

THIN-LAYER PLACEMENT PROJECT SHEET



Northern Mississippi River Delta, Louisiana

July 2017

Location: Venice, Louisiana

Type: Marsh restoration

Area: 1 ha

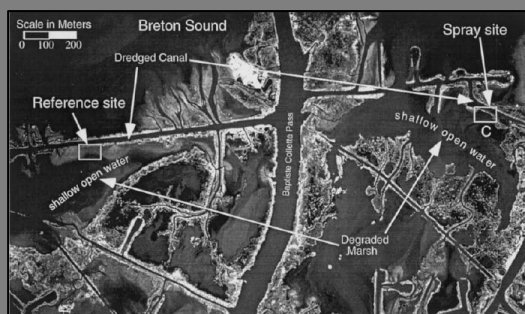
City: Venice

Parish: Plaquemines

Main Agencies: Johnson Controls World Services, Inc., US Geological Survey, National Wetlands Research Center

State/Province: Louisiana

Country: United States



Ford et al., 1999

Background

The salt marsh that received a thin layer of dredged material is located near Venice, LA on the northern portion of the modern Mississippi River Delta. Marshes in this area experience high rates of sea level rise, subsidence, and anthropogenic disturbances including oil/gas exploration. Oil and gas exploration involves the creation of spoil banks which convert marsh to upland habitat and alter flooding patterns. Spoil bank creation and reduced sedimentation from leveeing the Mississippi River has caused the marsh fragmentation, conversion of emergent marsh to open water and upland created habitat conversion to emergent marsh. The use of thin layer placement of dredged material was intended to restore elevations in shallow open water areas to a suitable elevation for emergent marsh and to assess the impact of the spray dredging technique on vegetated marsh.

Project Description

The salt marsh received thin sediment additions from a nearby canal in July 1996 utilizing the spray dredging technique. Depth of sediment application was 23 ± 5 mm on the marsh and 116 ± 11 mm in the shallow open water areas. Soil elevation measurements were recorded prior to dredged material application and every three months for 18 months following application using sedimentation-erosion tables. Vegetation response was assessed using percent cover and root biomass.

Findings

The thickness of dredged material did not have long lasting negative effects on vegetation present in the emergent marsh. Elevation in the emergent marsh increased significantly but remained within the elevation range required for emergent marsh species. Within one year, soil physicochemical properties were similar or greater than the reference vegetated

marsh. Shallow open water areas also responded positively to the addition of sediment. The addition of sediment significantly increased the elevation, which allowed emergent vegetation to colonize the once open water areas via rhizome growth from the edge of the marsh. Overall, the emergent marsh and shallow open water areas responded positively to applications of thin layers of sediment.

References

Ford, M.A., D.R. Cahoon, J.C. Lynch. 1999. Restoring marsh elevation in a rapidly subsiding salt marsh by thin-layer deposition of dredged material. *Ecological Engineering* 12:189-205.

Point of Contact

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Main Agencies:

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Aztec Development Company
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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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