City of Charleston Stormwater Management Department

Johns Island Restoration and Resiliency Plan

Charleston, South Carolina

Restoration planning for a sea island uses nature-based solutions to protect critical infrastructure, promote community resilience, and enhance ecosystem services and benefits.

SERVICES
Conservation Planning
Nature Based Solutions

When chronic flooding was threatening a dynamic sea island just south of Charleston, Biohabitats worked with WK Dickson to provide master planning services for nature-based solutions. The origins of the island's flood risk can be traced back hundreds of years, when large-scale redirection of water for phosphate mining and rice cultivation shifted watershed boundaries. Subsequent zoning and building practices that exceed the constraints of topography, soil, and sea level rise further exacerbated water management issues. An ongoing construction boom in response to Charleston's housing demand has pushed water management to the fore.

The planning team began by creating a menu of nature-based flood reduction strategies, from coastal treatments and wetland restoration to ditch retrofits and expansion. Biohabitats then led a spatial analysis to define suitable locations for key water management solutions. With a prioritized map of undeveloped locations suitable for each intervention, the team worked with a local Technical Advisory Group to refine site selections and narrow options to a list of priority opportunities that offer the greatest benefit for flood risk mitigation and ecosystem function. The sites include easements, public land, and private property.

In parallel, the team evaluated Charleston's stormwater ordinances, Comprehensive Plan (updated in 2020), and Zoning Ordinance to inform policy recommendations and provided recommendations including riparian buffer protections, preservation of existing forest cover, and low impact development requirements.