

Investigation of Potential Causes of Salt Marsh Dieback in Georgia: a Transplant Study

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Study Initiated: May 2003 **Anticipated Completion Date:** November 2003

Study Site Location(s): Georgia -- Liberty County (Melon Bluff Plantation), McIntosh County (Sapelo Island).

Keywords: *Juncus*, Nutrients, Salinity, *Spartina*, Soil chemistry, Transplants

Project Type: Descriptive, Experimental

Project Outline

Specific Aims

- To determine if *Spartina alterniflora* and *Juncus roemarianus* survive when transplanted into dieback areas or recover when transplanted from live/dead transition zone to healthy areas.
- To determine if any measured parameters correlate to vegetative dieback.

Methodology

- Four sets of transplants in different types and locations of dieback (Melon Bluff – creekbank *S. alterniflora*, high marsh *S. alterniflora*, high marsh *J. roemarianus*; Sapelo Island – creekbank *S. alterniflora*).
- Site prep:
 - 12 replicate transplants (20 inch pots) per treatment
 - Treatments
 - Healthy plants to dead area
 - Healthy plants to healthy area (control)
 - Live plants from dead border to healthy area (Sapelo creek bank *S. alterniflora* and Melon Bluff high marsh *S. alterniflora* only)
 - Live plants from dead border to dead area (control) (Sapelo creek bank *S. alterniflora* and Melon Bluff high marsh *S. alterniflora* only)
- Monitored Parameters
 - Vegetation
 - Stem count (by species)
 - Stem height
 - CNS ratio
 - Physical
 - Porewater pH, salinity, NH₄ and Eh
 - Surface elevation

Results to Date

- All plants grew and survived
- Healthy plants survive in dieback areas and grow just as well as in reference sites
- There was no difference in porewater pH, salinity, or redox potential between dieback and reference sites
- High concentrations of porewater NH_4^+ were found in the dieback sites, likely due to decomposition of root and rhizome material.

Lessons Learned**Publications, reports, or web-accessible materials**

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