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):
- *Avicennia*
- Climate
- Elevation
- Fauna
- Greenhouse
- *Herbivory*
- Hydrology
- *Juncus*
- Mapping
- Microbes
- Monitoring
- Nutrients
- Plant tissue analysis
- Remote sensing
- Restorations
- Sediment
- Soil chemistry
- Spatina
- Salinity
- Sediment
- Surface, 15 cm and 30 cm interstitial depths
- Salinity
- Transplants
- Water chemistry
- Other:

**Project Type:**
- Descriptive
- Experimental
- Restoration
- Modeling
- 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