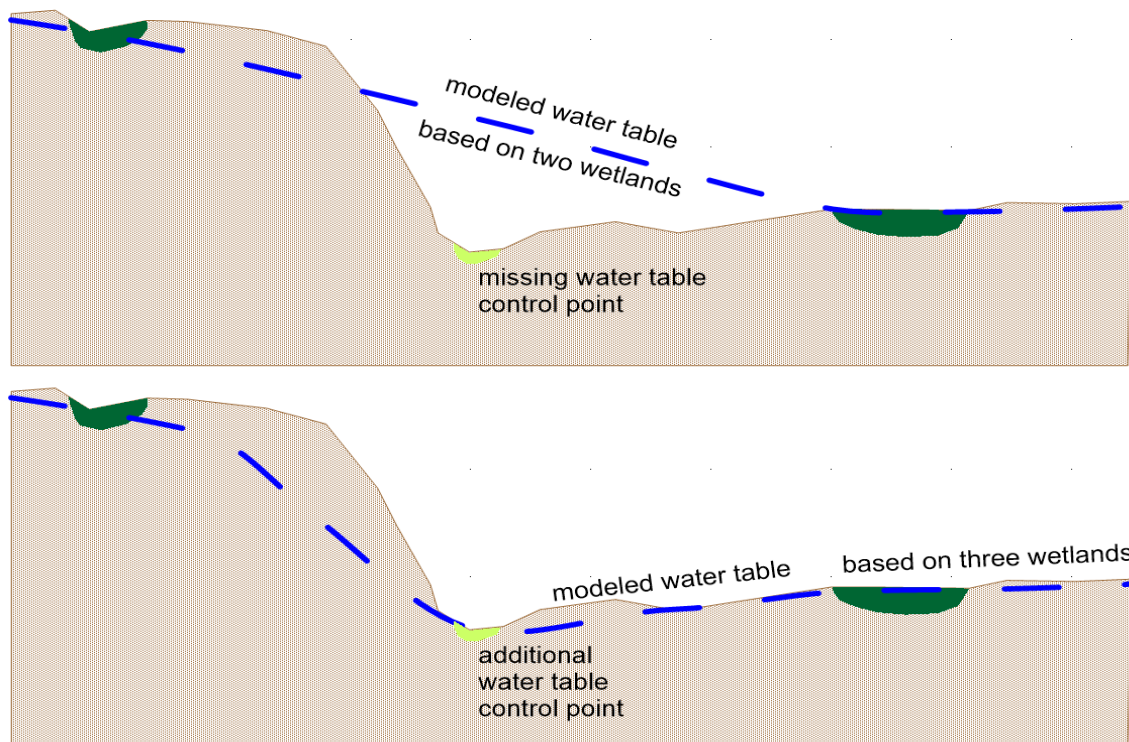
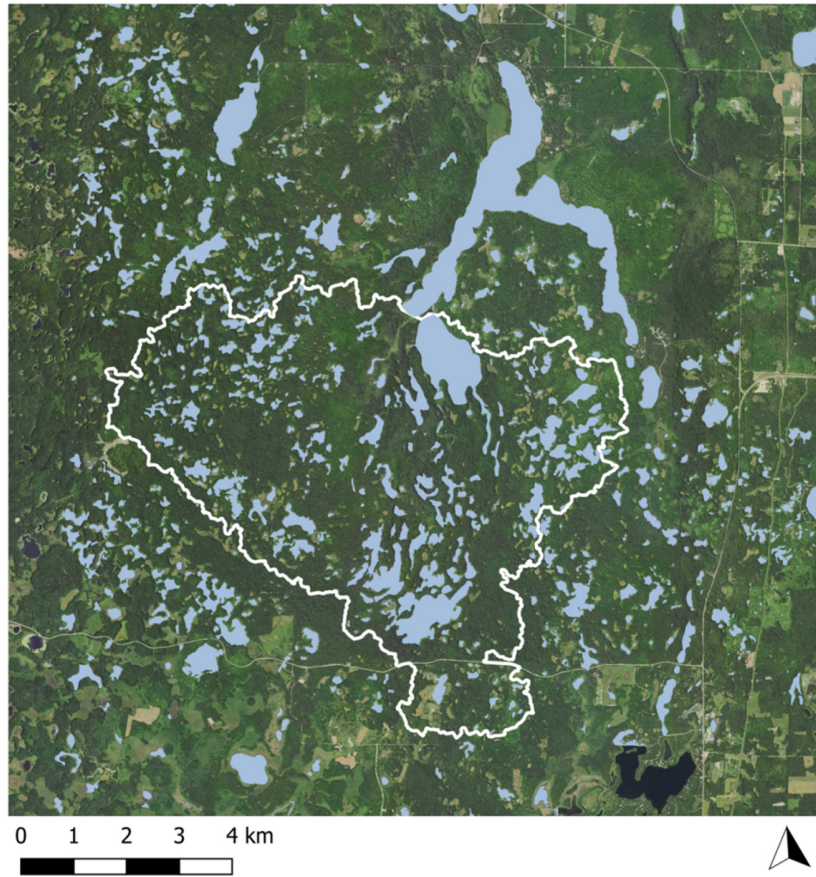


