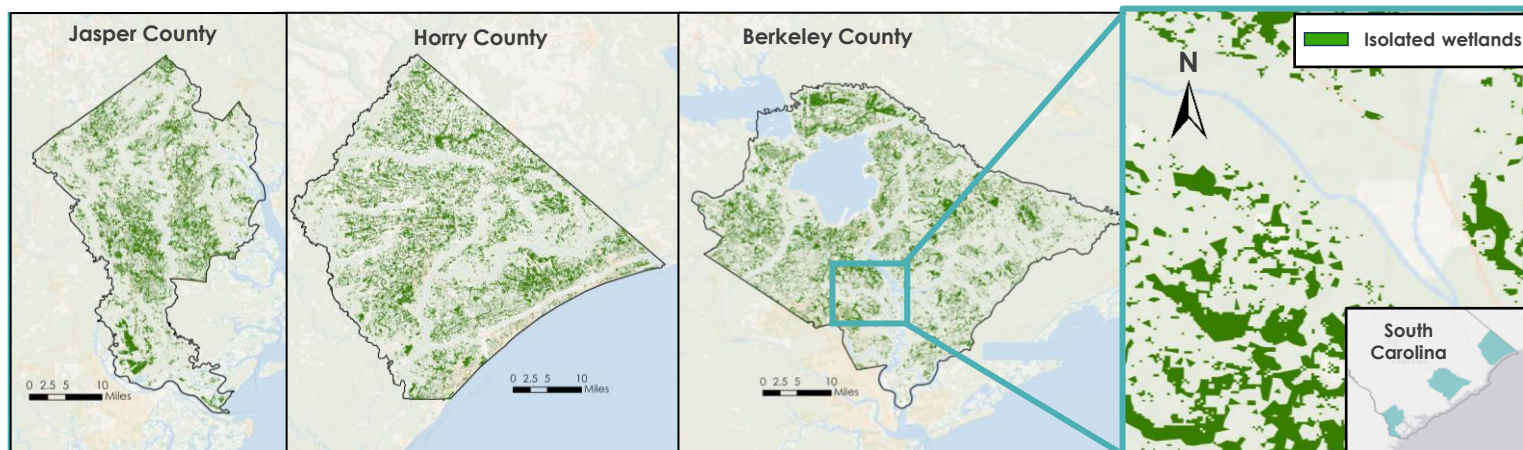


DEVELOP



Coastal South Carolina Water Resources

Isolated Wetlands Risk Assessment using NASA Earth Observations to Support Further Wetland Protections in Coastal South Carolina

Freshwater wetlands are a unique and critical part of an ecosystem, providing habitat for flora and fauna, serving as natural flood control and storm surge mitigation, improving water quality, and sequestering carbon for cleaner air. However, wetlands are threatened by increasing development and land cover changes, and recent legislation has limited their protection. The 2023 Sackett v. EPA case ruled that only wetlands adjoining navigable waterways are federally protected under the Clean Water Act. This leaves isolated freshwater wetlands unaccounted for.

Using NASA Earth Observations, the DEVELOP team identified wetlands isolated from navigable waters in three coastal South Carolina counties: Jasper, Horry, and Berkeley, which include a number of at-risk communities. The team analyzed Landsat 8 and 9 satellite imagery to create land cover classifications based on vegetation, moisture, and water data. The team also created a 10-year change detection analysis between 2015 and 2025 to identify areas of wetland gain and loss.

Of all wetlands identified in 2025, 52% were protected while 48% were isolated, and consequently, unprotected. This leaves nearly *half* of crucial wetland ecosystems unprotected under federal law, while they experience continued risk from infrastructure expansion and urbanization.



Be a Part of the DEVELOP National Program

For more information on becoming a participant or project partner, visit us online at <https://appliedsciences.nasa.gov/nasadevelop>

VISIT OUR WEBSITE!

