



Leveraging the Private Sector Restoration Business

Elliott Bouillion, President & CEO

Louisiana Coastal Protection & Restoration Leadership Roundtable #2

October 25, 2016

Discussion

- Introduction to RES: A homegrown and fully integrated Ecological Restoration and Water Resource Solution Company
- Focus on Operational Delivery with Lessons Learned from Successful Restoration Projects
- Steps to Achieve Coastal Restoration Objectives with Private Companies

Company Snapshot

Overview

- RES is the premier provider of ecological and water resource solutions in the US
- RES founded in Baton Rouge in 2007
 - In 2014, RES acquired EBX, founded in 1998
 - In 2016, RES acquired Angler Environmental, founded in 1999
- 40,400 acres of restored and protected wetlands
- 180+ miles of streams restored and conserved
- 225 mitigation sites, completed or in process
- 20,000 acres of custom, turnkey mitigation solutions
- Over 350 stormwater management facilities designed and constructed
- 240 tons of water quality nutrient reductions
- 400 erosion and sediment control inspections at active construction sites across eight states
- 3,700 acres of endangered species habitat restoration and preservation
- 10,000,000 restorative trees planted across all operating regions
- Over 1,750 federal and state permits received using RES-supplied compensatory mitigation solutions.
- 100% projects with successful outcomes

Mission

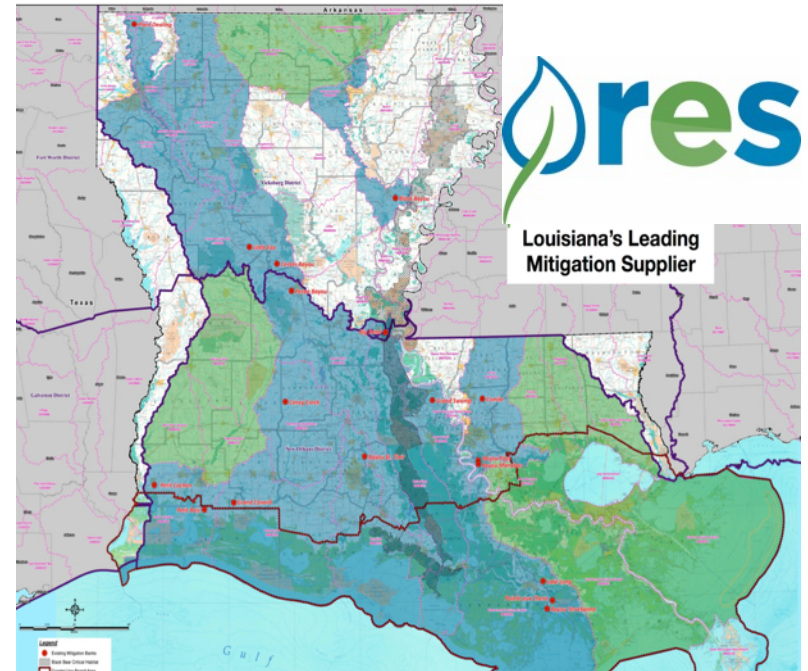
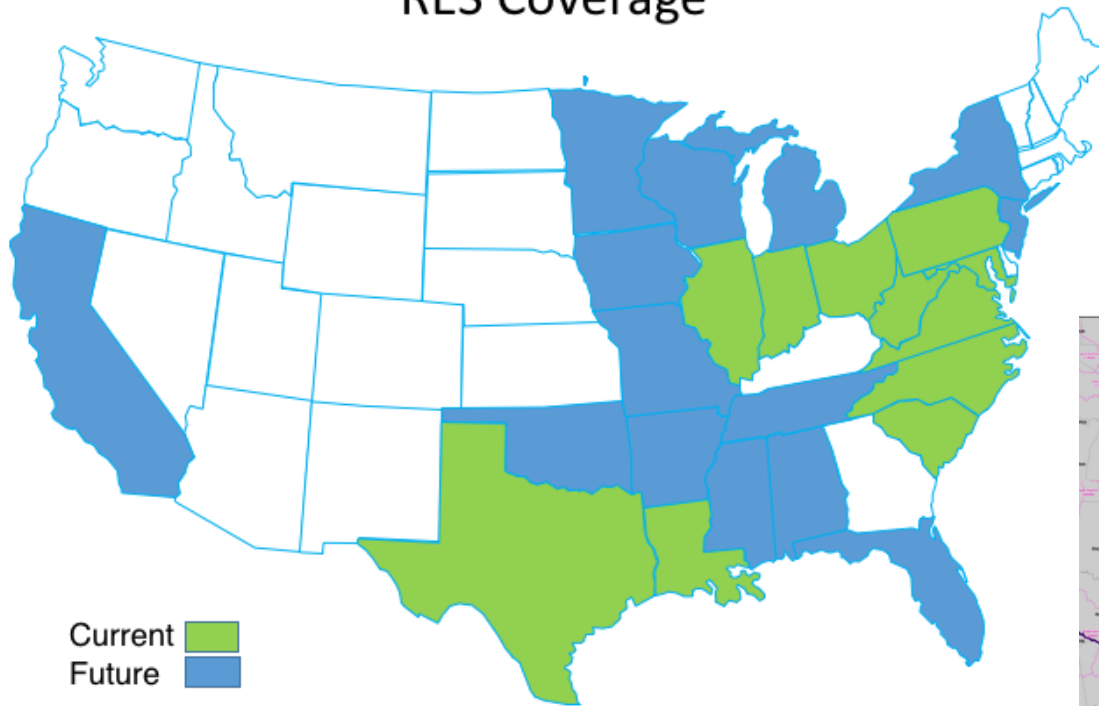
Resource Environmental Solutions (RES) delivers comprehensive ecological restoration and water resource solutions that help project developers obtain required permits and stay in compliance when projects impact wetlands, streams and habitats

