

Why Does CPRA Monitor Projects?

- To determine if project goals and objectives are being met
- To assess if adaptive management should be implemented to reach desired outcome
- To gather data that can inform the design, construction, management and monitoring of similar restoration projects

BA-39 Project Goal and Objectives

Goal

To create sustainable marsh in an area that was primarily open water and remnant marsh using sediments dredged from the Mississippi River

Objectives

- *Create 372 acres of marsh
- *Nourish 99 acres of marsh

Location of BA-39 Project Area



BA-39 Monitoring Elements

- Land-Water Analysis (2012, 2018)
- Topographic Surveys (2010, 2011, 2014, 2016)
 - Soil Properties (2010, 2014, 2019)
 - Vegetation (2010, 2011, 2015, 2018, 2021)
- RSET/Accretion (biannually since 2011–2020, not reported until 5 years of data have been collected)

Data analyzed for 2013 OM&M report collected between

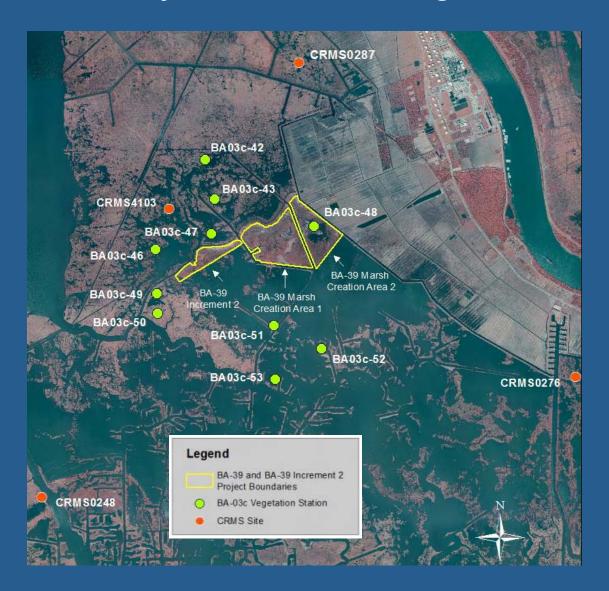
January 2010-December 2012

.

BA-39 Project Area Monitoring Stations



BA-39 Reference Monitoring Stations



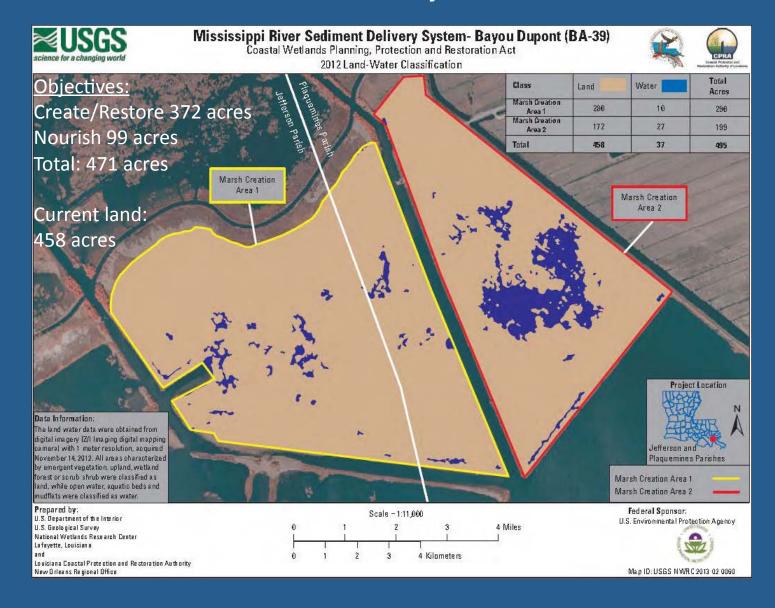
BA-39 Pre-construction Imagery



Google Earth aerial imagery of the BA-39 project area acquired pre-construction on 10/11/2007



Land-Water Analysis (11/14/2012)

