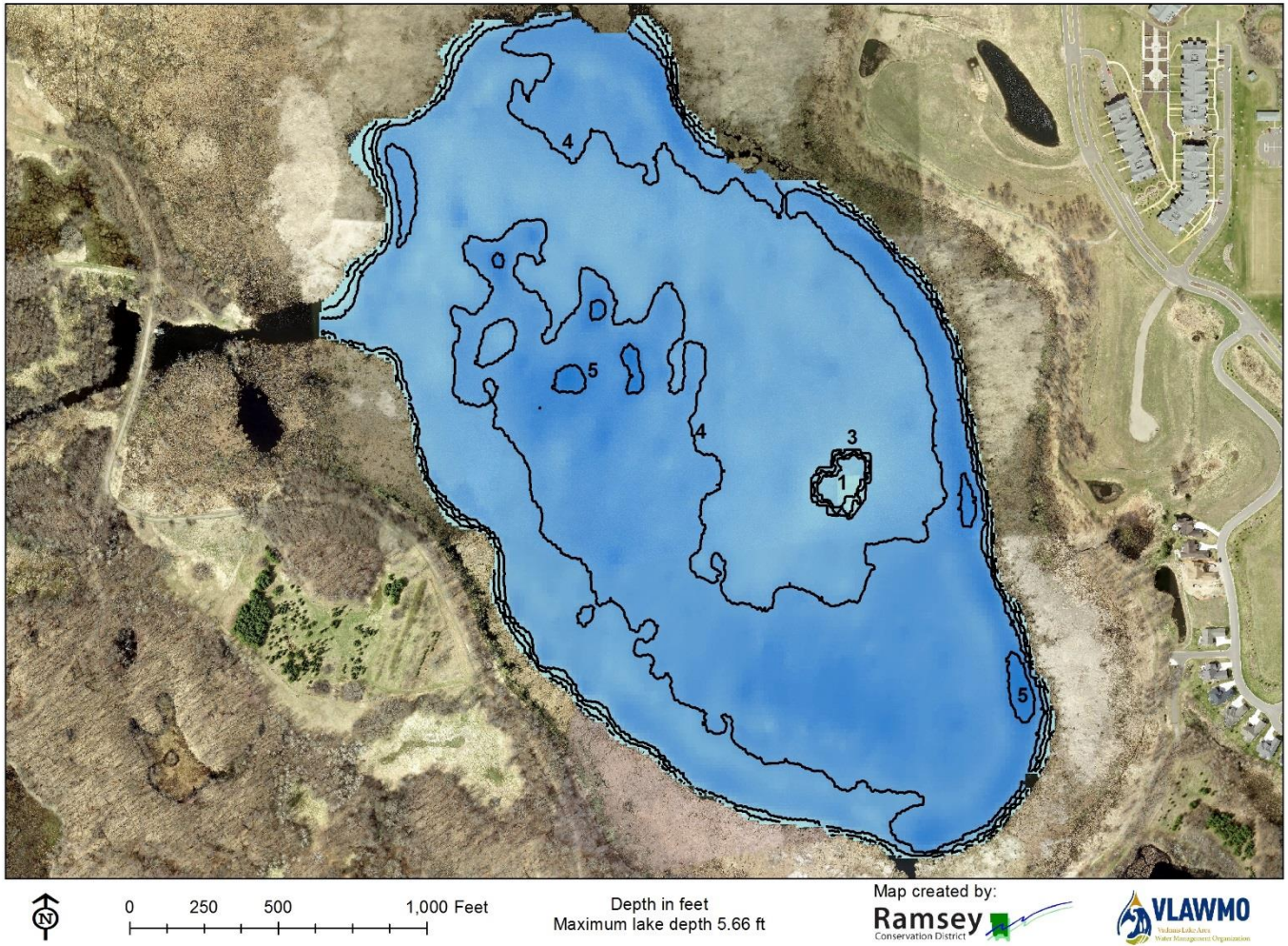


Figure 2. Depth of Wilkinson Lake with 1-ft contours. Note: BioBase technicians noted that false depth readings were generated due to vegetation. On average, rod measurements showed water depths almost two feet deeper than the transducer's original readings, which were re-processed and interpolated to correct for this difference. The shallow island in the east was entered manually into GIS since the boat was not able to pass over it to gather data.