We help clients manage risk from operations in environmentally sensitive areas by providing proactive project impact analyses, streamlining permitting processes, and limiting liability and regulatory exposure



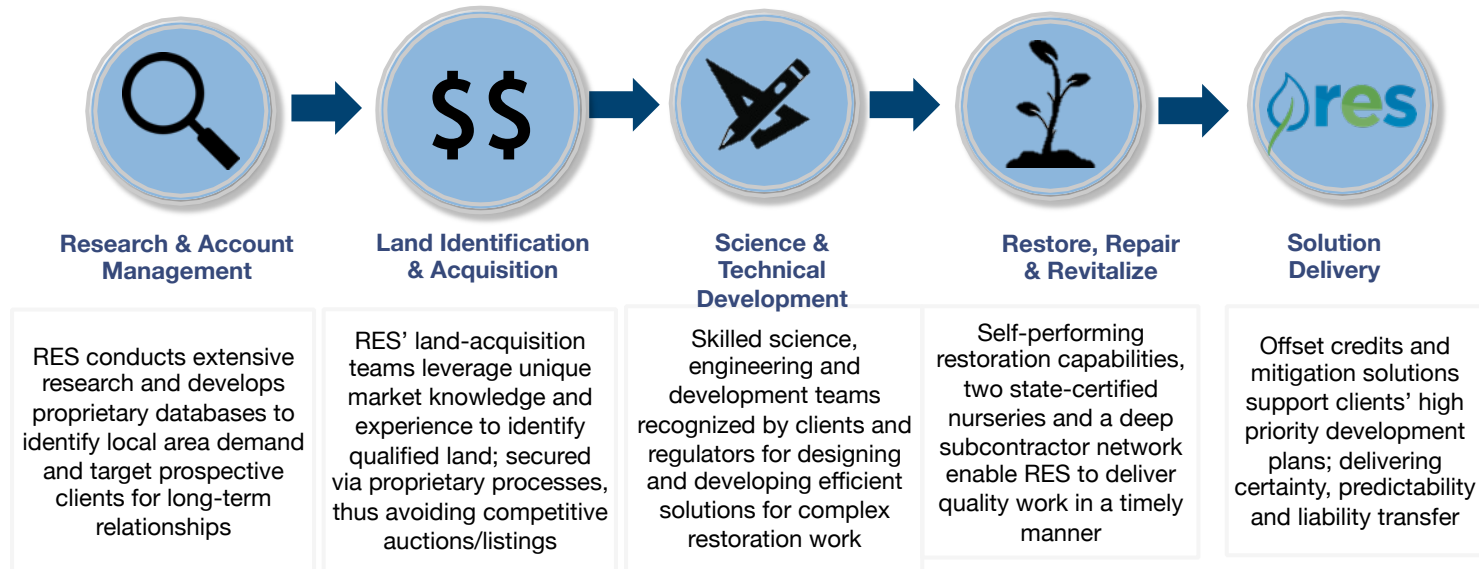
Expertise Throughout the Gulf Coast and Across the Country

