

Plant and Soil Characterizations in a *Spartina alterniflora* Saltmarsh Experiencing Dieback in Terrebonne Parish, Louisiana, USA.

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Study Initiated: October 2001 **Anticipated Completion Date:** August 2002

Funding Source: Louisiana Department of Natural Resources

Study Site Location(s): Terrebonne Parish, Louisiana

Keywords (highlight or circle):

<i>Avicennia</i>	<i>Juncus</i>	Restoration	Transplants
Climate	Mapping	Salinity	Water chemistry
Elevation	Microbes	<i>Spartina</i>	Other:
Fauna	Monitoring	Photography	
Greenhouse	Nutrients	Sediment	
Herbivory	Plant tissue analysis	Soil chemistry	
Hydrology	Remote sensing	Toxins	

Project Type:

Descriptive	Experimental	Restoration	Modeling
Other Monitoring			

Project Outline:

Specific Aims

- To monitor and make observations at healthy and dieback sites in Terrebonne Parish, Louisiana.
- Determine differences (if any) between dieback affected marsh and healthy unaffected marshes.
- Determine factors that possibly caused the event.

Methodology

Established sites at each location: Affected and Reference marshes

Established 4 plots (1 m²) at each affected and reference locations and collect the following:

Physicochemical analysis

Surface, 15 cm and 30 cm interstitial depths

Salinity

Sulfides
pH
Nutrients (N+N, PO₄, NH₄)

Plants-Live and Dead
Max height, Average height
Stem counts
Plant stress categories

Boardwalk Transects
Determined the percentage of unvegetated substrate at each site.

Results to Date

Salinity BJU: The highest (25 ppt); other sites 15 - 20 ppt
All sites: Drop in December 2001, January 2002

pH BDU, BJU: Peak in March 2002 (7.8)
OOB: Drop March 2002 (6.5)

Sulfides OOB: Highest (mean 5-7 mmol)
BJU: Live > Dead
All sites: July 2002 peak
BSA: January 2002 peak
OOB: March 2002, September 2002 peaks
OOB: Lagged other sites

Vegetation Dead Sites: Increased stem density over time
Live Sites: Decreased stem density in Spring / Summer 2002
Revegetation: >80% at all Dead sites
Regrowth is tall and robust

Lessons Learned

Possibility of a combination of factors which influenced the dieback.

Publications, reports, or web-accessible materials

Reports are being produced and finalized in house, and are not ready for publication

Suggested citation: Georgia Coastal Research Council, 2004. Proceedings of the Marsh Dieback Workshop, held February 3-4, 2004, Savannah Georgia.