



Save Our Indian River Lagoon Muck Dredging

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IRL in Brevard County

10 Miles

Source: Jacoby, 2018

IRL Brevard County

- 70% of Indian River Lagoon within Brevard County
- 6,400 acres of muck deposits
- Muck contributes 45% TN and 49% TP total loading





What is IRL muck?

- >10% organic matter
- > 60% silts and clays
- Nutrient-rich, legacy load
- Favors deeper, lowenergy areas



What is Muck Dredging?

- Contour dredging
- Variability in cut elevations



Dredging 101



Slurry



Dredged Material Management Area

A DISTANT OF THE PARTY

-02/24/2017

Dredging 101







Effluent Treatment

- <u>Target Nitrogen and Phosphorous</u> removal in effluent
- <u>Phosphorous responds well</u> to existing technology used in dredging
- <u>Nitrogen is challenging</u> and relatively new to dredging
- Technologies used in other industries
 - Wastewater and stormwater





Effluent Treatment

- Performance-based specification
- Contractor required to meet effluent nutrient concentration requirements
 - Means and methods left to Contractor
 - Must be proven technology





Project Challenges

- <u>Regulatory Requirements</u>
 - Can significantly effect cost and schedule
- <u>REAL ESTATE!!!!</u>
 - Siting of DMMAs
 - Final disposal locations
- <u>Effluent Treatment</u>
 - Coupling existing technologies from other industries with muck dredging
- <u>Chemical Constituents</u>
 - Heavy metals
 - PFAS/PFOA



Muck Removal Projects

Turkey Creek

- Medium-sized project
 - 22 acres
 - 215,000cyds
- DMMA
 - FIND BV-52
- Effluent Treatment
 - Phosphorous Only
- Upland Disposal
 - Agricultural west of I-95



Muck Removal Projects

Mims Boat Ramp

- Small project
 - 10 acres
 - 30,000cyds
- DMMA
 - 10 acres
- Effluent Treatment
 - Two-step treatment
 - Ferric Chloride
 - Polymers
- Upland Disposal
 - Industrial parcel



Muck Removal Projects

Grand Canal

- Larger Project
 - 479,000cyds
 - 97 acres
- DMMA
 - 7 acres
- Effluent Treatment
 - Ferrate
 - Polymers





Muck Removal Projects Grand Canal DMMA



Lessons Learned

- <u>Contour Dredging</u>
 - Time-consuming
 - Proper on-board equipment is essential
- <u>Effluent Treatment</u>
 - Number of variables that influence options
 - Sediment characteristics
 - DMMA size/configuration
 - Production rates
 - TN and TP concentrations in muck/interstitial water
 - Requires expertise and experience
 - Requires ability to make adjustments
 - Available technologies
 - Tailored to fit the needs of muck dredge projects



Lessons Learned

Upland Disposal



- Identifying proper upland location is challenging
- Chemical constituents are allowable



Thank You!!!

Questions??? Contact: IRLProject@brevardfl.gov