RES Coverage



RES Solution Delivery

Vertically Integrated

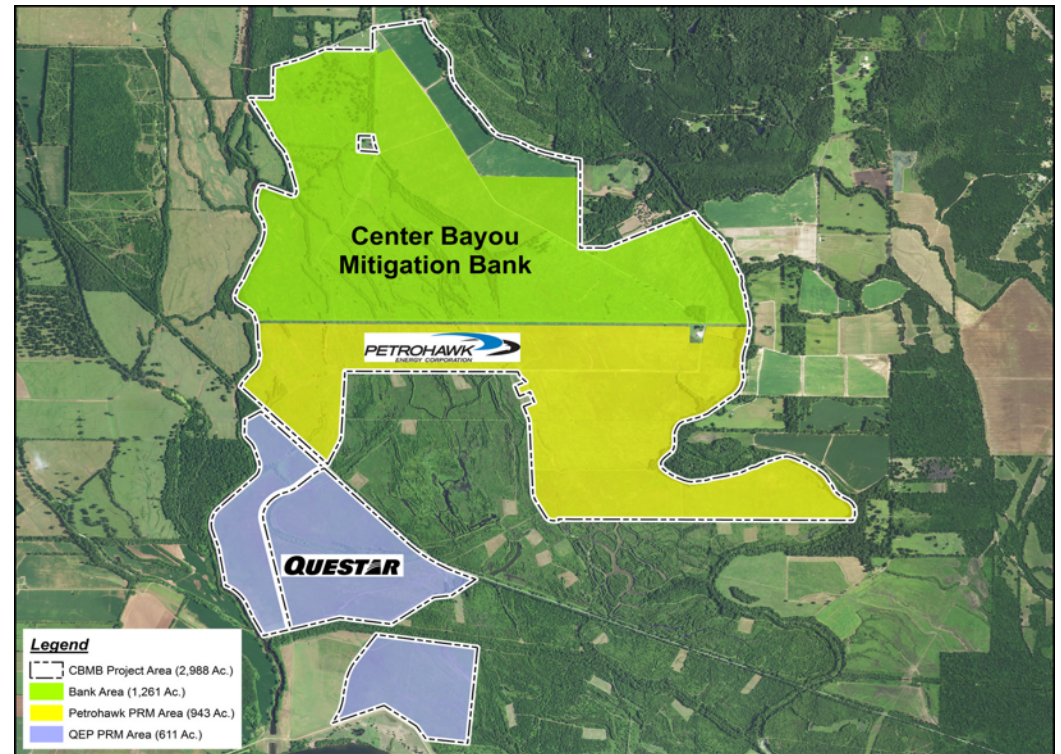
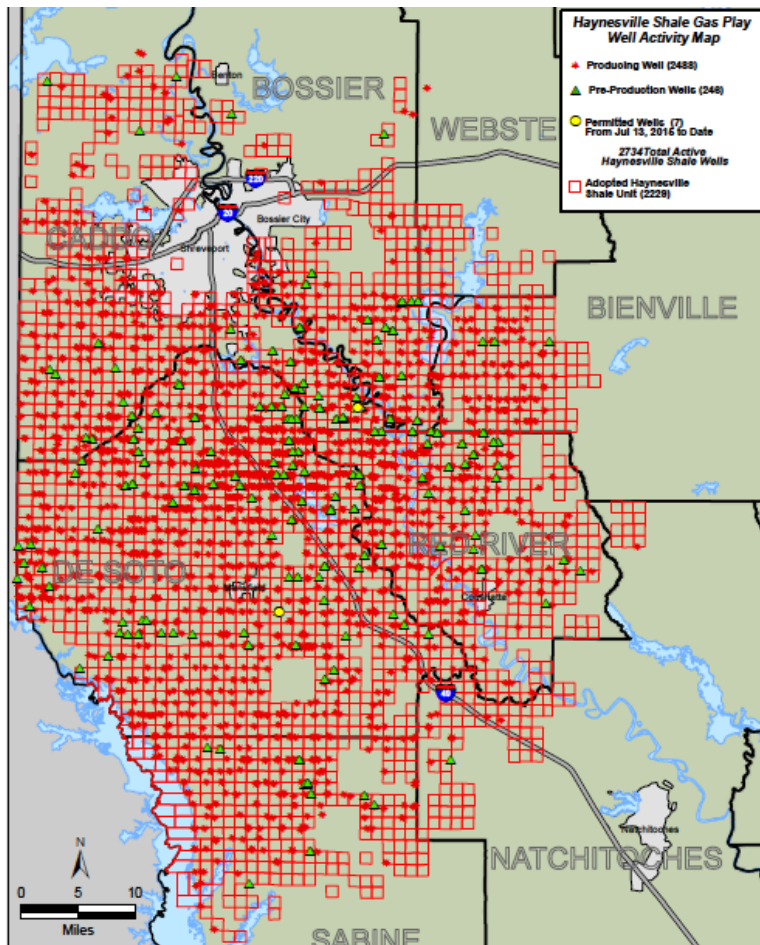


RES is the only fully integrated ecological offset solutions provider with national scale in the United States, and possesses the unique capability to identify, target and develop emerging client demand and new revenue opportunities

... Enable RES to Achieve Highly Effective Technical and Science-Based Solutions

- ✓ **40,400** wetland acres restored and protected
- ✓ **180** miles of streams restored and protected
- ✓ **3,700** acres of endangered species habitat preserved
- ✓ **10 million** restorative trees planted
- ✓ **79%** tree survival rate
- ✓ **Zero site failures, violations or non-compliance issues**

RES Solution Delivery: Haynesville Shale



To date, RES has conserved over 4,500 acres for permanent wetland and stream restoration and provided 75% of the area's compensatory wetland mitigation needs, making it the largest ecological offset supplier for Haynesville Shale operators and infrastructure providers.

