



***Jesuit Bend Mitigation Bank***  
**Louisiana's only river-dredged mitigation bank**

Gregg Fell – Senior Technical and Regulatory Analyst  
Natural Resource Professionals, LLC

[nrpllc.com](http://nrpllc.com)

# Restoration Systems, LLC (Raleigh, NC)

- 50 Ecosystem Restoration Projects Nationwide
- Mitigation Banking (Wetland and Stream)
- Nutrient Off-Set Banking
- Endangered Species Banking

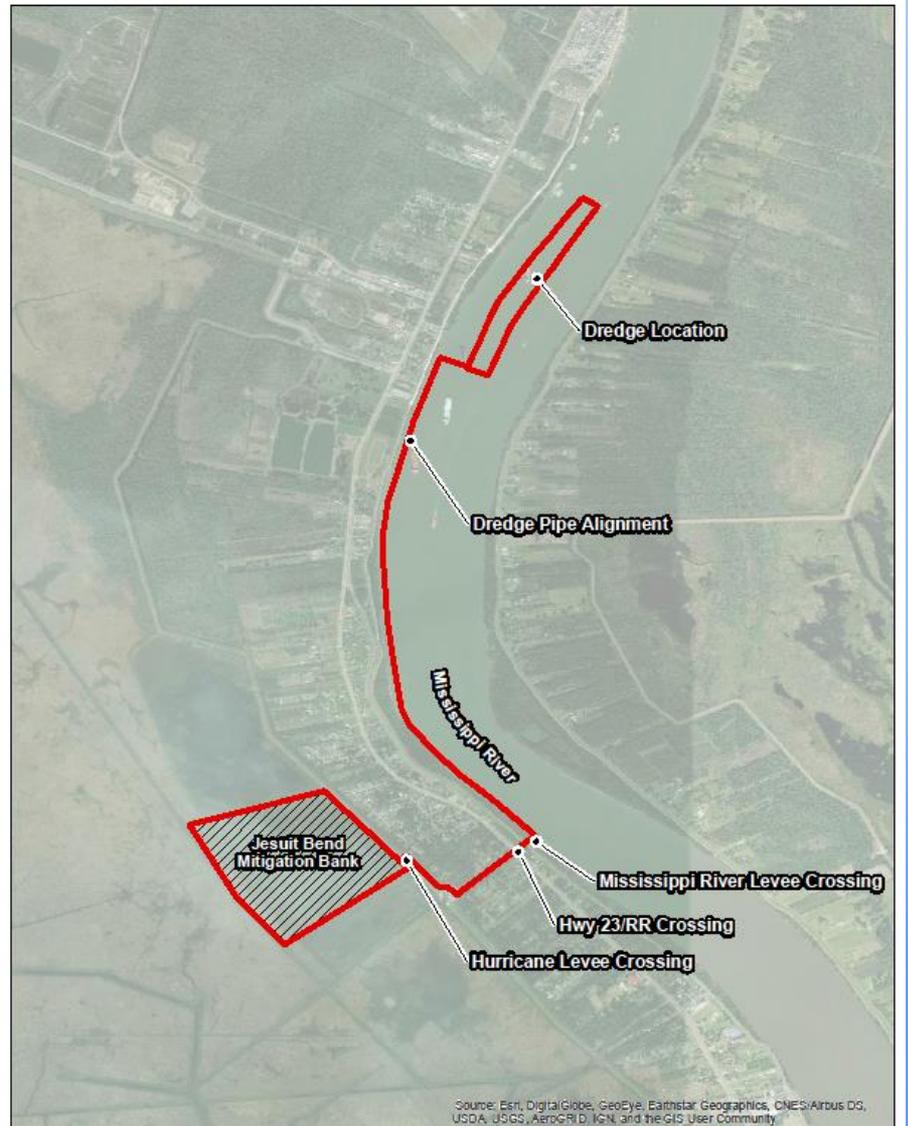
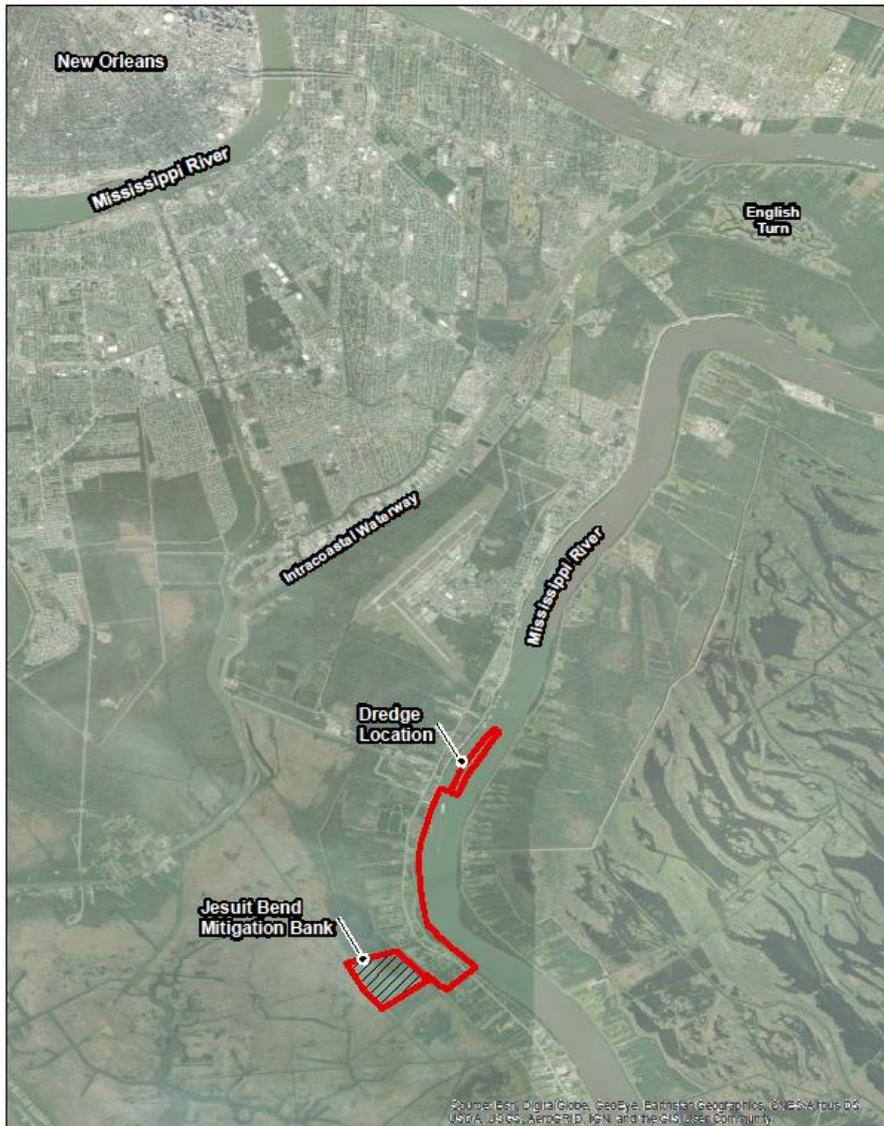