**Figure S1.** Three-meter resolution digital elevation model of the study area (Minnesota Geospatial Information Office 2018) [1].

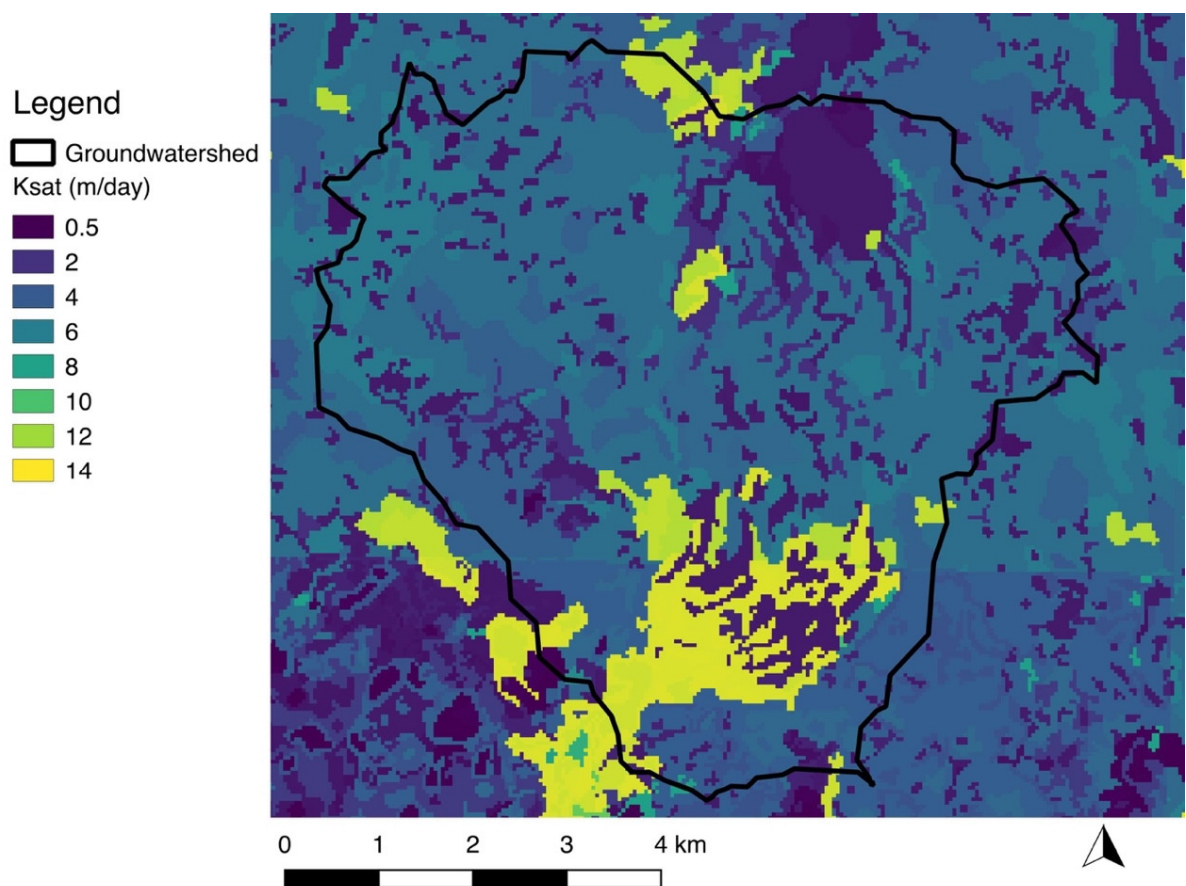


**Figure S2.** Profile showing the effect of adding additional water-table control features in an area of complex topography.

