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WATER QUALITY AND THE LANDSCAPE: LONG-TERM MONITORING OF RAPIDLY DEVELOPING SUBURBAN WATERSHEDS

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Descriptors: land use, water quality, nutrients, non-point source pollution

Problem and Research Objectives:

New Hampshire 's surface waters are a very valuable resource, contributing to the state's economic base through recreation (fishing, boating, and swimming), tourism and real estate values. Many rivers and lakes also serve as local water supplies. New Hampshire currently leads all New England states in the rate of development and redevelopment (2000 Census). The long-term impacts of population growth and the associated changes in land use to New Hampshire 's surface waters are uncertain. Of particular concern are the impacts of non-point source pollution to the state's surface waters (e.g. septic, urban run off, road salt application, deforestation and wetland conversion). Long-term datasets that include year-to-year variability in precipitation, weather patterns and other factors will allow adequate documentation of the cumulative effects of land use change and quantification of the effectiveness of watershed management programs.

The proposed work will continue documentation of long-term changes to water quality in response to changing land use and management practices resulting from population growth. There are several components to this project, drawing from the efforts of local watershed monitoring groups, the UNH Office of Sustainability, as well as on-going research projects by UNH staff and students, all leading to long-term datasets of water quality in New Hampshire. These datasets can be used to assess the impacts of human development, land use changes and management practices in rapidly growing areas of the state. Further, these data could be used to test and refine water quality models and aid in the development of best management practices and restoration efforts across the state and region.

The proposed project will provide detailed, high-quality, long-term datasets which will allow for a better understanding of the impacts of land use change and development on surface water quality. This could occur through the development, testing and refinement of predictive models, accurately assessing the impacts of watershed management practices, and potentially early warning of dramatic changes to surface water quality in the region resulting from rapid development.