# Compensatory Mitigation

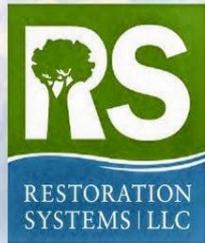
## 33 CFR §332

- Required for Federal Wetland Permits (§404)
- No-Net Loss of Wetlands
- In-Kind and In-Watershed Replacement of unavoidable impacts
- Restoration, Enhancement, Preservation
- Mitigation Banks, Permittee-Responsible, ILF
- Allows for sustainable development and restoration of aquatic resources

# Jesuit Bend Location



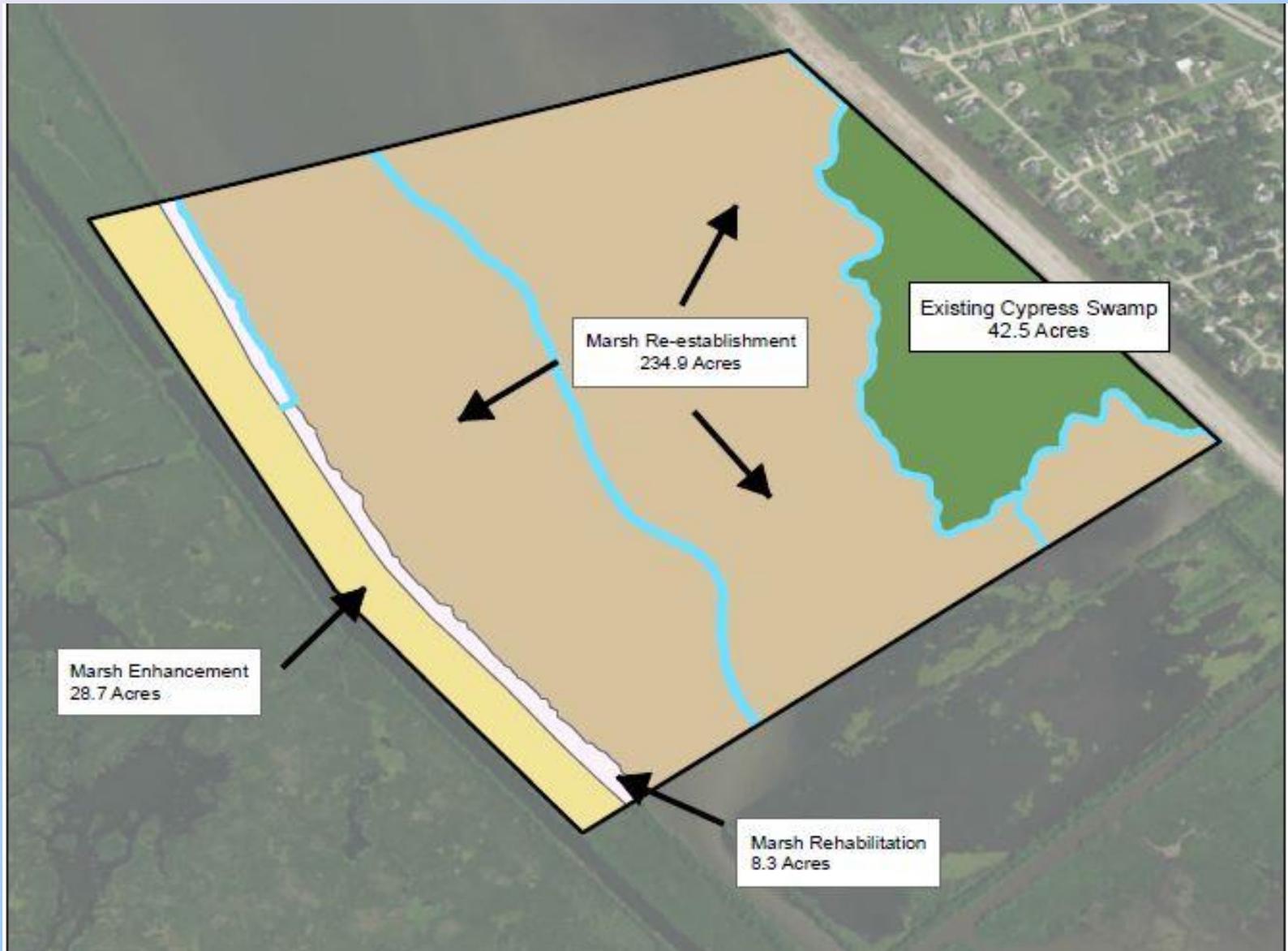
The Jesuit Bend Mitigation Bank  
*Plaquemines Parish, Louisiana*



2010 Aerial



# Jesuit Bend Project Features



# Jesuit Bend Facts

- Permitting: 2011 - 2016
- Constructed: August 2015 – January 2016
- 1.3 Million+ Cubic Yards of Sediment dredged from -90 feet and pumped 5 miles
- 211,000 Plants installed by hand
  - *Spartina patens* (cordgrass)
  - *Panicum hemitonon* (maidencane)
  - *Paspalum vaginatum* (seashore paspalum)
  - *Schoenoplectus californicus* (bullwhip)
- 11,000 linear feet of waterways constructed
- Conservation Servitude held by Mississippi River Trust

# Interagency Review Team

- US Army Corps of Engineers
- US Environmental Protection Agency
- National Marine Fisheries Service
- US Fish and Wildlife Service
- LA Department of Natural Resources
- LA Department of Wildlife and Fisheries