RES Solution Delivery: Louisiana

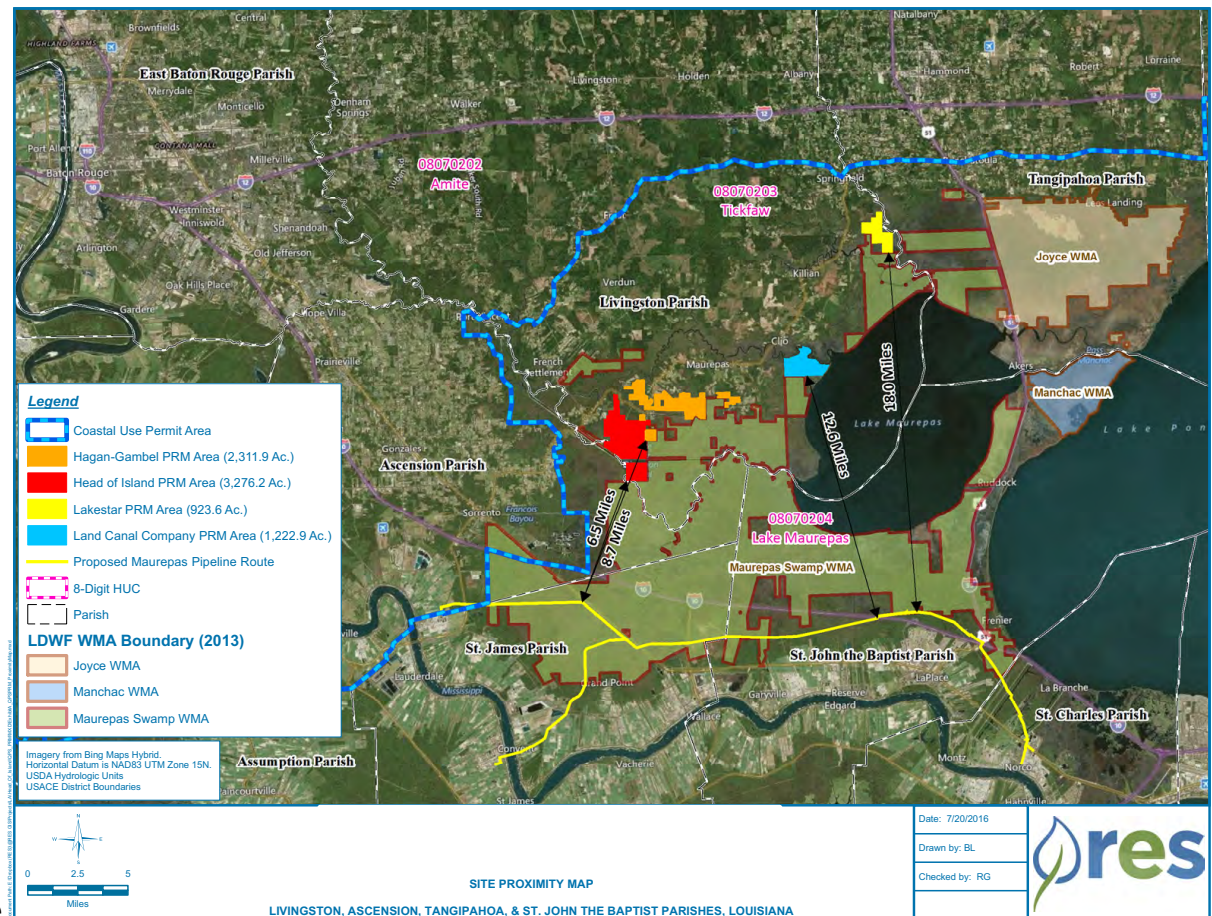
Preservation and Enhancement as Compensatory Mitigation

Application: Optioned 26,000 acres on more than 12 tracts, diligence results removed 11,000 acres leaving 15,000 acres of usable sites of which 7,735 acres were best suited to meet permitting agency compliance requirements and permittee project timetable

Results: Compensatory Mitigation of 7,735 acres of preservation, enhancement, and rehabilitation on 4 distinct tracts within the Maurepas Swamp

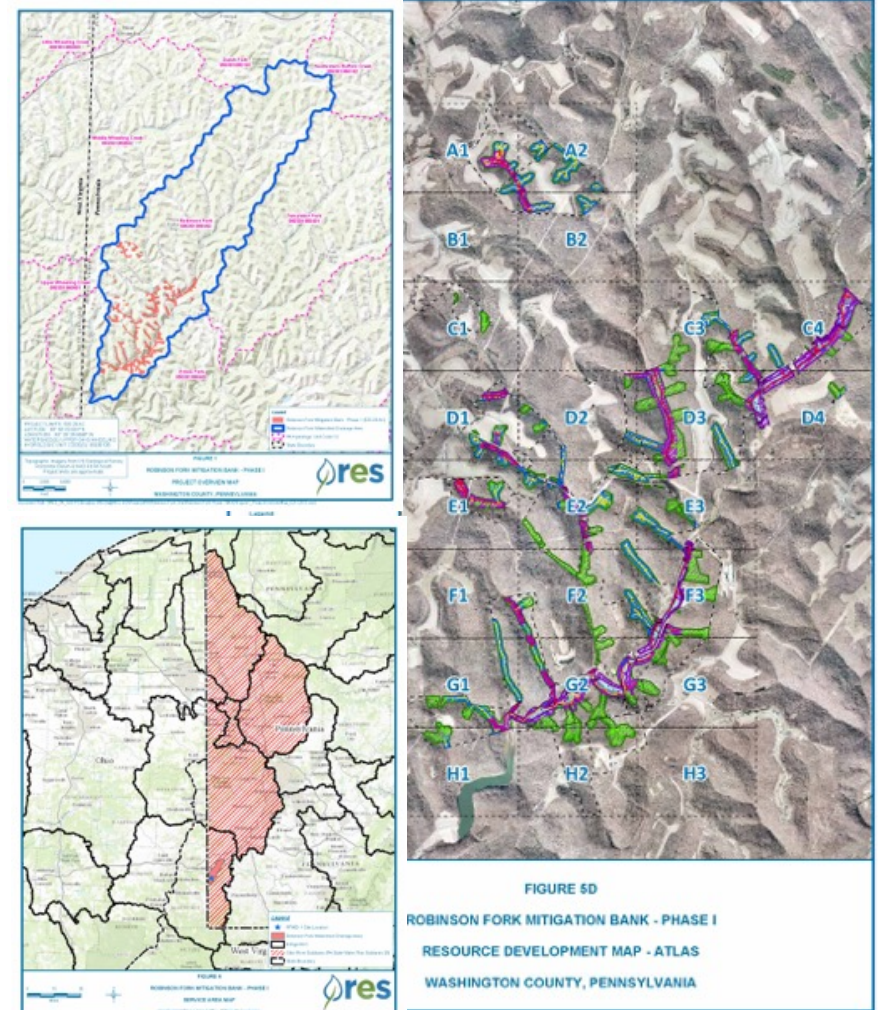
Results: 7,735 acres will be donated to the State of Louisiana for incorporation by LDWF into this very Wildlife Management Area, protecting critical natural resources and enabling public recreational access for thousands!

