Undergraduate Research and Mentoring in New Biology

Nutrient dynamics in the Spoon River watershed

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We will be conducting a follow-up research from my previous summer research of 2012 in which I looked at a watershed's nutrient input, which is located in Champaign County. It is well established that tile drainage transports nitrate to streams in Central Illinois, which ultimately flow to the Gulf of Mexico and contributes to the formation of a seasonal hypoxic zone. The Spoon river watershed is one of central Illinois streams that have an influence in this environmental problem. The Spoon River collectively with other watersheds allows nutrients such as nitrate to flow downstream Illinois into major rivers leading to end in the Gulf.

Hypotheses:

1) Nitrate concentrations in the Spoon River will increase as water flows downstream.
2) Nitrate concentrations in the Spoon River will decrease as water flows downstream.
3) There will not be a pattern of nitrate concentration in the Spoon River as water flows downstream.
4) There will be part of the Spoon River with greater nitrate concentrations that may be related to management or topography (hot spots).

Objectives:

As tile drainage is known to transport nitrate concentrations to streams in central Illinois, the project is to collect water samples and analyze their nitrate, phosphorous and other nutrient concentrations from the Spoon River watershed. The purpose of the research that will be conducted through the URM-NB summer research program is to further investigate the Spoon River watershed with previous data and to investigate its nutrient input and its overall effects on the environment and the Gulf of Mexico. Supported by The Undergraduate Research and Mentoring in New Biology program, NSF award #1041233.