



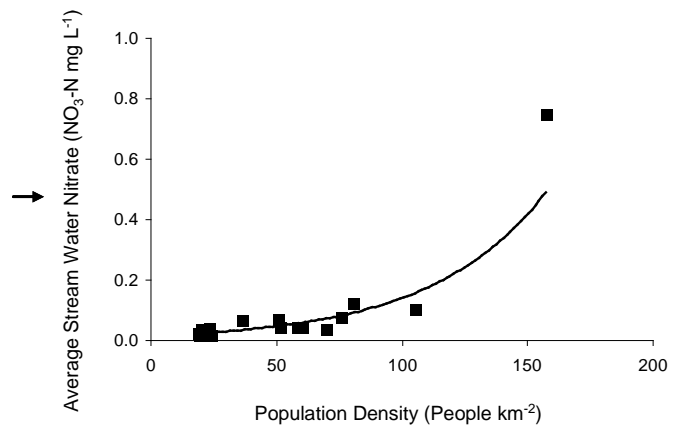
**TITLE: LINKING SURFACE WATER QUALITY TO LANDSCAPE CHARACTERISTICS IN THE LAMPREY RIVER WATERSHED**

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**RESEARCH OBJECTIVE:** Our objective is to predict variation in surface water quality among sub-basins of the Lamprey River watershed, southeastern NH, based on landscape characteristics such as land use, population density and soils.

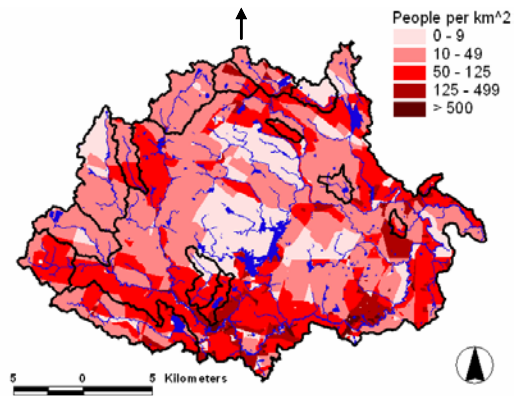
**METHODS:**

- Sample and analyze stream water
- Characterize sub-basins using a Geographical Information System (GIS)
- Compare stream water quality to sub-basin land use, human population density and soil characteristics



**RESULTS:**

- Average surface water nitrate was generally low (<1.0 mg L<sup>-1</sup> NO<sub>3</sub>-N)
- Variation in nitrate concentration was best explained by human population density
- Nitrate increased exponentially in response to areas with higher human population densities
- Likely sources of nitrate are septic systems, sewage, fertilizers and atmospheric deposition



**APPLICATIONS:**

- Nitrate is a known drinking water contaminant and nitrate loading to coastal zones can cause toxic algal blooms and fish kills
- The relationship between stream water nitrate and population density that we established for the Lamprey watershed will be applied to sub-basins of the Connecticut River
- Our results contribute to the basic understanding of nitrogen cycling in coastal sub-urbanizing basins and are applicable to managers, planners and citizens who are concerned with maintaining water quality in the face of future population growth and development

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