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Mapping the Current and Future Supply and Demand of Ecosystem Services in the Carolinas

Ecosystem services – the benefits that natural ecosystems provide to people – influence a range of human activities in North and South Carolina. Anglers flock to beaches, search out trout streams, and charter boats to find the best fishing. Avid birdwatchers seek out scenic places with abundant bird communities. Wetlands provide protection to cities and homes vulnerable to flooding and wind damage from storms. How will the provision of these ecosystem services be affected by climate change and continued shifts in land use in our rapidly developing region?

In order for an ecosystem service to be provided, there must be both a supply of the relevant ecosystem product or process and a demand for that product or process. For example, abundant trout in a mountain stream do not contribute to recreational fishing if the stream is hundreds of miles from anyone interested in fishing. Both the supply of and demand for many ecosystem services are likely to be affected by changes in climate and land use, resulting in shifts in ecosystem service provision.

This ongoing project uses spatial mapping of the supply and demand for a variety of ecosystem services in the Carolinas to understand the current distribution of ecosystem services and how future climate and land-use changes may cause changes in ecosystem service provision. To illustrate this approach, we will discuss native pollination of pollinator-dependent crops, human populations relative to popular locations for recreational birding, and the vulnerability of people and property to flooding.