



Presenter

Jennifer Plunket - North Inlet-Winyah Bay NERR

Additional Authors

Hope Sutton - North Carolina NERR

A new method to assess the vulnerability of habitats to climate changes

The Climate Change Vulnerability Assessment Tool for Coastal Habitats (CCVATCH) was created within the National Estuarine Research Reserve (NERR) System to help land managers, decision makers, and researchers develop conservation, management, and restoration plans that consider the effects of climate change. CCVATCH is an evaluation process that helps to identify sources of vulnerability, provides a greater understanding of the potential impacts of climate change alone and in relation to existing non-climate stressors, and identifies data gaps and research needs. The CCVATCH was recently used to assess four intertidal marsh habitats at the North Carolina NERR and to compare the North Inlet-Winyah Bay NERR intertidal marsh and the Murrells Inlet marsh in South Carolina. All six sites were determined to have moderate to high levels of overall climate vulnerability in 30 years, although the main causes of vulnerability varied. The direct effects of sea level rise were considered to be the main sources of vulnerability for the South Carolina marshes, but the potential effects of temperature on invasive species and the potential effects of precipitation and sea level rise on erosion may also increase vulnerability at these sites. An increase in the intensity of extreme climate events (e.g., tropical storms) would directly increase the vulnerability of marshes in North Carolina, and storms may also interact with current stressors of invasive species and erosion to increase vulnerability. This assessment process shows that sources of climate vulnerability may be highly site specific, and management plans should take into account how current ecosystem stressors, such as invasive species and erosion, may be exacerbated by the changing climate. This presentation will demonstrate how the CCVATCH can be used to evaluate habitats for sources of climate vulnerability and potential management actions to increase resilience.