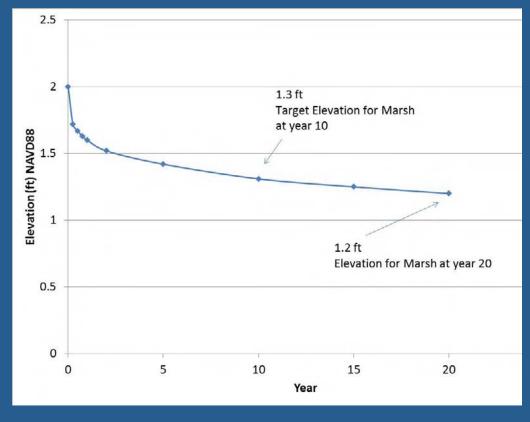


BA-39 Project Area Elevation

Target construction elevation: +2 ± 0.3 feet NAVD88

Project area target elevation: + 1.3 feet NAVD88

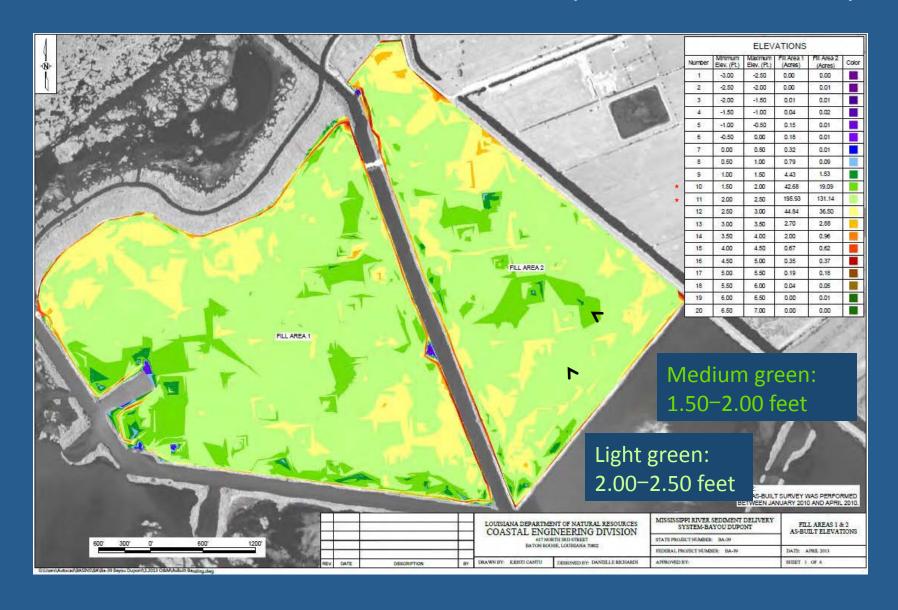
- * Marsh target elevation predicted to be reached at year 10 (2020)
- * Elevation was determined based on the elevation of nearby, healthy marsh
- * This elevation should provide the optimum conditions to support healthy marsh in the intertidal zone



Topographic Survey (As-Built) (01/2010–04/2010)

- Survey transects spaced 500 ft apart
- Points taken every 50 ft along transect
- Survey Results: Majority of the project area was constructed to the targeted elevation
 - * 80% (389 acres) of the project area between 1.5–2.5 feet (Fill Area 1 and Fill Area 2)
- Elevations > 3.0 ft are primarily due to surveyed containment dikes and natural ridges

BA-39 As-Built Elevation (01/2010-04/2010)



Topographic Survey ("Year 1") (10/2011–01/2012)

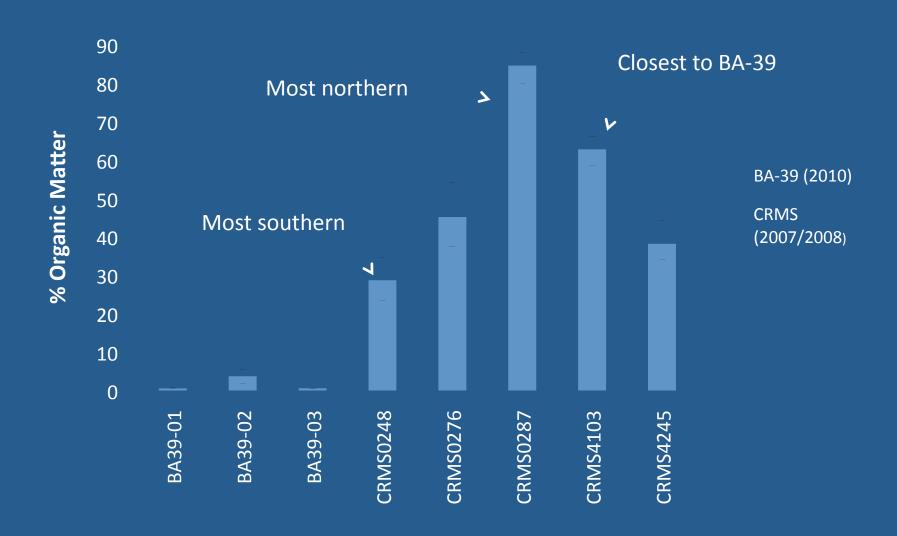
- Conducted 1.5–2.0 years after the As-Built survey
- Largest % of project area is at the predicted elevation (based on +2 ft NAVD88 construction):
 YR 1: 1.6 ft NAVD88, YR 2: 1.5 ft NAVD88
- Significant % of BA-39 is still at a higher elevation

