ASSESSING COASTAL FORESTED WATERSHEDS FOR SUSTAINABLE LAND USE

A McIntire-Stennis supported project

CLEMSON
College of AGRICULTURE, FORESTRY AND LIFE SCIENCES

A deeper understanding of ecohydrological factors that include short-term seasonal variability and long-term climate variability in coastal forests can inform decision-makers in planning for sustainable development.

For example, the assessment of coastal forested water budgets assists in decision-making such as planning and zoning requirements, landscape design criteria and decision-making for stormwater management and regulation.

In order to provide this information, Clemson University researcher Dan Hitchcock and his team are working on outreach efforts that will provide a mechanism for the conceptual transition between the science of forest hydrology and the practice of sustainable development for protection from flood events and stormwater runoff.

Determining the percentage of rainfall that infiltrates the soil in certain soil and climate regions, or the influence of shallow groundwater on watershed discharge, can be translated into benchmarks for stormwater practice design optimized for development in that area.

And while the project will investigate historical and current hydrological data, including those related to rainfall, runoff and stream flow from typical versus historic storm events in coastal South Carolina in order to evaluate long-term variability and relationships between land cover and hydrologic response, it will also forecast future hydrological changes in coastal forested watersheds and serve as a mechanism for creating sustainable communities and protection from flooding and adverse water quality impacts.

About McIntire-Stennis

The McIntire-Stennis program, a unique federal-state partnership, cultivates and delivers forestry and natural resource innovations for a better future. By advancing research and education that increases the understanding of emerging challenges and fosters the development of relevant solutions, the McIntire-Stennis program has ensured healthy resilient forests and communities and an exceptional natural resources workforce since 1962.

USDA

IMPACT

By collaborating with existing outreach programs, this project will ensure knowledge gained by the research is conveyed to decision-makers and the general public, who have questions about coastal development, stormwater management practices and resilient communities for adaptation to climate variability.

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Clemson Extension's Carolina Clear program partners with more than this many communities in South Carolina to provide stormwater education, outreach and public involvement opportunities.

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Prior to European settlement, pine savannas dominated up to this much of the southeastern coastal plain landscape. Because of a high demand for scenic vistas, both mountain and coastal properties are being converted to non-forested areas faster than other areas.

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The number major river basins in South Carolina — Savannah, Saluda, Edisto, Salkehatchie, Broad, Catawba, Santee and Pee Dee — all of which have the goals of the Clean Water Act supported by the Department of S.C. Health and Environmental Control's Watersheds Program.