Proffitt, C.E., USGS National Wetlands Research Center, Lafayette, LA; K. **Edwards**, University of South Bohemia, Czech Republic; S. **Travis**, USGS National Wetlands Research Center, Lafayette, LA; A. Owens, R. Chiasson, University of Louisiana at Lafayette, Biology Dept., Lafayette, LA; J. Egerova, McNeese State University, Lake Charles, LA

FIELD EXPERIMENTS INVOLVING *SPARTINA ALTERNIFLORA* IN SALINE WETLANDS CREATED FROM DREDGED SEDIMENT: COLONIZATION, GROWTH, AND INTERACTIONS WITH OTHER PLANT SPECIES

Our studies in saline marshes created from dredged sediments showed that *Spartina alterniflora* and *Salicornia bigelovii* were important early dominants and "engineered" the system through their primary production and alteration of microenvironmental conditions. S*. alterniflora* also functioned to facilitate colonization by some other plant species. *Spartina alterniflora* populations colonized first by drifting root mats followed by clonal growth, seed production, and seedling recruitment. Colonization and rapid clonal growth of S*. alterniflora* occurred throughout the entire 200 ha site, even at higher elevations where other plant species generally dominate. *Salicornia bigelovii* colonized by seed and became a co-dominant within a couple of years in areas that were not frequently flooded, which, in this case, was most of the site. A field experiment showed that 5 genotypes of S*. alterniflora* varied in some growth parameters (mean height and total stern length), but not others (total stem density and flowering stem density), and differed in their response to an 11.8 cm elevation gradient. S*. bigelovii* experienced extensive density and plant size reductions when overgrown by S*. alterniflora* clones. At mid-tidal elevations, experimentally-planted clones facilitated recruitment and growth of other plant species (e.g., *Aster subulatus*, *Atriplex patula*, and *Baccharis halimifolia*) after 31 mo. This effect was greater in clone centers where natural senescence had produced a donut shape with greatly reduced S. *alterniflora* stem densities. A fertilization experiment indicated that center senescence of clones is not a simple function of lack of nutrients.

Presented at SWS 24th annual meeting New Orleans June 8-13, 2003