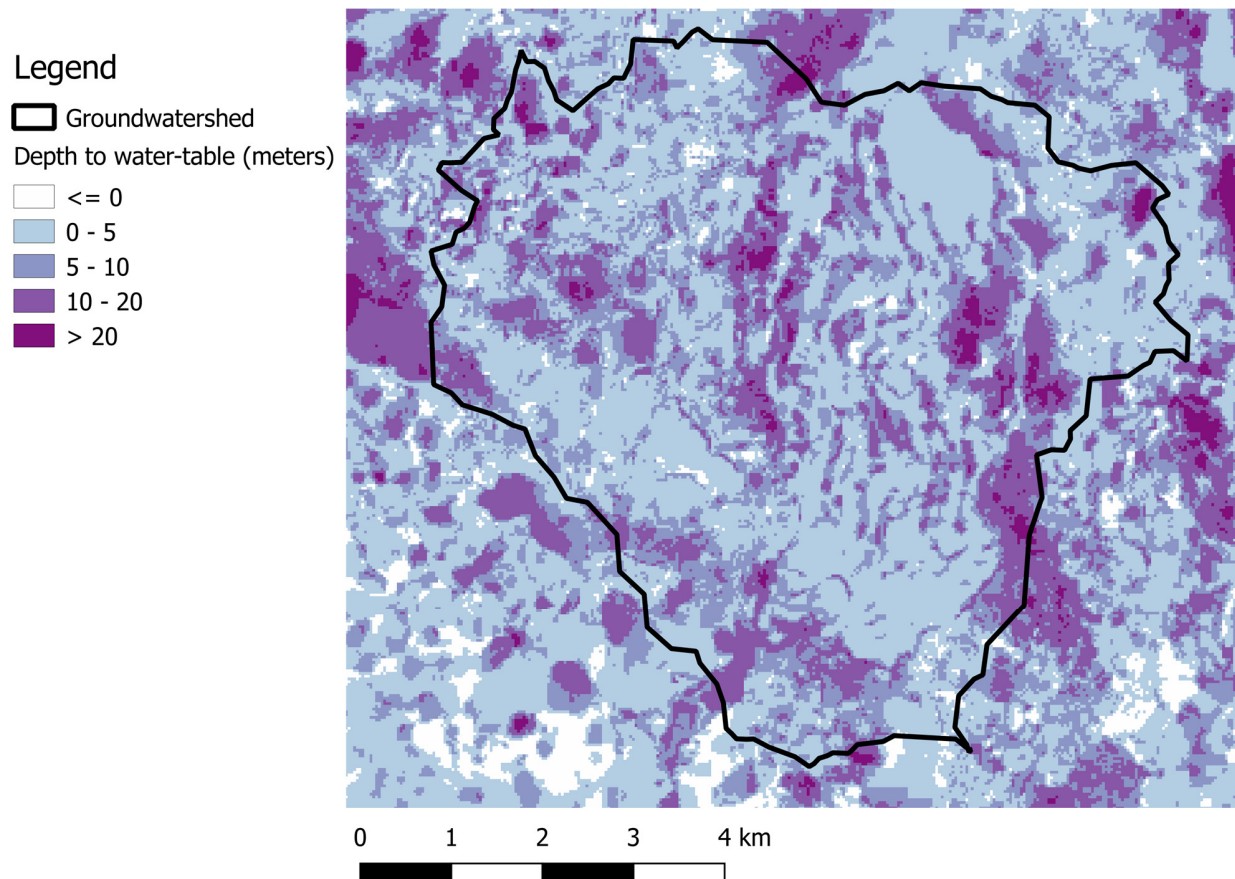


**Figure S3.** Wetland and lake polygons used to interpolate the water-table surface (in blue). Elk Lake and Nicolet Creek topographic/surface watershed is outlined in white.