Wilkinson Lake Bottom Composition - April 5, 2017

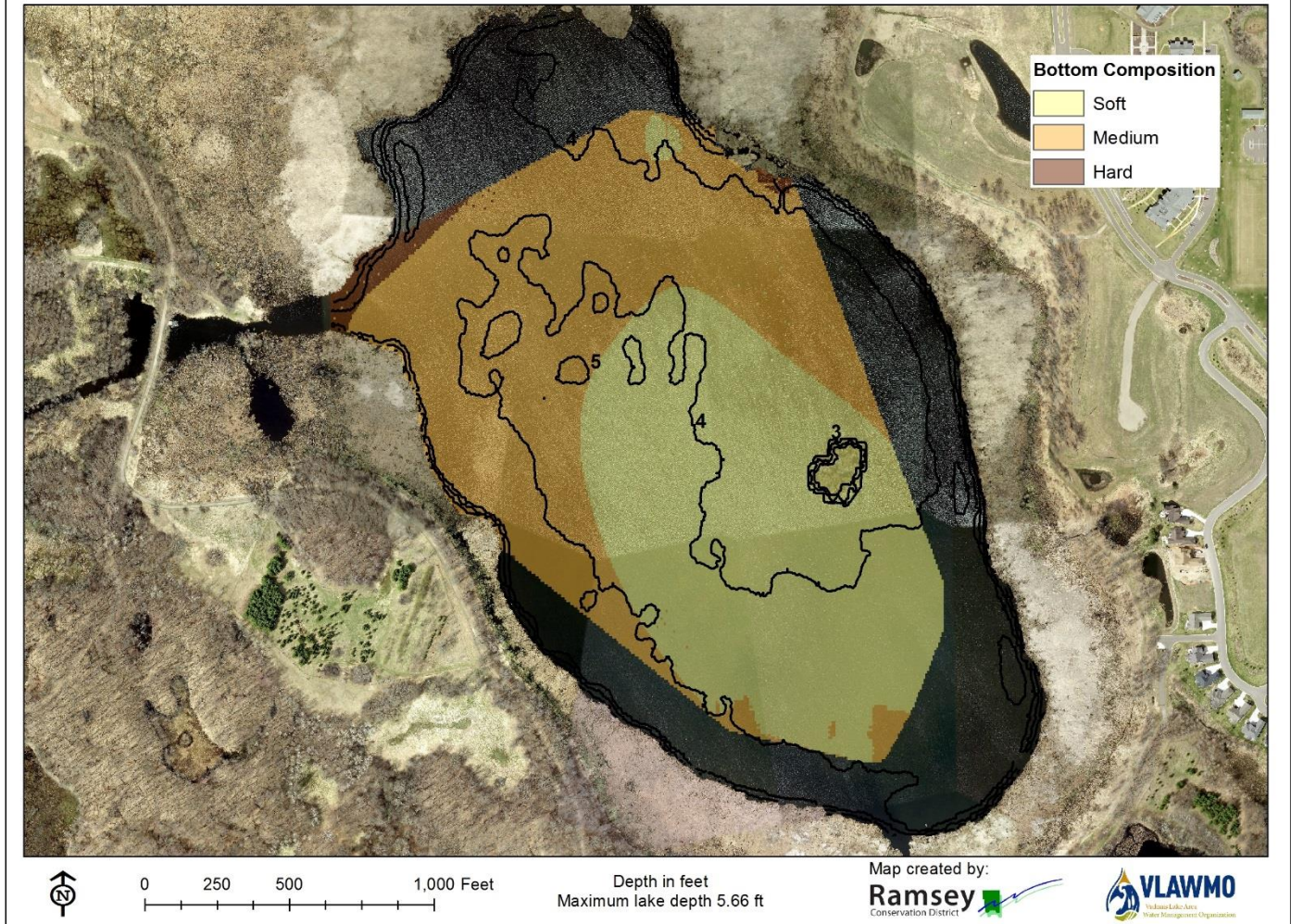


Figure 3. Hardness of Wilkinson Lake bottom with 1-ft contours. Note: The transducer was unable to collect a good distribution of data points due to the shallowness of the lake. This map is interpolated from points covering only about 20% of the lake.