# Dredge Florida

## Great Lakes Dredge and Dock



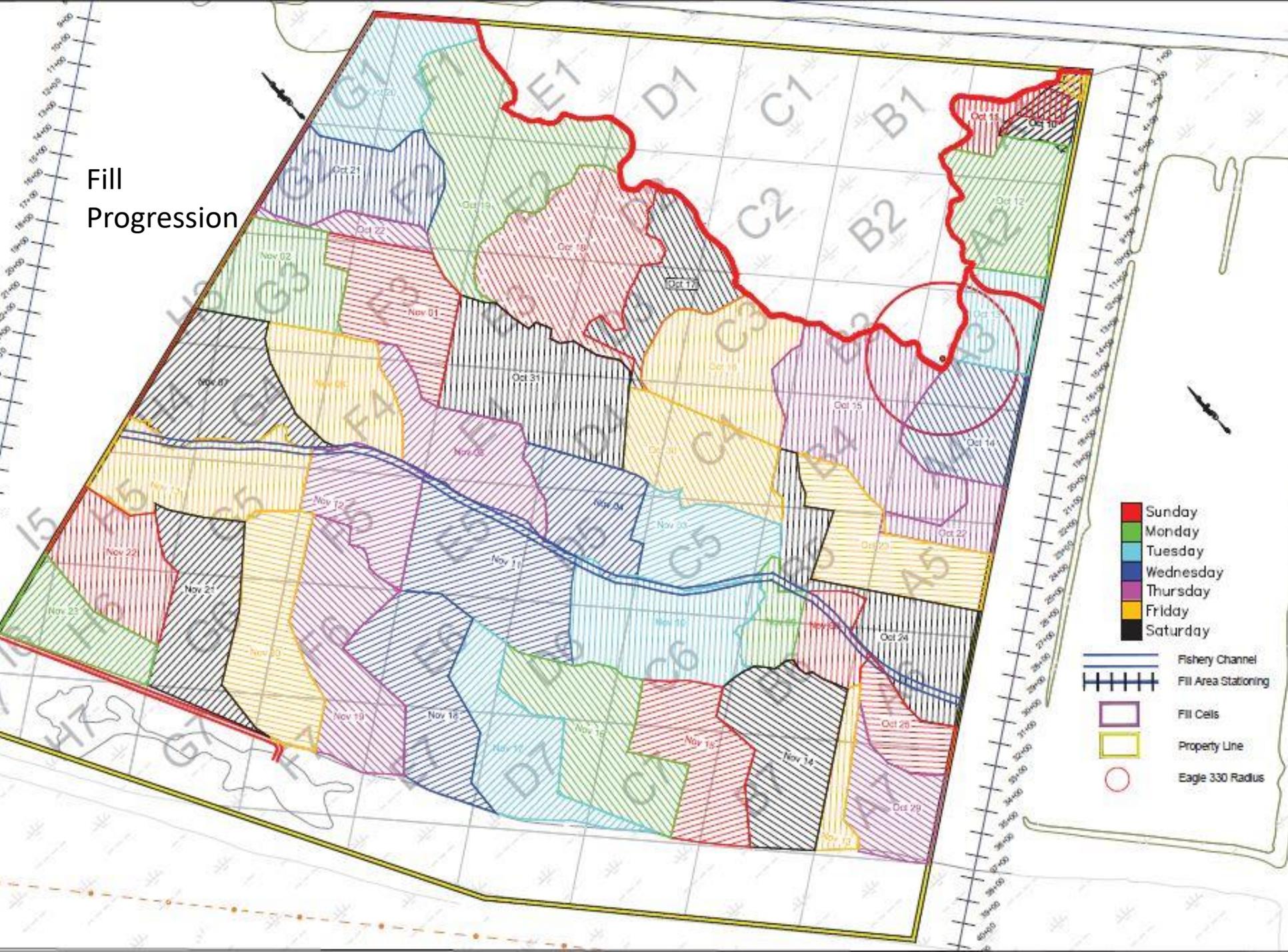
# Fill Operations



# Vegetative Plantings



# Fill Progression



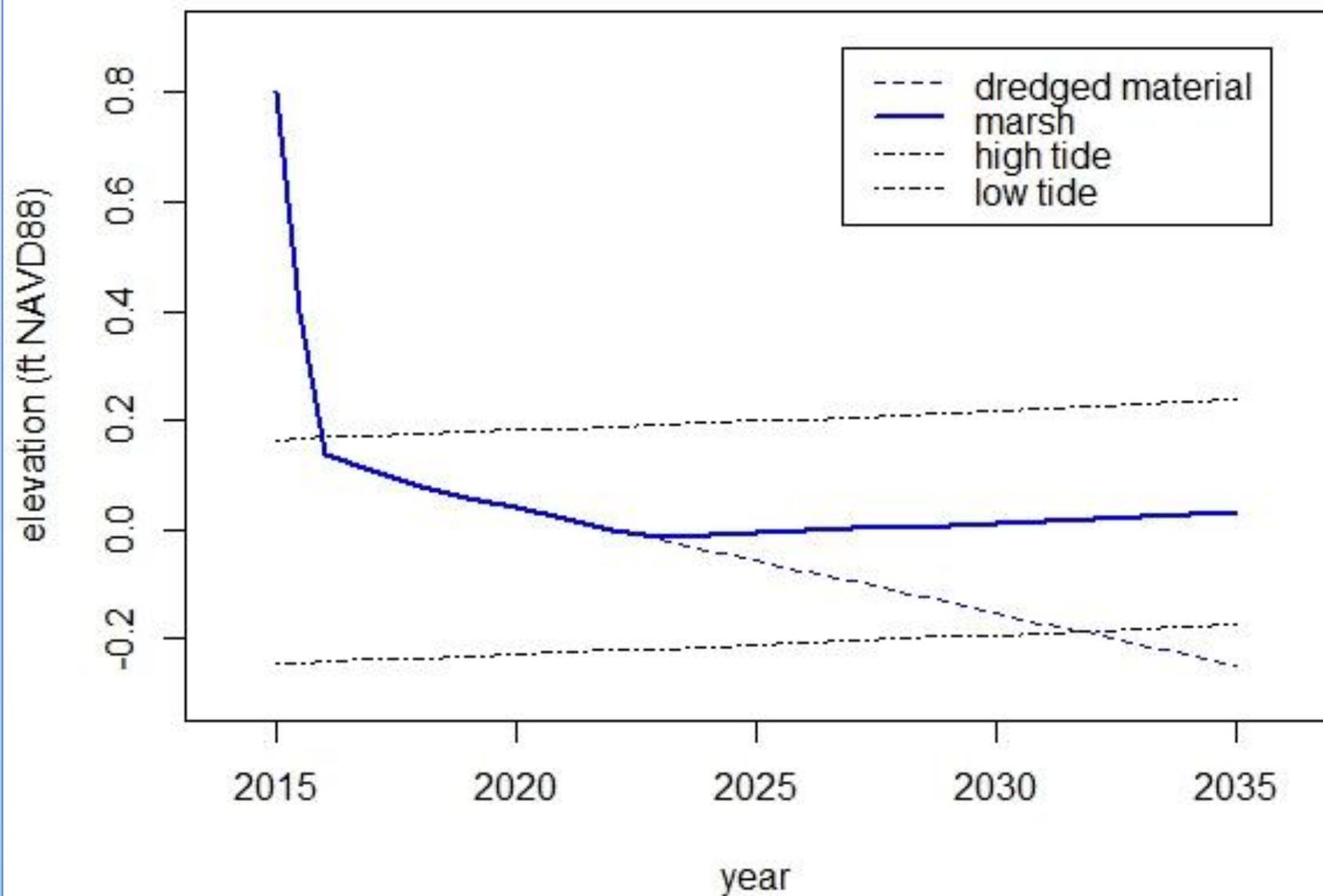
- Sunday
- Monday
- Tuesday
- Wednesday
- Thursday
- Friday
- Saturday

- Fishery Channel
- Fill Area Stationing
- Fill Cells
- Property Line
- Eagle 330 Radius

# Target Elevation

- Target Elevation Factors
  - Adjacent Marsh and Swamp Elevations
  - Water Data
  - Geotechnical Data, Subsidence, Sea-Level Rise, and Accretion
  - Developed with Andy Nyman, PhD
- Target Elevation
  - Target Construction Elevation: 0.8' NAVD 88
  - Target Settled Elevation: 0.4' NAVD 88
  - Target Future Elevation: ~0.0' NAVD 88

