

Adapting to a Changing Climate in the Southeast



“Climate change is the transformational conservation challenge of our time. . . the proverbial “fuel to the fire,” accelerating the expansion of invasive species; rising sea levels along our 166 coastal refuges; altered hydrology in rivers and wetlands; and myriad observed changes to our fragile Arctic ecosystems, including diminished sea ice, coastal erosion, shrinking glaciers, and thawing permafrost.”

Sam Hamilton, Director of the U.S. Fish and Wildlife Service, at his July 22 confirmation hearing before the Senate Environment and Public Works Committee.

Climate change is and will continue to impact the natural resources that the U.S. Fish and Wildlife Service and its partners are charged with conserving.

Whether it’s change to native terrestrial habitats or sea level rise and impacts to vital coastal wetlands and marshes, we are only beginning to understand what is happening across the country, what is likely to occur in the years ahead, and how our agency will act. Indeed, of the 128 national wildlife refuges in the Southeast more than half are located along the coast.

The Service is working on projects across the Southeast to benefit both wildlife and people both today, when rapid development is our greatest challenge, and tomorrow, when we will have to adapt to higher temperatures, more intense droughts and sea level rise. Those projects include:



Pocosin wetlands by USFWS

Carbon Sequestration

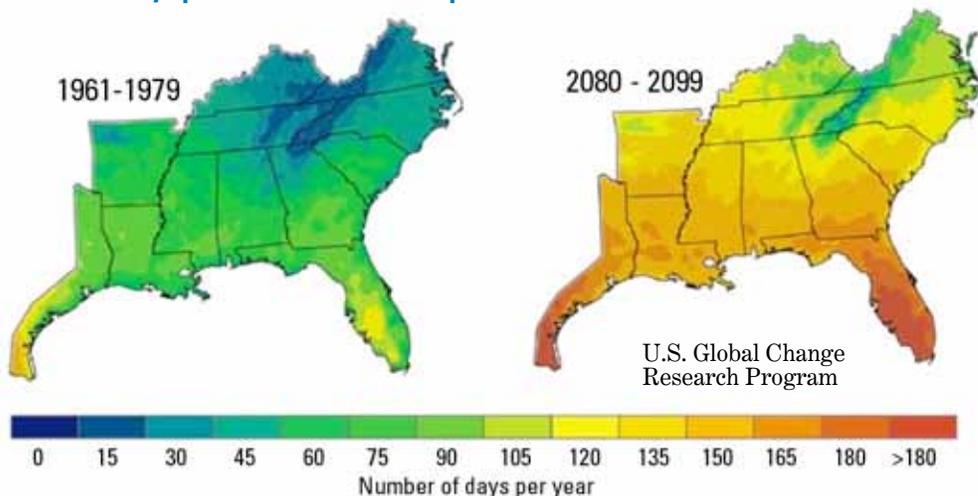
Working with PowerTree, American Electric Power and other energy companies, along with Environmental Synergy, Inc. and several conservation partners including the Trust for Public Land and the Conservation Fund, the Service has added 32,000 acres on seven refuges and reforested or restored approximately 80,000 acres on more than 40 refuges in **Alabama, Arkansas, Louisiana, Mississippi, North Carolina, South Carolina and Tennessee**. These bottomland forests are benefitting fish, wildlife, and migratory bird populations, while absorbing millions of metric tons of carbon. That’s just the beginning: Experts suggest by restoring forested wetlands, **North Carolina** alone could add thousands more acres for carbon sequestration.

In **Florida and North Carolina**, the Service is working with industry partners to explore alternative habitat restoration methods to sequester even more carbon in the Florida Everglades and Pocosin wetlands of the Carolinas.

Coastal Marsh Restoration in North Carolina

The Service is teaming up with Duke Energy and The Nature Conservancy to enhance **North Carolina’s** coastal defenses against climate change. With \$1 million from the utility, the Service is planting marsh grasses, restoring wetlands and building oyster reefs in

Number of Days per Year with Peak Temperature over 90°F



The number of days per year with peak temperatures over 90°F is expected to rise significantly. By the end of this century, projections indicate much of North Carolina will have 90°F plus days for one-third of the year, up from less than 30 days in that temperature zone in the 1960s and 1970s. Arkansas will see 90°F days for up to 150 days a year, and North Florida for nearly 6 months a year.

the Alligator River National Wildlife Refuge to buffer against rising sea levels and absorb wave activity during storms. Rising sea levels have already changed the refuge, with the shoreline receding 85 feet in one hour after Hurricane Isabel in 2003. Models predict accelerated sea level rise will submerge half the refuge's 152,000 acres within 100 years.