Results: Addressed the landscape scale concerns of key stakeholder, Louisiana Department of Wildlife and Fisheries, whose Maurepas Swamp Wildlife Management Area contained over half of this project's impacts



RES Solution Delivery: Pennsylvania

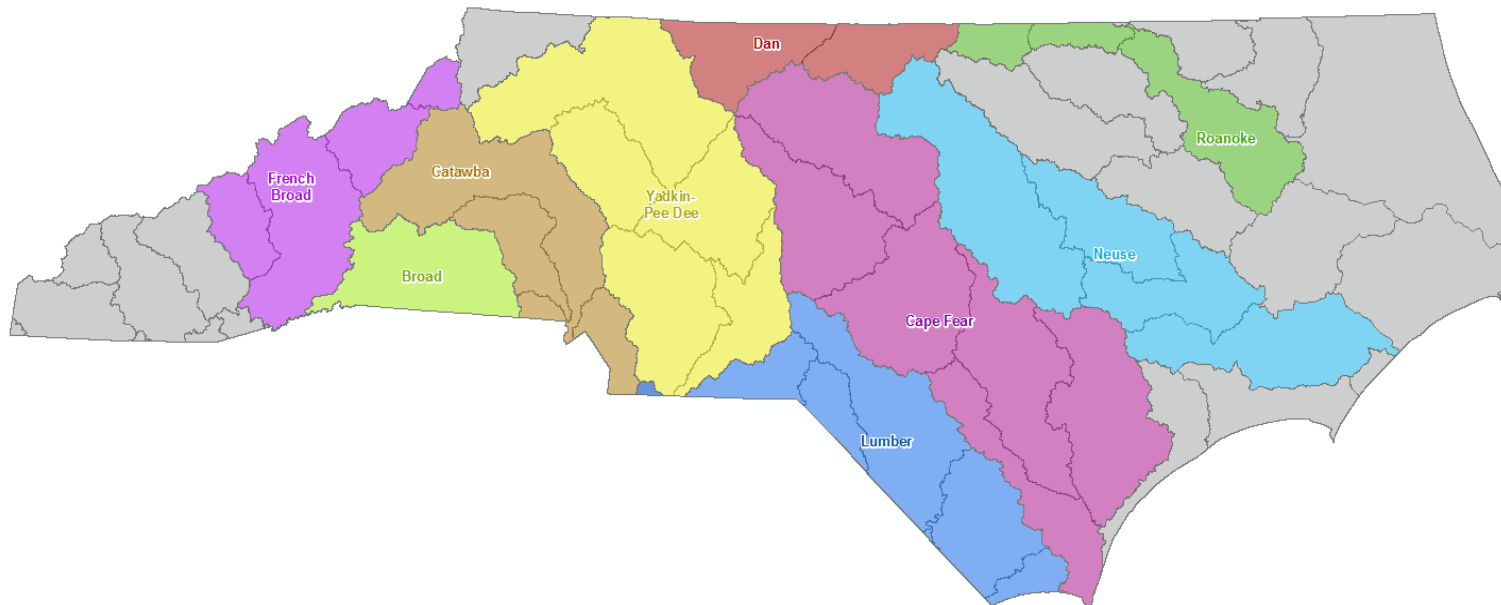
- ✓ **Watershed Scale Solutions**
- ✓ **Long Term Delivery**
- ✓ **40+ parcels assembled**
- ✓ The largest stream restoration project of its kind in the country, and the largest proactive environmental project of its kind ever in Pennsylvania
- ✓ Restoration project encompassing approximately 30% at the Robinson Fork Watershed
- 116.68 net acres of upland restoration, including native meadow seeding and tree and shrub planting
- 91 acres of upland enhancement, including invasive control and replanting
- 244 acres of upland preservation including invasive control
- 68,350 trees planted
- Immediate permanent preservation of critical habitat and over 900 potential roosts for both the endangered Indiana bat and threatened Northern long-eared (NLE) bat



