



C-51 Canal Muck Dredging

PALM BEACH COUNTY SEDIMENT MANAGEMENT PROJECT

Lake Worth Lagoon

- 20 miles long, stretching from North Palm Beach to Ocean Ridge.
- Separated from the ocean by Singer Island and Palm Beach Island.
- Two permanent, man-made inlets.

Project Location

- West Palm Beach Canal (C-51 Canal)

The Problem

- Stormwater discharges through the C-51 Canal carry suspended sediments that settle out as muck in the Lake Worth Lagoon.
- Muck blankets the natural sandy and shell bottom creating a mucky substrate devoid of aquatic life and seagrass.
- Muck sediments are easily resuspended by wind and waves, reducing water quality.

The Solution

- Remove organic muck sediment that has built up on the Canal bed, preventing silt and other contaminants from entering the Lagoon.

Benefits

- Cleaner water entering the Lagoon which will enhance habitat for fish, wildlife and aquatic vegetation.
- Improved water flow and flood control capacity in the Canal.



Muck sediments



Sediment Processing Site



Dredge Outflow

Project Overview

- Over 100,000 cubic yards of muck were hydraulically dredged from the C-51 Canal and transported through pipelines to settling ponds located adjacent to the City of West Palm Beach Golf Course.
- Muck was dewatered and dried to a cake-like consistency, then trucked away for beneficial reuse as a soil amendment and fill for County parks and Florida Department of Transportation roadway projects.
- Water drained from the muck was purified in an onsite treatment plant and returned to the C-51 Canal.
- A 12-acre sediment trap was created in the Canal to act as a “sump” to trap sediments before they are discharged to the Lagoon.
- Construction began in 2005 and was completed in 2008. Monitoring is currently underway to measure the effectiveness of the project.
- Harmful nutrients bound to the muck, such as phosphorus (~500 tons) and nitrogen (~50 tons), were removed and prevented from entering the Lagoon.
- This project is part of restoration efforts included in the *Lake Worth Lagoon Management Plan* and the *Comprehensive Everglades Restoration Plan*.
- Post construction surveys of the trap show that sediments are accreting.

Project Partners

Palm Beach County, South Florida Water Management District, City of West Palm Beach



Palm Beach County Board of County Commissioners
 Department of Environmental Resources Management
 2300 North Jog Road - Fourth Floor, West Palm Beach, FL 33411
 Phone: 561-233-2400 <http://www.pbcgov.com/erm>