

THIN-LAYER PLACEMENT PROJECT SHEET



Prime Hook National Wildlife Refuge

July 2017

Location: Prime Hook National Wildlife Refuge

Type: Habitat restoration

Area: ~30 miles dredged tidal channels within the 4,000 acre tidal marsh area

City: Milton

County: Sussex

Main Agencies: US Fish and Wildlife Service, US Army Corps of Engineers, DE Department of Natural Resources, Federal Highway Administration, National Oceanographic and Atmospheric Administration, US Geologic Survey, Sussex Bird Club, Ducks Unlimited, The Nature Conservancy, Friends of Prime Hook, Delaware Nature Society

State/Province: Delaware

Country: United States



https://www.fws.gov/refuge/Prime_Hook/what_we_do/marshrestoration.html

Background

The Prime Hook National Wildlife Refuge is administered by the U.S. Fish and Wildlife Service (USFWS) as part of the Coastal Delaware National Wildlife Refuge Complex. This 10,144 acre refuge contains diverse habitat features including salt marsh, freshwater marsh, ponds and impoundments, wooded swamps, and upland grasslands and forests. The refuge supports migratory birds as a stopover site and habitat for federally listed bird species such as rufa red knots and piping plovers.

The tidal marsh restoration project encompasses 4,000 acres of degraded tidal marsh and barrier beach located within a formerly impounded wetland system. The site's salt marsh habitat has been adversely affected by 30 years of impounded freshwater drowning out marsh plants. In addition, salt water intrusion from Hurricane Sandy and other storms caused a series of breaches along the impoundments. Loss of substrate, vegetation die-off, and conversion to sparsely vegetation saltwater estuarine marsh resulted from the impoundment breaches and subsequent salt water instruction. The objective of this project is to reduce impounded water by improving water exchange and flow which will result in the return of functioning salt marshes. Ultimately, the goal is to restore the tidal marsh and barrier beach complex to provide habitat and resiliency to storm events and sea level rise through thin layer placement of dredged material.

Project Description

The tidal marsh restoration project was completed in September 2016 by dredging channels within impounded areas. Approximately 30 miles of channels were dredged across the 4,000 acre tidal marsh restoration area. Locations of these drainage channels were largely based on historic channel locations prior to impoundment. The channels allow water exchange and flow that lowered the water level to expose existing mudflats. In addition, dredged sediments were

sidecast from the dredge to elevate open water areas to allow plant growth. *Spartina patens* and *Spartina alterniflora* plugs were planted in exposed mudflats after channel restoration was completed. The cost of the tidal marsh restoration project was \$19,805,000 and was funded through the Hurricane Sandy Disaster Relief Act of 2013 through the Department of Interior. Monitoring of vegetation, wildlife, and physical conditions (water quality and marsh elevation) prior to restoration was conducted and will continue to be monitored to assess the success of this restoration project. Monitoring partners include Delaware Department of Natural Resources, Delaware National Estuarine Research Reserve, University of Delaware, and USFWS Maryland Fisheries Resources Office.

Findings

Restored marshes were covered with new vegetation after one growing season in many areas where there was shallow open water prior to restoration. The first documented piping plover nest was identified on the restored shoreline along with other nesting shore birds of interest. Monitoring of the biological and physical response of the tidal marsh to restoration will continue over upcoming years.

Please visit the Prime Hook NFW Marsh Restoration and the US Fish and Wildlife Service Hurricane Sandy Recovery websites which are regularly updated with project information:

https://www.fws.gov/refuge/Prime_Hook/what_we_do/marshrestoration.html

<https://www.fws.gov/hurricane/sandy/projects/PrimeHookBarrierBeach.html>

References

MacArthur, R. 2015. Marshy renewal. Fish and Wildlife News, Fall:16-17.

U.S. Fish and Wildlife Service. Coastal Tidal Marsh/Barrier Beach Restoration: Prime Hook National Wildlife Refuge. Hurricane Sandy Recovery Website. Accessed 21 February 2017. <https://www.fws.gov/hurricane/sandy/projects/PrimeHookBarrierBeach.html>.

U.S. Fish and Wildlife Service. Prime Hook marsh restoration project set to begin this month. News Release, 12 June 2015.

U.S. Fish and Wildlife Service. Marsh Restoration. Prime Hook National Wildlife Refuge Website. Accessed 21 February 2017. https://www.fws.gov/refuge/Prime_Hook/what_we_do/marshrestoration.html.

Point of Contact

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Information on thin layer placement (TLP) case studies has been compiled as part of a DOTS/EWN project to provide a source of information, knowledge, and experience on TLP of sediment or dredged material in aquatic environments. The Thin Layer Placement Website and Map-Portal are funded by the US Army Engineer Research and Development Center (ERDC). The POC for the Thin Layer Placement Website and Map-Portal is:

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