BA-39 Elevations (10/2011-01/2012)			
Elevation Range (NAVD88)	% Fill Area 1	% Fill Area 2	% Increment 2
1.0 ft-1.5 ft	14.7	21.6	8.1
1.5 ft - 2.0 ft	49.0	47.2	50.1
2.0 ft −2.5 ft	29.1	25.3	39.8
SUM	92.8	94.1	98.0

BA-39 Year 1 Elevation (10/2011-01/2012)



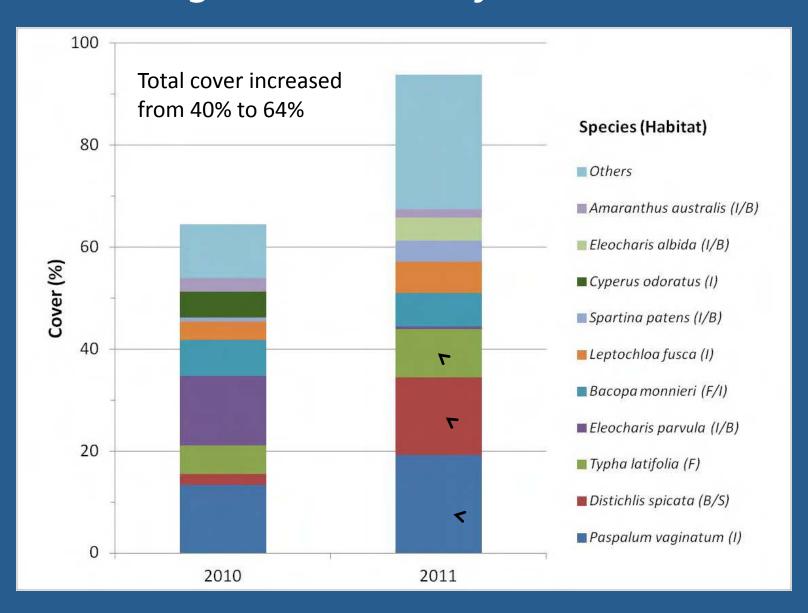
% Organic Matter of SedimentBA-39 Project Area vs. Surrounding Marsh



Vegetation

- Strive to encourage growth of a marsh habitat comprised of native vegetation species that are found locally in natural, healthy marsh
- Vegetation data can be an excellent assessment tool
 Will help in determination of whether land is actually
- Challenges:
 - Source of recruitment?
 - Plantings may be required
 - * 21,000 *Spartina alterniflora* (smooth cordgrass) plugs-Brazoria cultivar
 - * 5,000 *Paspalum vaginatum* (seashore paspalum) plugs-Vermilion cultivar
 - Proper elevation and tidal regime?

Vegetative Cover for BA-39



Paspalum vaginatum, Seashore paspalum

- * 5000 plugs planted (Brazoria cultivar)
- * Greatest cover averaged between years (16% cover)
- * Salt-tolerant, fast-growing species that grows well in inorganic, sandy sediments with periodic inundation. Thrives in **intermediate** marshes.





Distichlis spicatum, Saltgrass

- * 2nd most abundant plant averaged between years (9% cover)
- * Greatest increase between years (2% to 15%)
- * Brackish/saline marshes: natural component of the marsh Fresher marshes: often considered a disturbance species





