

A Case Study on the Design and Construction of the Mississippi River Sediment Delivery System – Bayou Dupont Project

Primary Author:

Whitney C. Thompson, P.E.

Coastal Planning & Engineering, Inc.

8550 United Plaza Blvd. Suite 702

Baton Rouge, LA 70809

Tel: 225-252-5544

wthompson@coastalplanning.net

Co-authors:

Russ J. Joffrion, P.E.

Brad J. Miller

Louisiana Office of Coastal Protection and Restoration

Abstract

In 2010 the Louisiana Office of Coastal Protection and Restoration (OCPR) completed the construction of the Mississippi River Sediment Delivery System at Bayou Dupont (BA-39) project in Plaquemines and Jefferson parishes. Funded by the Coastal Wetlands Planning, Protection, and Restoration Act (CWPPRA), this is the first marsh creation project the program has constructed which utilizes dredged sediment from the Mississippi River to create intertidal marsh habitat. Located in Barataria basin, the project involved the creation of 578 acres of marsh and was constructed by hydraulically dredging approximately 4 million cubic yards of sandy sediment from the Mississippi River.

This presentation will outline the numerous logistical challenges that are encountered throughout the development and construction of projects utilizing riverine sediment along the lower Mississippi River. This case study includes a description of the techniques utilized throughout the engineering and design process, an overview of the modeling and tests that were performed, a summary of the data collected, the steps that were taken to maintain a safely navigable waterway, and lessons that were learned regarding constructing intermediate marsh with sandy sediment. The primary focus involves the challenges of using a slurry pipeline conveyance system within a community setting, the behavior of the sediment slurry during fill operations, and working closely with government agencies to implement a successful project.

Over the past decade, hydraulically dredging and pumping dredged slurry to create marsh habitat has become one of the most effective and efficient restoration techniques utilized in coastal Louisiana. This case study demonstrates the challenges faced by the OCPR project team throughout the design and construction of a Mississippi River marsh creation project and the practical steps that were taken to overcome numerous setbacks.

Biography

Ms. Whitney C. Thompson is a licensed Professional Civil Engineer in the State of Louisiana who serves as a senior civil engineer for Coastal Planning & Engineering, Inc. in Baton Rouge. Ms. Thompson works on all aspects of coastal restoration projects from engineering and design to construction. Her experience includes the planning, design, and construction of marsh creation, dredging, barrier headland restoration, and shoreline protection projects. She has a Bachelor of Science degree in Civil Engineering from Louisiana State University.