## Sea-level rise & subsidence



# Project Challenges

- High Mississippi River delayed start of dredging
- Bald Eagle Nesting Season (November –April)
- Colonial Bird Nesting Season (March – April)
- Impending NOV/NFL Levee construction along discharge pipe route.
- Planting Deadlines
- High-Water Planting Conditions
- Mitigation Banking Instrument approval delayed. We took the risk and started construction



January 12, 2016



**November 8, 2016**



**August 28, 2017**



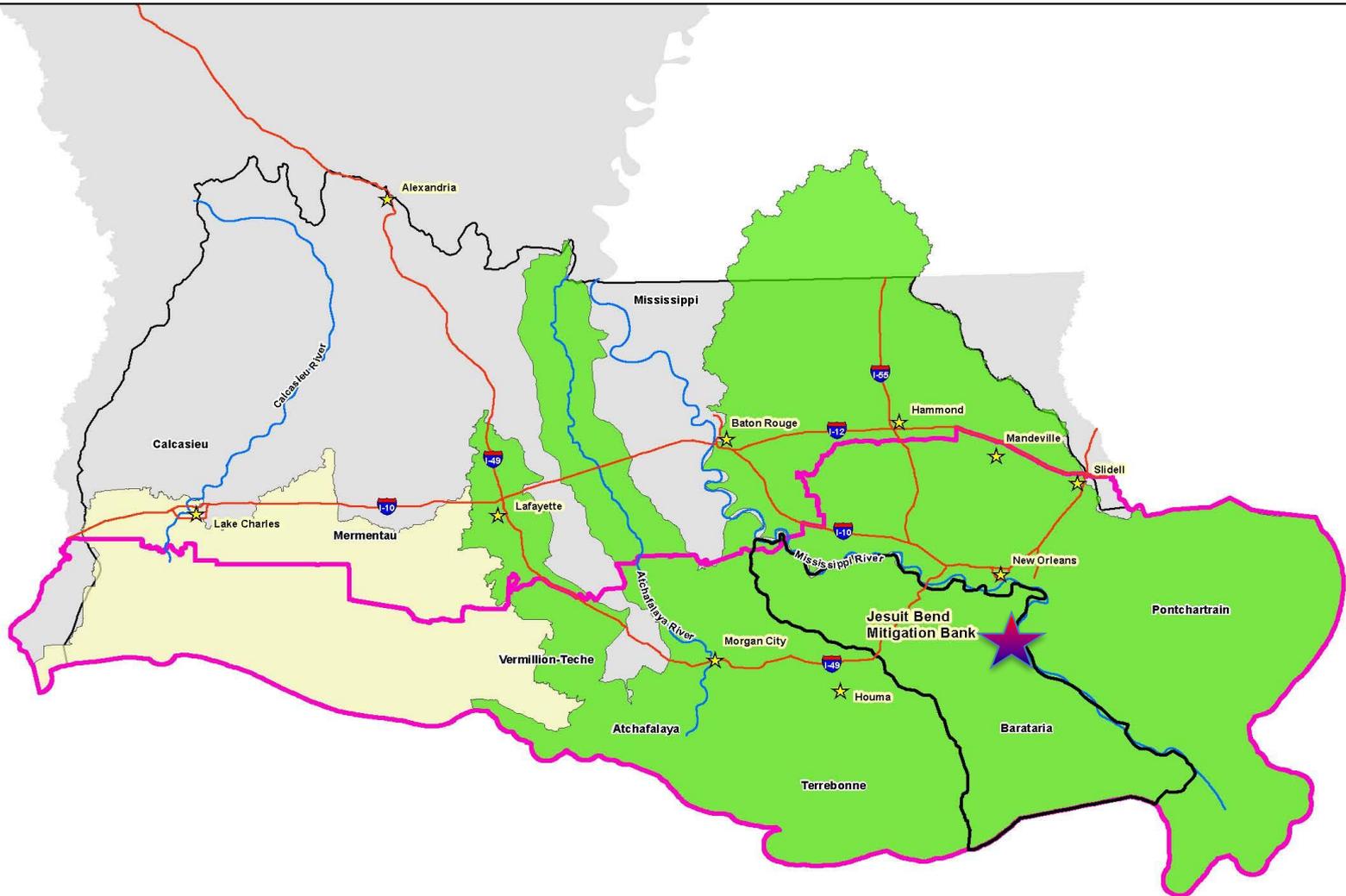
**August 22, 2018**



# Credit Assessment Methodologies

- Louisiana Rapid Assessment Method (LRAM)
  - US Army Corps (Section 404 Permitting)
  - Value: 5.7 LRAM/Acre
  - Mitigation Type, Size, Hydrology Management, Negative Influences, Buffers
- Wetland Value Assessment (WVA)
  - Louisiana Department of Natural Resources (Coast-Use Permitting)
    - Value: 0.44 AAHU/Acre
  - Us Army Corps (Civil Works Projects)
    - Value: 0.37 AAHU/Acre
  - Marsh Type, Vegetation (% Emergent / % Aquatic), Interspersion, Salinity, Fish Access
  - 20 year model (“Future with” vs “Future without”)