By doing the work now, the Service hopes to restore the area's natural hydrology, minimize man-made changes and mitigate future climate change impacts.

Everglades Restoration in Florida

The Obama Administration recently committed \$279 million to the **Florida** Everglades restoration project, the largest environmental project in U.S. history. By returning essential functions to the more than 11,000-square-mile ecosystem after 50 years of destructive human activity, the 30-year project is addressing water needs for **South Florida's** growing population, while restoring the natural hydrology on three national parks and several national wildlife refuges to the benefit of many threatened and endangered species.

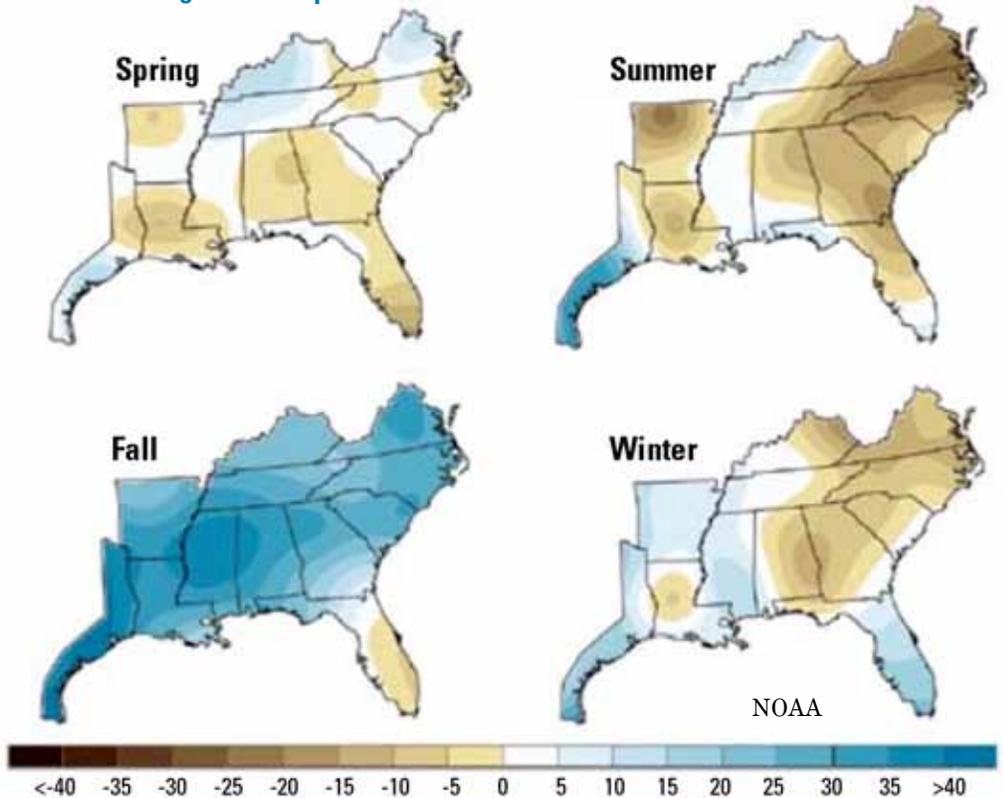
In a changing climate, a reinvigorated Everglades is **South Florida's** best defense against a future of worsening droughts and more intense tropical storms and hurricanes.

Wetlands Restoration in the Mississippi River Valley

The Service is working with The Nature Conservancy and the State of **Louisiana** on a historic wetland restoration project to reconnect 25 square miles of floodplain forest with the Ouachita River in **North Louisiana**. The project involves expanding the Upper Ouachita National Wildlife Refuge and breaching a levee built in the 1970s to turn mature bottomland hardwood forest into farmland.

Returning the area to its natural state will improve water quality and increase flood storage for the benefit of downstream communities, reducing the severity of future storm events. It will also improve habitat for white-tailed deer, wild turkeys, alligators, bald eagles, black bear and more than 265 species of migratory birds.

Observed Changes in Precipitation 1901-2007



Since the early 1900s, much of the Southeast has grown drier in the spring and summer, when rain is most needed to replenish drinking water reservoirs and quench thirsty crops. The rain that does fall comes in buckets, mostly in the fall when heavy downpours can cause flooding. The maps show the percentage change in rainfall over the past century.

Next Steps

The Service is at the forefront of an aggressive effort by the nation's conservation community to respond to the changing climate. The Service's draft climate change strategy, soon to be finalized, sets the course to identify and conserve the nation's most at-risk species and landscapes.

To learn more, visit us at www.fws.gov/southeast/climate/ and follow us on Twitter at [Twitter.com/usfwssoutheast](https://twitter.com/usfwssoutheast).