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.

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