

# IMPACT OF CLIMATE CHANGE ON COASTAL FORESTS

A McIntire-Stennis supported project

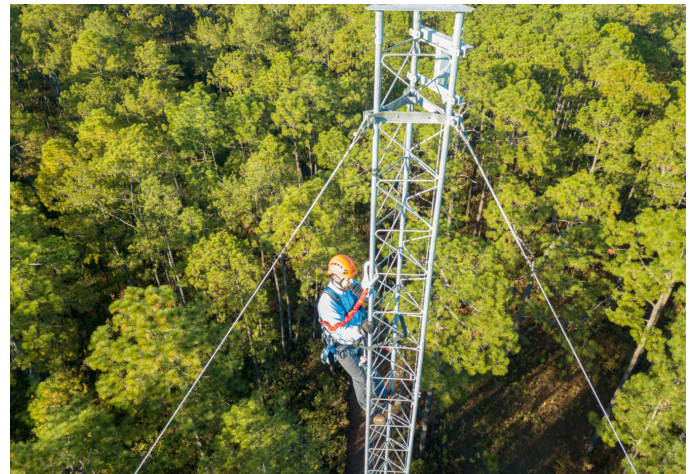
Sea level rise and increased saltwater intrusion are converting tidal freshwater forested wetlands and other coastal swamp forests of the southeastern U.S. into low-salinity marsh.

These radical shifts from forest to marsh will have major side effects in wetland ecological processes such as nutrient cycling, tree mortality and provision of wildlife habitat. As a result, restoration of these ecosystems will be far more complex than simply planting trees or diverting water.

To better achieve these restoration efforts, Clemson University researchers are working to quantitatively describe the structure of forested wetland communities in the southeastern U.S. coastal region and determine how wetland functions are influenced by disturbance and changes in hydrology.

The researchers will measure aboveground production of healthy and stressed forest sites in the South and use long-term datasets to model and project the impacts of hydrological/salinity changes due to global climate change on freshwater forested wetlands.

Ultimately, this information will aid policy analyses and management planning, as well as provide students, professors, land managers and regulatory agencies with information on basic and applied forested wetland processes, regeneration/restoration methods and forest management techniques for coastal forests. It will also result in better understanding of the growth and responses of tree species to management and environmental conditions.



## 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.



## IMPACT

Clemson will draw on various outlets to bring its findings to stakeholders and the public in order to aid policy analyses and management planning.



**2004**

The year in which the research team established permanent research sites in Georgia, South Carolina and Louisiana to understand how climate-associated factors interact to elevate soil salinities and alter flooding.



**12**

Number of research sites established in South Carolina for monitoring in conjunction with the USGS Aquatic and Wetland Research Center.



**70**

To date, results from this project have been used in more than this many referenced journal articles, as well as two books, 17 book chapters, 34 proceedings papers and 285 presentations at scientific meetings.