

**Centennial Honors College**  
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**Nutrient Concentrations in Tributaries to Spring Lake, McDonough County,  
Illinois**

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Geology**

Water samples from the Spring Lake watershed tributaries were collected in an effort to determine locations in the watershed that are highest in production of the nutrients nitrate and phosphate. Excessive phosphorous in Spring Lake was identified as a problem by the Illinois EPA and the Spring Lake Watershed committee in their "Spring Lake Watershed Plan, July 2005." However, this same report states that the locations of high concentrations of phosphorous in the watershed are unknown. We hope to see if there is any correlation between the nutrient levels and either the watershed area and/or the land use upstream of the sampling location.

At the seven locations the phosphate concentration ranges from 0.08 - 3.3 mg/L. The nitrate ranges from 0.01- 4.5 mg/L. The location (#6) with the highest individual measurements of both phosphate and nitrate is located about 0.2 miles away from a rural high school that discharges wastewater into an agricultural drainage tile. The mean phosphate ranges from 0.25-1.0 mg/L. The mean nitrate level ranges from 0.57-3.1 mg/L. Location 5 exhibited the highest mean nitrate (3.1 mg/L) and the most consistent concentrations, with standard deviations of 0.037 mg/L and 0.050 mg/L phosphate and nitrate respectively. Location 6 exhibited the highest mean phosphate (1.0 mg/L) but had the highest standard deviation for both phosphate (0.61 mg/L) and nitrate (1.7 mg/L) concentrations. This may be due to the fact that location 6 drains the smallest watershed area currently being tested and may be influenced by a nearby school.