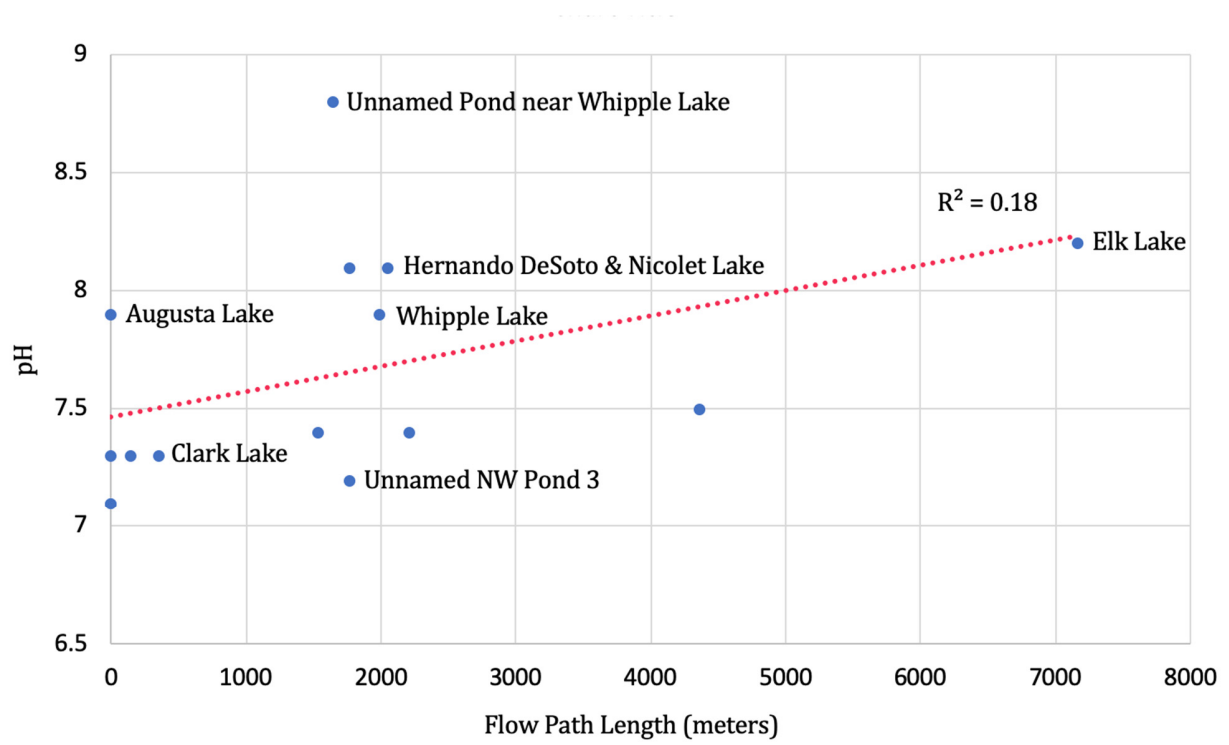




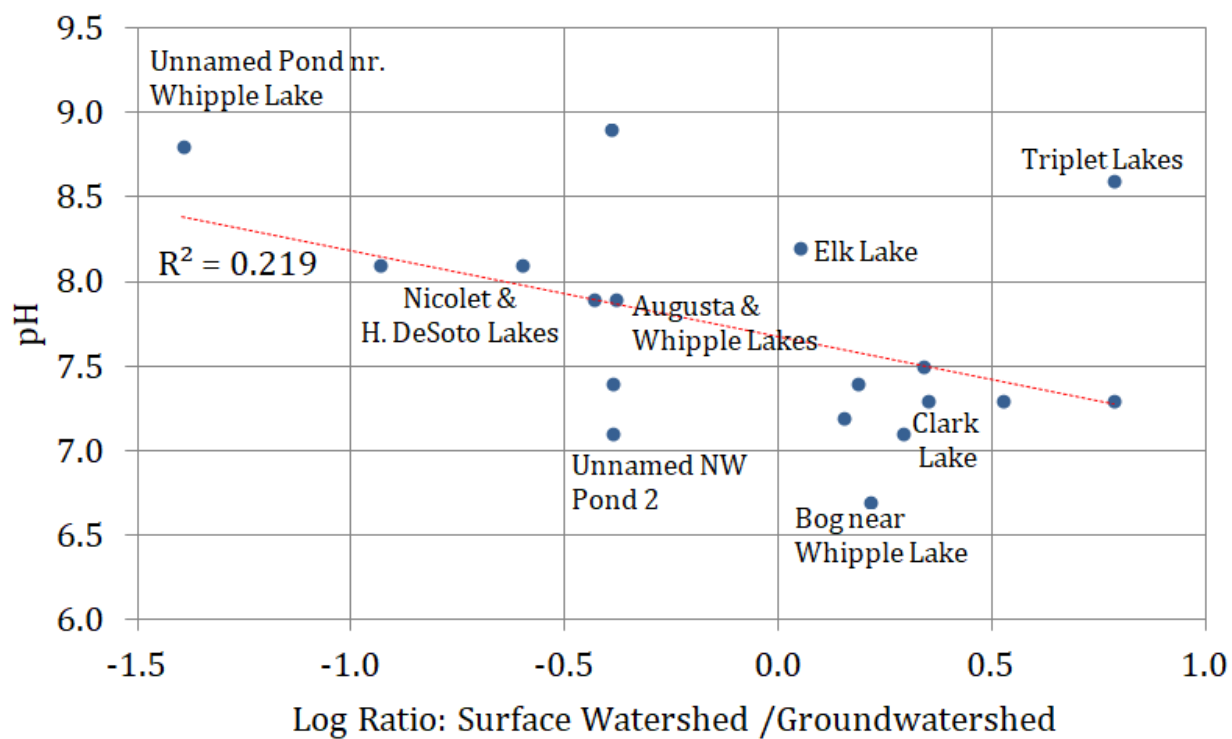
**Figure S4.** Saturated hydraulic conductivity  $K_{sat}$  for the study area based on SSURGO soil polygons and weighted average soil series profiles (Soil Survey Staff 2019 [2]; Wieczorek 2014 [3]).