# Watersheds/Service Areas



# Monitoring

## Monitoring Plots

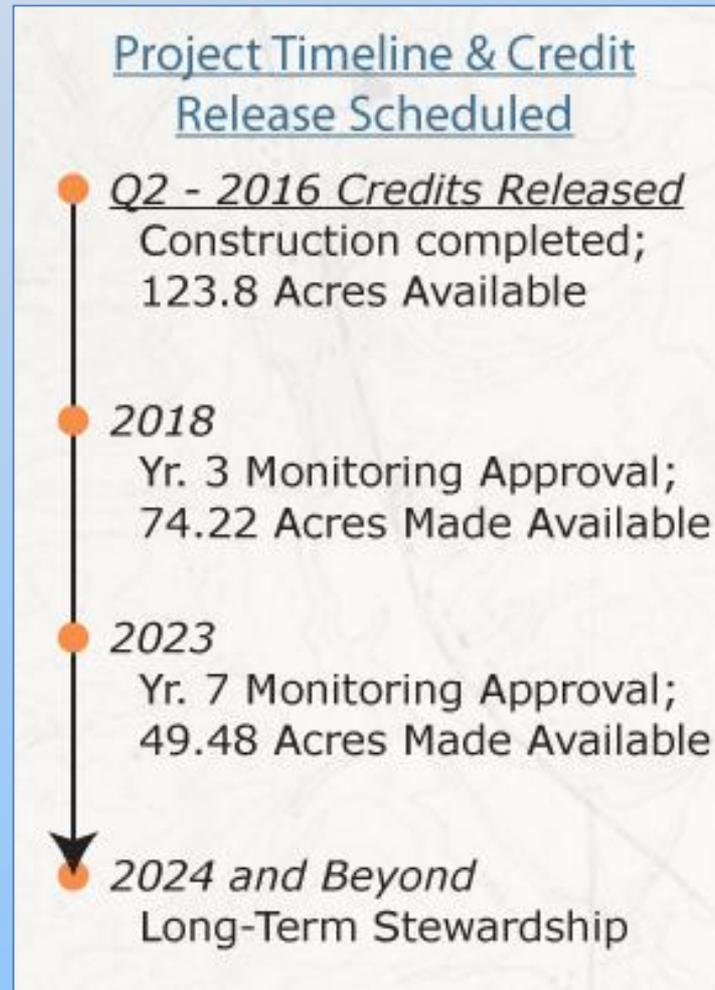


## Success Criteria

- **Target Elevation**
  - 80% w/in  $\pm 6''$  of TE
  - Mean  $\geq$  TE
  - Tied to settlement curve
- **Vegetation**
  - 80% coverage @ Year 3
  - 100% coverage @ Year 7
- **Hydrology**
  - Tidal Influence

# Mitigation Banking Model

## Credits released for sale over time



# Adaptive Management



# Private Sector

## Wetland Restoration in Louisiana

- Mitigation Banking
  - Watershed Driven (Responds to Development Trends)
  - Restoration completed prior to impacts occurring
  - Financial Assurances, Performance Standards, Monitoring, Management, Permanent Protection
- Outcome-Based Performance Contracting
  - Louisiana Master Plan for the Coast (LA – CPRA)
  - Private Firms Finance/Construct/Manage LA-Master Plan Projects
  - Paid Back over time through Deepwater Horizon Natural Resource Damages Fund
- Natural Resource Damage Assessment Banking

# Thank You!



**Natural Resource Professionals, LLC**  
[nrpllc.com](http://nrpllc.com)

**Restoration Systems, LLC**  
[restorationsystems.com](http://restorationsystems.com)