RES Solution Delivery: North Carolina

Duke Energy – CWA Settlement Agreement

- Assumed responsibility from Duke Energy for implementation, and annual reporting to DOJ, for off-site ecological restoration activities related to Coal Ash Spill
- Identifying and implementing stream/riparian corridor restoration, with permanent protections, in 9 river basins of North Carolina.
- Conservation efforts initiated by RES in September 2015
- In first 6 months we evaluated 149 sites totaling over 25,000 acres, with 6 sites under contract and 11 more in negotiation



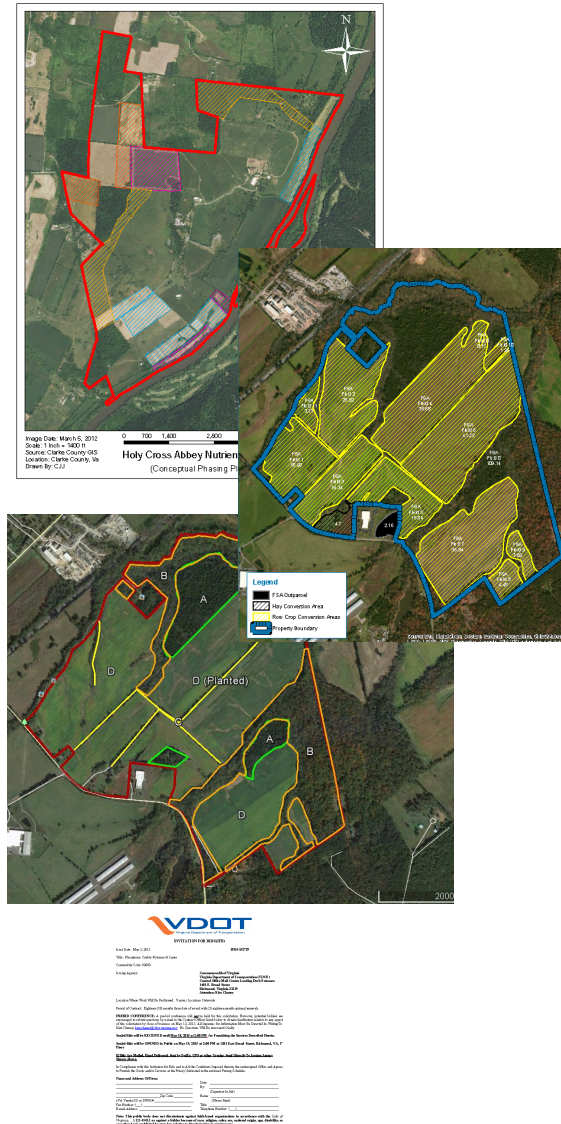
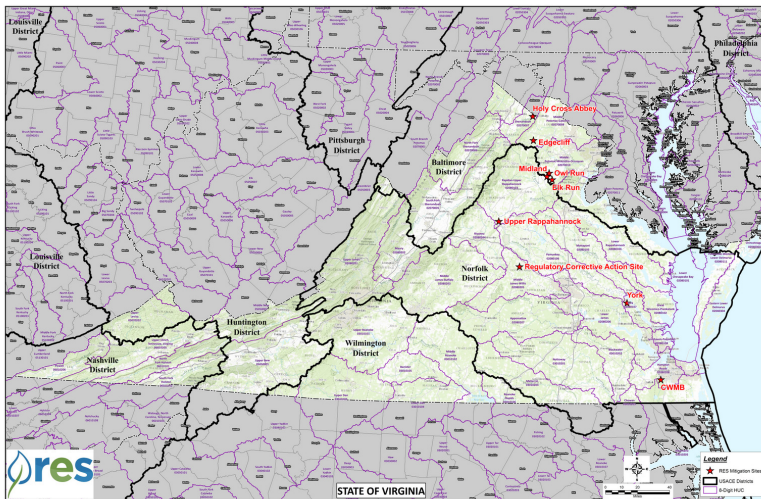
RES Solution Delivery: Virginia



Virginia DOT Selects RES for Multi-Year Supply of Nutrients Offsets

The Virginia Department of Transportation has awarded RES an eighteen-month contract, with multiple renewal periods, to supply Phosphorus offsets in the Potomac watersheds. These credits are used to address Post Construction Water Quality Requirements on VDOT construction projects located within the Chesapeake Bay Watershed area of the Potomac River.

RES participated in a multi-year competitive bid process in Virginia for the first time and emerged as a supplier. RES nutrient offset solutions in Virginia are developed under the guidance of the Virginia Department of Environmental Quality using Best Management Practices approved as a Nutrient Reduction Implementation Plan. Conversion of land from agricultural use to habitat suitable for water filtration is a central method of enhancing water quality in the region.