Wilkinson Lake Biovolume - April 5, 2017

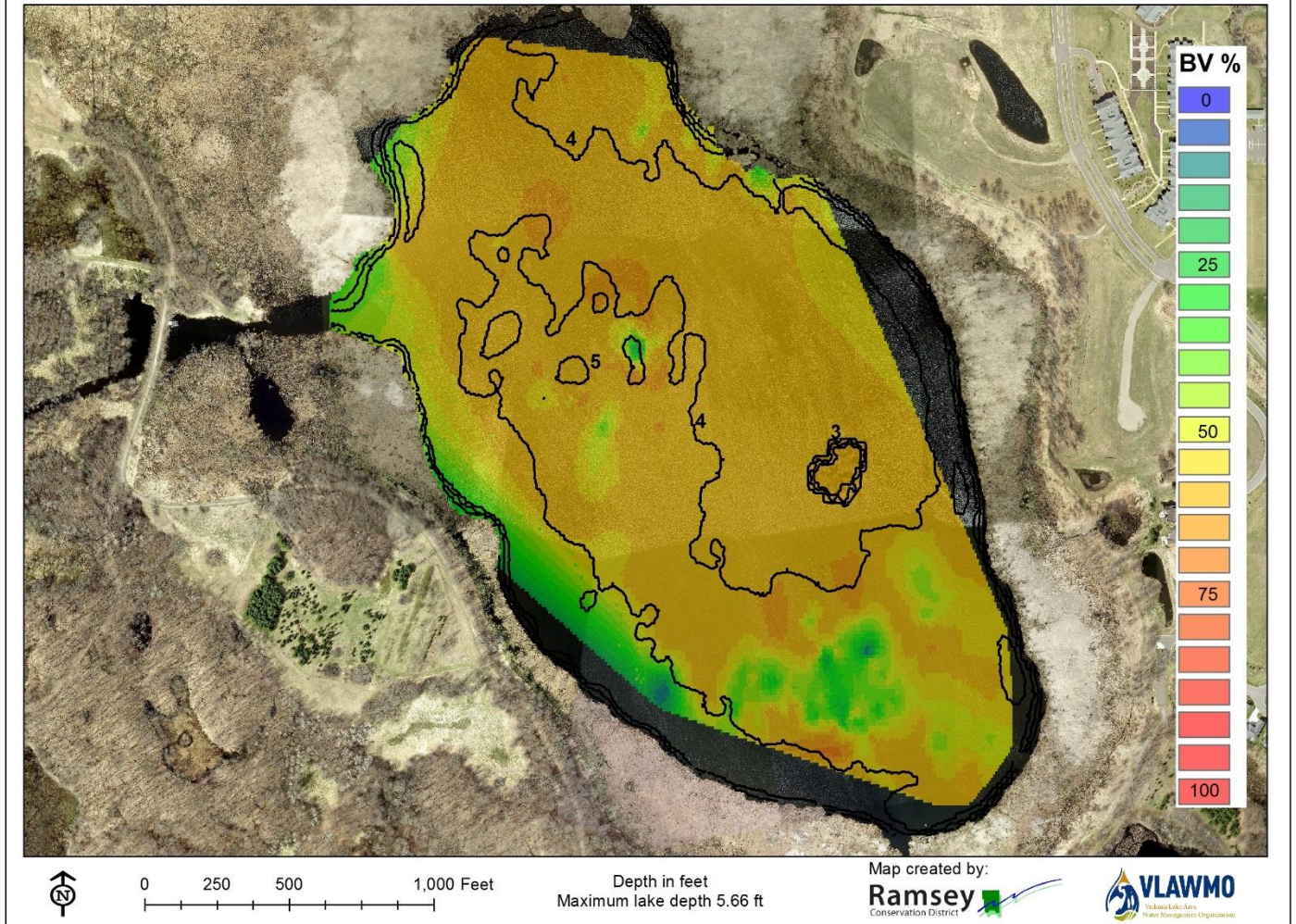


Figure 4. Biovolume of Wilkinson Lake bottom with 1-ft contours. Note: The transducer was unable to collect data points evenly throughout the lake, particularly in the eastern section around the island due to shallowness. This map is interpolated from points covering about 60% of the lake.