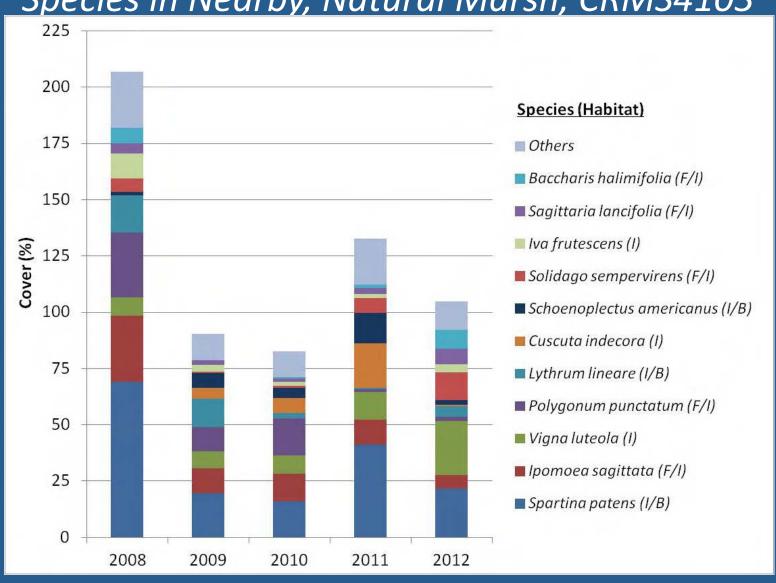
Typha latifolia, broadleaf cattail

- * 3rd most abundant species over years (8% cover)
- * Typha latifolia can grow aggressively, crowding out other species and resulting in areas of dense, monospecific stands
- * Grows well in areas that are inundated with freshwater

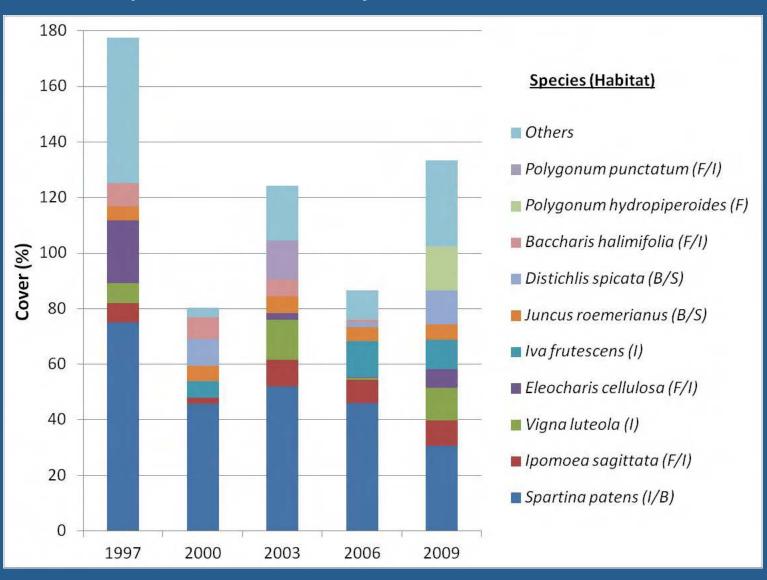




Species in Nearby, Natural Marsh, CRMS4103



Dominant Species in Nearby, Natural Marsh, BA-03c



Dominant Plant Species in Surrounding Marsh (CRMS4406, S. patens)



•

Dominant Plant Species in Surrounding Marsh (CRMS4103, I. sagittata)



•

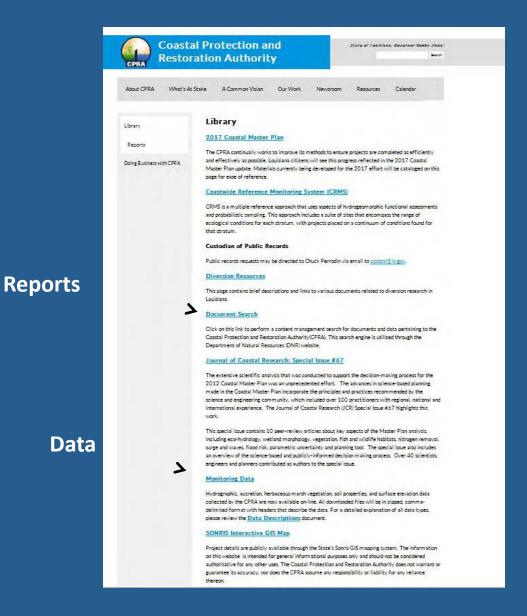
Dominant Plant Species in Surrounding Marsh (CRMS4103, V. luteola)



Conclusions

- 458 acres of land have been created/restored/nourished in project area. 2018 land-water analysis will provide information on whether the areas with standing water are filling in with vegetation.
- Sediment is generally settling as predicted. Higher in some areas due to higher initial fill.
- Sediment is highly inorganic, but in time will likely increase in organic content.
- Vegetative cover is increasing!
- Species composition is different from the local marsh community, but will likely transition into a community that more closely resembles natural marsh. Will take time!

CPRA's website: http://coastal.louisiana.gov/



CRMS website: http://www.lacoast.gov/crms2/ Home.aspx

Danielle Richardi Coastal Resources Scientist 504-280-1007 Danielle.Richardi@la.gov









As-Built Plantings