Nurseries Enhance Mitigation Offerings

- Significant cost savings over purchasing vegetation from third parties
- Allows RES to plant more mature trees and to achieve success criteria more consistently and quickly
- Over 2 million restoration stems grown, supplied and planted
- DNA-fingerprinted species grown and propagated to fulfill regulatory agency needs
- Nurseries in Louisiana and Pennsylvania
- Leading supplier for successful coastal restoration solutions including dune, marsh, estuarine, emergent marsh, and barrier island restoration.
- Successful outcomes for all projects delivered



Restorative Cordgrass Species From Certified Seed Stock



A. Smooth cordgrass (*Spartina alterniflora* cultivar *Loisel 'Vermilion'*) -- shown at the beginning stage of a smooth cordgrass pond

B. Smooth cordgrass – one-gallon pots with seed heads forming

C. Smooth cordgrass – shown in pond flooded to mimic tide

D. Smooth cordgrass (*Spartina alterniflora* cultivar *Terrebonne**)

E. Smooth cordgrass plugs ready for delivery

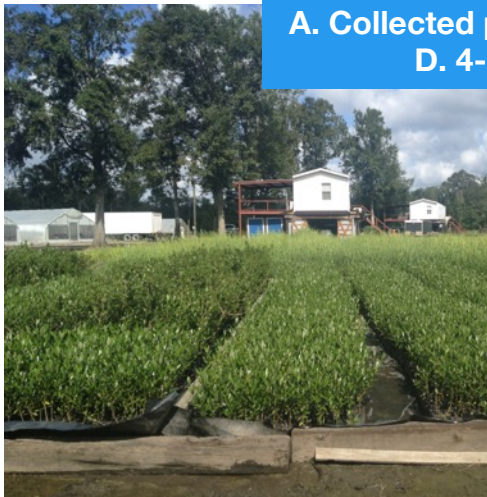
**Certified Seed Stock
DNA Fingerprinted by
LSU Agricultural Center*



Restorative Species from Collected Seed Stock



A. Collected propagules ready for potting B. Sprouting in the greenhouse C. 2 months old
D. 4-inch pots E. 1-gallon pots F. Root structure of established mangrove



Salt-tolerant Black Mangrove

Coastal Restoration Solutions: Example Projects

US Army Corps of Engineers

- West Bank and Vicinity (WBV) 100-year Hurricane and Storm Damage Risk Reduction System (HSDRRS) Project
- 960-acre habitat restoration
- Site clearing, site planting and maintenance
- Competitive bid as subcontractor via New Orleans 8(a) partner

US Fish & Wildlife Service, National Marine Fisheries Service

Lost Lake Marsh Creation Restorative Planting

- Grow, Pull, Pot, Plant, and Install
 - 13,600 plugs
- Competitive bid, direct award Agency RFP

Coalition to Restore Coastal Louisiana

- Projects from 2012-2015
- Provides 90% of all the plants for CRCL volunteer plantings
 - Lake Hermitage, Louisiana 50,000 smooth cordgrass grown and delivered
 - Fourchon, Louisiana 10,000 black mangroves and seashore paspalum grown and delivered
 - Holly Beach, Louisiana 70,000 3" pots of bitter panicum grown and delivered
 - Holly Beach, Louisiana 60,000 3" pots of bitter panicum grown and delivered



Coastal Restoration Solutions: CPRA Projects

Chaland Headlands Vegetative Plantings and Sand Fencing (BA-38)

Berm Planting and Supply

Grow, Pull, Pot, Plant, and Install:

2.4 miles of restorative beach planting

Smooth cordgrass: 16,400 1-gallon pots

East Grand Terre (BA-30)

Jefferson Parish, 5 miles east of Grand Isle,

Waterborne Planting

65,000 plants in 4" pots or 1 gallon pots grown, delivered and installed

Grow, Pull, Pot, Plant, and Install:

Smooth cordgrass: 20,000 plugs

Bitter panicum: 19,200 containers

Gulf bluestem: 3,200 containers

Marshhay cordgrass: 6,400 containers

Sea oats: 3,200 1-gallon pots

Shoreline Protection Emergency Restoration

North Perimeter of Barataria Bay, Bay Jimmy,

Plaquemines Parish

Grow, Pull, Pot, Plant, and Install:

Smooth Cordgrass: 13,088 1-gallon pots

Cameron Creole Sand Fence Removal and Installation

Removed and disposed of 5 miles of sand fence

Installed 5 miles of sand fence

Completed and pass final inspection

Lake Hermitage Vegetative Planting – winning bidder- 2015

Coastal Protection and Restoration Authority of Louisiana

125,000 plugs of smooth cordgrass grown, delivered and installed

125,000 4" pots of marshhay cordgrass grown, delivered and installed

West Belle Pass Barrier Headland Restoration (TE-52) - Barrier Headland and Marsh Creation at Caminada Headlands

70,000 plants of 4" pots and 1 gallon pots grown, delivered and installed

Grow, Pull, Pot, Plant, and Install:

9,300 linear feet of beach and dune restoration;

150 acres marsh restoration

Smooth cordgrass: 6,000 plugs

Seashore paspalum: 8,000 containers

Bitter panicum: 16,400 containers

Seacoast bluestem: 4,100 containers

Seashore dropseed: 8,200 containers

Marshhay cordgrass: 6,150 containers

Sea oats: 12,300 1-gallon pots

Private Restoration Industry: Lessons Learned

Clients

- Performance-based Approach
 - ✓ Timeliness of Project delivery and Permit issuance
 - ✓ Budgets met and Cost goals met
 - ✓ Stewardship and Financial Assurances

Regulatory Agencies

- Requirements - minimum standards
 - Location
 - Elevation
 - Project life with Monitoring and Maintenance
 - Borrow source
 - Vegetative stabilization
 - Land control requirements
 - Financial assurances

