FACT SHEET 1: NH EPSCoR ECOSYSTEMS & SOCIETY PROJECT

New Hampshire's Changing Climate, Land Cover, and Ecosystems

Our natural world provides many services that are the foundation for economic vitality, environmental health, and clean water across the Granite State.

These ecosystem services support recreation and tourism, protect us from flooding, and support our well-being. Collectively, they support many of New Hampshire's major industries, sustain the health and well-being of its residents, and serve as an anchor for our cultural identity. This project integrated ecosystem measurements, process-based models, and social science to better understand how climate and land cover change affect key terrestrial and aquatic ecosystems across multiple scales.

CLIMATE AND LAND COVER

We created a new climate dataset for New England consisting of more than 200 climate variables at 3km horizontal resolution and hourly intervals. Our main objective was to simulate future climates to predict the potential impacts on ecosystems and ecosystem services in New Hampshire. A suite of land cover scenarios were developed to represent a range of possible future land use conditions. Climate and land cover data were used to evaluate the individual and combined impact on selected ecosystem services.

TERRESTRIAL ECOSYSTEMS

We linked terrestrial and aquatic ecosystem process models to simulate hydrologic and water quality characteristics related to ecosystem services at regional scales. The linked model integrates two existing models (forest network and river network) to establish consistent responses to changing drivers across climate, terrestrial, and aquatic domains.

AQUATIC ECOSYSTEMS

An intensive aquatic sensor network was installed at stream headwater and large river sites, and a spatially extensive aquatic network of stream and river sites was distributed throughout the state. The intensive aquatic sensors, integrated with a soil sensor system, provide coupled measurements of vegetation, soil conditions, snow cover, and headwater stream response and allow us to examine how regional land use and within-stream processing influence water quality and nutrient discharge.

HUMAN DIMENSIONS

We evaluated human perceptions and response to ecosystems through surveys, interviews, workshops and economic analyses. We used this information to understand how decision-makers and other residents perceive and value a range of ecosystem services.

A suite of papers published in peer-reviewed literature and reports describes many of the key results and findings of the Ecosystems & Society project. Citations for the peer-reviewed literature are provided on specific topics on the second page of each Fact Sheet.

ACCESS TO DATA: ddc.unh.edu

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