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Modeling Strategies for Adaptation to Linked Climate and Land Use Change in the United States

Over the coming century, changes in climate and land use and land cover (LULC) have the potential to create major changes in land surface temperature, watershed runoff, and ecosystem productivity throughout much of the world. There are a number of potential best management practices (BMPs) for land use planning and design that could be implemented to mitigate impacts resulting from changes in climate and land use. We propose to use a coupled land use - climate change modeling approach to explore the potential impacts of climate and land use change on productivity, watershed outflow and other processes under different adaptive BMP scenarios. The model will simulate implementation of BMPs to varying degrees, and various adaptive scenarios will be compared to “business as usual” scenarios to evaluate the potential benefit of the BMPs. Results from the simulations will be summarized on a decadal time-step and at the small watershed and local jurisdiction (e.g. county) scale.