State Programs: Leveraging the Private Sector

State Programs

- North Carolina Ecosystem Enhancement Program (DMS)
 - ✓ Full Delivery since 2002
 - ✓ RFP process
 - ✓ Definition of units purchased
 - ✓ Over 80% performed by private sector now *but less than 30% when program started*
- State DOTs throughout the Country: Turnkey
- County and State Governments for Stormwater Compliance: Turnkey

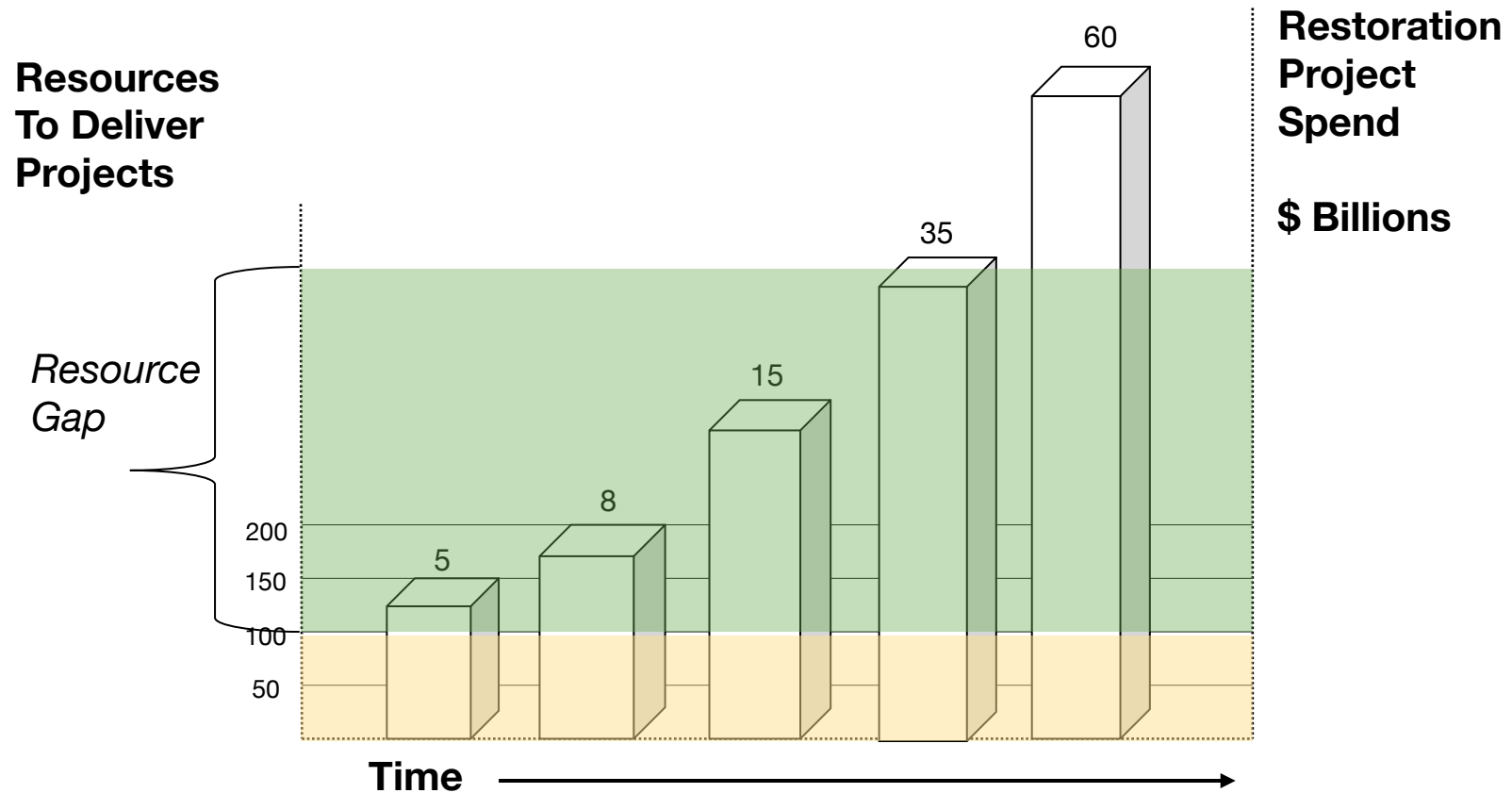
Key Success Factors

- ✓ Refined Procurement Procedure
- ✓ Comparative Cost Accounting
- ✓ Liability Transfer
- ✓ Simple Approval Processes and Certification

RES Louisiana Recommendations

- Recognize the sense of urgency and the potential key role of the private sector in delivery of restoration solutions
- Publish standard costs, performance standards and project timeframes to challenge the private sector
- Enable access to private risk capital through programmatic procurement initiatives
- Treat Coastal Restoration like a crisis and access resources now
 - Think Hurricanes, Storm Surges and Flood Events

Apply Private Sector Resources



Summary

Strong Economic Case for Restoring Coastal Ecosystems Now

- Loss of wetlands and developable land to sea level rise and erosion, as well as increased salinity of groundwater supplies and estuaries, affect agriculture and commercial fisheries, in addition to residential and economic development.

Real Costs of Inaction

- Loss of our economic engine
- Dollar costs double in the next couple of decades

Act with Urgency....We are on the Brink...Let's Get this Done