EFFECTS OF LAND USE ON WATER QUALITY IN A CHANGING LANDSCAPE III
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Problem and Research Objectives: The waters of New Hampshire represent a valuable water resource contributing to the state's economic base through recreation, tourism, and real estate revenues. Some lakes and rivers serve as current or potential water supplies. For most residents (as indicated by boating and fishing registrations) our waters help to insure a high quality of life. As documented in the 2000 Census, New Hampshire currently leads all of the New England states in the rate of new development and redevelopment. The long-term consequences of the resulting pressure and demands on the state's precious water resources remain unknown. Of particular concern is the response of our waters to increasing non-point source pollutant loadings due to watershed development and land use activities. While in-depth watershed nutrient budget measurements and modeling have been attempted on a small number of watersheds scattered throughout the state, these studies represent only short-term examinations of non-point source pollution nutrient loading. A longer-term monitoring program conducted through differing weather years as well as before and after changes on the landscape occur and watershed management programs are implemented is required. This will better document impacts of land use changes and management efforts that have happened and to better model and predict future impacts and successes.

The proposed investigation would allow for the improvement of predictive models used for watershed planning and management. The benefits of this are wide ranging from assisting watershed stewardship education efforts throughout the state and region to providing existing watershed based programs like the EPA Basins Model Initiative, the statewide Unified Watershed Assessment Initiative (under the federal Clean Water Action Program) as well as regional initiatives (US EPA Region 1 and NE states) to develop total daily maximum loading criteria (TMDLs) and nutrient criteria for lakes, rivers and streams. The project will also complement current efforts underway to predict receiving water response to nutrient loading for source water protection planning. In addition the work will provide additional data to include in our submissions to EPA's new STORET and for use in a collaborative web based water quality data distribution project between UNH and the NH Department of Environmental Services.