

Prime Hook National Wildlife Refuge *Spartina alterniflora* Planting

Sussex County, Delaware



from top: Initial conditions; Red knots and other endangered species will benefit from the restoration.

Located on the western shore of the Delaware Bay, Prime Hook National Wildlife Refuge provides important breeding habitat for federally and State-listed threatened and endangered bird species, as well as many neo-tropical migrating birds. Hundreds of native plant and animal species thrive in the

Refuge's mosaic of salt marsh, freshwater marsh, ponds and impoundments, wooded swamps, and upland grasslands and forest.

In 2012, Superstorm Sandy severely impacted the Refuge. Coastal dune erosion and breaches, along with severe flooding, converted the Refuge's freshwater marsh system into open tidal saltwater habitat. With emergency funding provided by the Disaster Relief Appropriations Act of 2013, USFWS initiated the restoration of a healthy and resilient salt marsh that would be able to handle more intense and frequent coastal storms.

*The restoration of *Spartina alterniflora* in a National Wildlife Refuge impacted by Superstorm Sandy will regenerate important wildlife habitat as well as coastal resilience.*

For help in implementing a critical phase of the restoration, the USFWS turned to Biohabitats and its sister company, Ecological Restoration and Management. Working under a National Park Service Revegetation Services contract, Biohabitats re-established *Spartina alterniflora* in a low marsh zone by planting a 13.5-acre section of the breached impoundment with more than a quarter of a million 2" plugs. To avoid obstructing traffic along the only road leading to the Refuge and neighboring beach community, the team established a temporary nursery on site, within the upper intertidal zone. This also protected the plants, allowed them to acclimate to site conditions, and kept them properly watered by exposing them to inundation twice daily.

After planting the plugs, the Biohabitats team installed goose exclusion fencing to protect them from herbivory while they became established. Biohabitats also monitored the planting survival and maintained the fencing over the course of a six-month growing season. The site, which was the first portion of the marsh to be restored, served as a pilot test for replication throughout the Refuge.

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