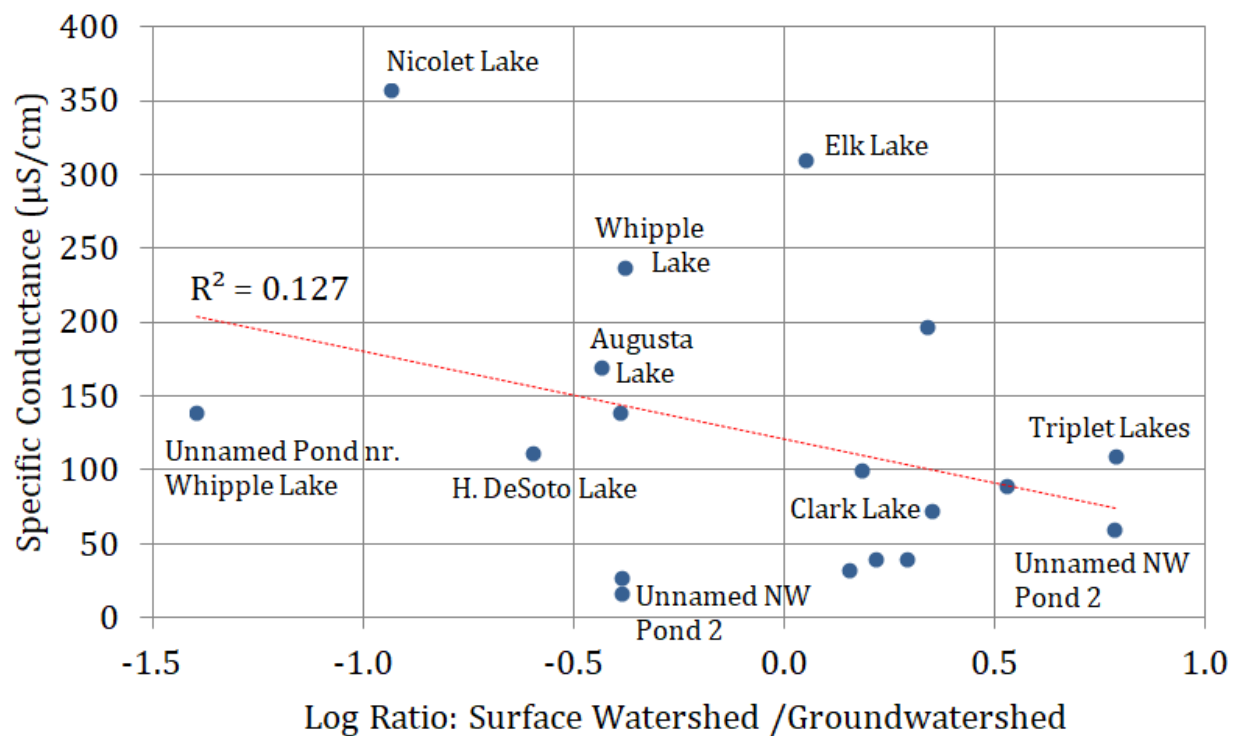
**Figure S5.** Depth to the interpolated water-table surface for the study area. Shown in white are areas where the interpolated water-table surface lies slightly above the DEM.



**Figure S6.** Scatter plot of flow path lengths and pH measurements for sampled lakes and wetlands. Locations of labeled points are shown on Figure 6.



**Figure S7.** Scatter plot of the watershed area ratio and pH measurements for sampled lakes and wetlands. Locations of labeled points are shown on Figure 6.



**Figure S8.** Scatter plot of the watershed area ratio and specific conductance

measurements for sampled lakes and wetlands. Locations of labeled points are shown on Figure 6.

## References

1. Minnesota Geospatial Information Office MnTOPO Viewer Available online: <http://arcgis.dnr.state.mn.us/maps/mntopo/> (accessed on Aug 2, 2019).
2. Natural Resources Conservation Service Web Soil Survey (SSURGO) Available online: <https://websoilsurvey.nrcs.usda.gov/> (accessed on Aug 12, 2019).
3. Wieczorek, M.E. Area-and depth-weighted averages of selected SSURGO variables for the conterminous United States and District of Columbia, Data Series 866 2014.