A Systems Approach: Developing Cross-Site Multiple Drivers to Understand Climate Change, Sea-level Rise and Coastal Flooding for an African American Community in Portsmouth, VA

Micropropagation of salt tolerant ornamentals and grasses in flood prone locales
Project Overview
The Tissue Culture

- Smooth Cord Grass (*Spartina alterniflora*)
  - Cultured on MS media enhanced with branching hormones
- Other test species
Microclone Plant Tissue Culture Kit

- Branching media
  - Multiplication media for woody plants (contains TDZ)
  - General multiplication media for herbaceous plants (contains BA)
- Rooting Media
  - General rooting media for both woody and herbaceous propagules (contains NAA)
Developing an SOP

- Detailed literature review
- Exhaustive survey of various tutorial videos on plant tissue propagation
- Writing my own protocol
Inserting *S. alterniflora* explants
Culture of *S. alterniflora*

http://www.biologyjunction.com/plant_structure_b11.htm
Purpose

- Epigenetics is an emerging field
  - Rather than focusing on the genome as a whole, epigenetics focuses on those genes which are expressed
  - Our experiments aim to study a few of the mechanisms that change gene expression
Experimental Phase

- DNA Isolation will be done on the populations before and after both greenhouse experiments and establishment *in situ*
  - Epigenetic variation
  - Identify genotypes with favorable salt stress potential
  - Develop efficient propagation protocol
  - Tissue culture of these genotypes will more reliably reproduce the desired genetic signature
Next Steps

- Continued propagation of the test species
- Selection of field sites
- Designing greenhouse and laboratory protocol
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