



Project Title: “Albemarle-Pamlico Climate Change Adaptation Project”

Headline Title (2-5 words): Albemarle-Pamlico Adaptation Project

Brief Summary (Abstract): Since 2008, the Albemarle-Pamlico Climate Change Adaptation Project has been addressing the needs and vulnerability of coastal wetlands in northeastern North Carolina that have arisen due to climate change and land use. The three major approaches that are being developed, implemented, and taken to scale are hydrologic restoration, wetland plant community restoration, and oyster reef restoration.

Project Location: Northeastern Coastal North Carolina, including Alligator River NWR, Swanquarter NWR, Pocosin Lakes NWR, and the Albemarle and Pamlico Sounds

Partners: The Nature Conservancy, U. S. Fish and Wildlife Service, U. S. Air Force, U. S. Navy

Background: North Carolina’s Albemarle-Pamlico Peninsula epitomizes the critical importance and fragility of coastal natural communities where water and land meet. The low, flat peninsula forms a diverse, lush landscape of swamp forest, pocosin, marsh, blackwater creeks and rivers. The area supports amazing biological diversity, from oysters and waterfowl to marsh grasses and fire-dependent pine pocosins. More than 540,000 acres are under conservation ownership in this region. An ever increasing rate of relative sea-level rise in North Carolina, partly due to global climate change, threatens to inundate these conservation lands. The peninsula’s ecosystems are being tremendously altered by increased shoreline erosion, saltwater intrusion, an existing ditch network, and disintegration of the region’s peat soils. Climate change could also lead to shifts in species distribution and vegetation, a higher incidence of invasive species and alterations to fire regimes.

Project Goals: The goal of the Albemarle-Pamlico Climate Change Adaptation Project is to ensure that ecosystems remain vibrant in the face of their inevitable alteration by climate change and sea-level rise. The Nature Conservancy, U.S. Fish and Wildlife Service and other partners are developing long-term management strategies that contribute to ecosystem resilience and the stability of the peninsula’s carbon-rich peat soils. These strategies include restoring hydrology of a ditched landscape, managing ecosystem transition with transplanted vegetation, and reducing shoreline erosion with oyster reef construction. This project includes monitoring to assess strategy effectiveness.

Strategy Goals Implemented:



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1.1.1	2.1.1	5.1.1	6.1.2	7.1.7
1.1.2	2.1.2	5.1.2	6.1.3	7.3.7
1.1.3	2.1.3	5.1.3	6.2.2	7.3.8
1.2.4	2.1.4	5.1.4		
1.2.5	2.1.7	5.1.7		
1.3.2	2.1.8	5.2.2		
1.3.3	2.1.9	5.2.3		
1.3.6		5.3.4		
1.4.1				

Climate Impacts Addressed: Sea-level rise impacts on coastal wetland ecosystems

Status of Project Implementation (Timeline, Milestones, Next Steps): Project is ongoing. See project outcomes below for accomplishments to date. Our next steps include continuing oyster habitat creation, continuing swamp and marsh restoration, implementing a carbon demonstration project to show how re-wetting pocosin can result in reduced greenhouse gas emissions, implementing the actions recommended by the 65,000 acre water management plan, installing a water control structure to limit salt water intrusion at a major intrusion point at Alligator River NWR, and analyzing ecosystem service flows for the Albemarle-Pamlico Estuary.

Project Outcomes: To date, the project has made advancements in three categories:

OYSTER RESTORATION: established 1900 linear feet of oyster reef habitat, 7 acres of oyster sanctuary

HYDROLOGIC RESTORATION: 11 miles of shoreline protection at Alligator River NWR including 5 ditch plugs complementing subtidal oyster reefs, completed a 65,000 acre water management capability plan for the Dare County Bombing Range and part of Alligator River NWR, monitored water conditions throughout the Alligator River NWR,

VEGETATIVE RESTORATION: invasive *Phragmites* control for 11.5 acres, planted 20,000 flood-tolerant trees in a 40 acre experimental area, tested herbaceous marsh seeding techniques in 0.5 acre area,

Funding Sources: Duke Energy, TNC-NOAA Community-based Restoration Program; SARP-NOAA Community-based Restoration Program; FAF-NOAA Community-based Restoration Program; Albemarle-



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Pamlico National Estuary Program; Wildlife Conservation Society Wildlife Action Opportunities Fund;
Grady-White Boats; Private donations

Photos/Attachments:



Photo/Figure Credits (do we have permission to print): C. Pickens (TNC)- yes you may print

Suggested Photo Caption: Marl breakwater provides oyster habitat and shoreline protection of marsh at Swanquarter NWR.